Chapter 2  Argument Structure

Each category affects the grammaticality of a sentence differently. For verbs, the most conspicuous property is transitivity, which we investigate in this chapter. Following the convention in theoretical syntax, the subject and object(s) of a verb are called its arguments, and the semantic relation between a verb and any of its arguments called a thematic relation. The first section introduces the basic properties of thematic relations and demonstrates how they can help explain certain linguistic phenomena. A few recent attempts to understand the nature of thematic relations are critically reviewed in Section 2. An alternative theory is proposed in Section 3.

2.1. Arguments and theta-roles

It is obvious to any linguistically minded observer that in a typical\(^1\) active sentence built around a transitive action verb, such as *ta chang minge* ‘she sing folk.song’ or *ni xie shi* ‘you write poem’, the subject argument is always the one initiating and performing the action while the object argument is always what is acted upon. This simple fact suggests the possibility that not every detail in the thematic relation between an argument and a verb matters in syntactic computation. For instance, *ta* ‘she’ and *ni* ‘you’ are subjects only because these NPs represent the “doers” of the actions; whether an action is done through singing or writing has no effect on qualifying an NP as the subject argument.

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\(^1\) By “typical”, we hope to leave room for certain uses of transitive verbs where no Agent or Patient/Theme argument is required. Cf. Sections 2.2 and 2.3.
Based on this fact, thematic relations are classified into types. Agent is the relation where the argument is the doer/initiator, Patient labels the “do-ee” argument, Theme is for the argument that undergoes change, and a few others like Beneficiary, Goal and Source all represent self-explanatory relations. The guiding principle here is that such relations are identified because of their relevance to syntax. A metaphor is typically adopted to talk about this aspect of language: Agent, Patient, etc. are called thematic roles\(^2\) (theta-roles); a lexical word W, usually a verb, is said to have a certain number of theta-roles to assign to arguments; the set of theta-roles that W has for assignment is referred to, somewhat confusingly for historical reasons, as W’s argument structure.

2.1.1. Basic properties of theta-roles

Recall that in a typical active sentence, Agent is always assigned to the subject and Patient to the object. One way to look at this correlation is that theta-roles are intrinsically ranked with Agent being the highest in the hierarchy, Patient being lower, and so on. It is already well established that arguments are structurally ranked in the syntactic structure in the sense that the subject is more prominent than the object(s). The precise nature of this structural prominence will become clear later. For now, it will suffice to hypothesize a linking operation in the human language faculty that aligns the thematic hierarchy among theta-roles with the structural hierarchy among syntactic arguments.

Another property of theta-roles is shown with the examples in (1):

\(^2\) See Gruber (1965) and Jackendoff (1972) for initial works on this concept.
(1) a. tamen gei-le jingli *(yi-fen baogao).

            they give-LE manager a-CL report

            ‘They gave the manager *(a report).’

b. ta zou-le (*women).

            he walk-LE us

            ‘He walked (*us).’

Out of context, (1a) is unacceptable without the second object yi-fen baogao ‘a report’. It is intuitively clear why this is so: the verb gei ‘give’ has three theta-roles to assign, namely Agent, Goal and Theme, but in the bad sentence, there are only two arguments to receive them -- tamen ‘they’ as Agent and jingli ‘manager’ as Goal. There is no other argument available for assignment to the Theme role. In another words, (1a), as well as its direct translation in English, justify the cross-linguistic generalization in (2):

(2) a. Every theta-role must be assigned to an argument.

(1b) proves the inverse of (2a) to be true as well. The postverbal NP women ‘us’ makes the sentence bad because semantically, it cannot be integrated with the rest of the

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3 Unlike its English counterpart, a sentence like (1a) might be allowed if a report is mentioned earlier in the discourse. This doesn’t pose a problem for our analysis because there is independent evidence that languages like Chinese but not English use a phonetically empty constituent as the “missing” object in the presence of a discourse topic. See Chapter 6 for relevant discussions. Also see Sections 2.2 and 2.3 for another property of Chinese verbs, that the thematic relations a verb holds with its arguments are not as restricted as in many other languages.
sentence. Again, the explanation is simple: with the meaning of ‘walk’, zou has only one theta-role to assign, the Agent role, but there are two NPs in the sentence. Hence we arrive at the statement in (2b):

(2)  b. Every argument must receive a theta-role.

Together, (2a-b) constitute the theta-criterion.

2.1.2. **Chinese resultative compounds: A case study**

That theta-roles do more to language than classifying the semantic types of arguments is best illustrated by resultative compounds in Chinese. A couple of examples are given below, with the compounds marked out in bold face:

(3)  a. tamen **za-sui-le** yi-kuai boli.

they pound-broken-LE a-CL glass

‘They smashed a piece of glass.’

b. wo **zhui-lei-le** ta le.

I chase-tired-LE him SFP

i. ‘I chased him, which made him tired.’

ii. ‘I chased him, which made me tired.’

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4 Much of this section is based on Y. Li (1990).
The two verbal morphemes\(^5\) in each compound are in a causal relation, with the one on the left (hereafter referred to as V1) indicating a causing event and the one on the right (V2) indicating the resulting event. The most common form of the compound is found in (3a), in which V1 is a transitive verb, V2 is an intransitive, and the object NP *yi-kuai boli* ‘a piece of glass’ is understood as having been pounded on and consequently broken. The semantics of this interpretation can be easily captured if certain theta-roles from V1 and V2 merge into a composite theta-role as the verbal morphemes merge into the compound. (4) below illustrates this thematic composition, called theta-identification in Higginbotham (1985), by giving the argument structures of V1, V2 and the compound:

\[(4)\]

\[
\begin{align*}
za & \text{ ‘pound’: } <\text{Agent} <\text{Patient}> >^6 \\
\text{sui} & \text{ ‘broken’: } <\text{Theme}> \\
za-\text{sui} & \text{ ‘pound-broken’: } <\text{Agent} <\text{Patient-Theme}> >
\end{align*}
\]

The *theta-identification* of the Patient role from V1 and the Theme role from V2 is indicated with a hyphen. Once theta-identified, the two theta-roles are assigned together to the object NP, yielding the reading in (3a).

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\(^5\) For the purpose of this discussion, we will not distinguish A from V, given the fact that both categories can directly function as the predicate in a clause (cf. Chapter 1, Section 1.1.3) and a resultative compound essentially puts two [F0, +V] words into a bigger [F0, +V] word.

\(^6\) Pairs of angled brackets are used to reflect the thematic hierarchy. The fewer pairs a \(\theta\)-role is surrounded with, the higher it is ranked in the argument structure. This notation is from Y. Li (1995). Grimshaw (1990) uses parentheses for the same purpose.
From the point of view of linguistic computation, theta-identification is a random process. Under certain conditions, one of which may be pragmatics, a resultative compound can be ambiguous, as shown in (3b). In terms of thematic composition, therefore, the single theta-role of V2 may be optionally identified with either the Agent role or the Patient role of V1:

(5) zhui ‘chase’: <Agent <Patient>>

lei ‘tired’: <Experiencer>

zhui-lei ‘chase-tired’: <Agent <Patient-Experiencer>> or <Agent-Experiencer <Patient>>

It is this option that allows either the subject or the object of the compound in (3b) to be understood as the one becoming tired from chasing. In fact, even theta-identification itself is optional in the context of resultative compounding. Consider the examples in (6), with the corresponding argument structures in (7). Given the general nature of this analysis, we use θ1, θ2, etc. to represent theta-roles in our discussion in place of specific labels:

(6) a. ta xiao-feng-le.

he laugh-insane-LE

‘He laughed to the extent that he became insane.’

b. ni ku-zou-le henduo keren.

you cry-leave-LE many guest
‘Your crying made many guests leave.’

(7) V1: <θ₁>

V2: <θ₂>

V1-V2: <θ₁-θ₂> (for (6a)) or <θ₁ <θ₂>> (for (6b))

We leave it to the reader to verify that the argument structures of the V1-V2 compound in (7) indeed corresponds to the semantics of the examples in (6).

At this point, one naturally wonders whether the creation of the composite argument structure for the compound out of those of V1 and V2 is subject to any restrictions. It is. First, though theta-identification is an optional process in itself, its actual application is partially driven by the Case Filter (as introduced in Chapter 1). Consider (5) again. When the two verbal morphemes collectively have three theta-roles, each of them expected to be assigned under the theta-criterion in (2a-b), three NP arguments would be needed. However, the Case Filter requires that every NP receive a Case. In the context of a typical clause which contains a verb, in this case the compound, and no other Case-assigners, there are maximally two Cases, one for the subject and one for the object. This limit on the number of available Cases effectively forces two of the three theta-roles to be merged into one so as to be assigned to a single NP. Provided that this merging can satisfy the Case Filter, it is up to the speaker to decide how exactly to implement theta-identification. This is the source of the ambiguity in (3b)/(5).

Support for this analysis comes from the correct prediction it makes: that no theta-identification is needed precisely when the total number of Cases available matches that
of the theta-roles from V1 and V2. The example in (6b) already illustrates one possible scenario where this may happen: When V1 and V2 together have two theta-roles, the compound may assign them separately to the subject and object, each receiving a Case in a typical clause. Note that theta-identification may still take place so that the compound has one composite theta-role, as shown in (6a). In terms of theta-role and Case assignment, the compound with such an argument structure is no different from a monomorphemic intransitive verb. Chinese also has ways to provide extra Cases in a clause, one of which is the use of the morpheme *ba*. Certain semantic and syntactic details of *ba* will be investigated in Chapter 5. It suffices for now to simply recognize the fact that *ba* can license a third NP in a clause:

(8)  ta  **ba** naxie tudou qu-le pi.

    he  BA  those potato  remove-LE  skin

    ‘He peeled those potatoes.’

As is typical of transitive verbs, *qu* ‘remove’ provides Cases only to the subject *ta* ‘he’ and the postverbal object *pi* ‘skin’. So *ba* must be the provider for the Case needed by *naxie tudou* ‘those potatoes’. With this in mind, consider the following example:

(9)  a. (?)ta  ba  wo chang-wang-le  yi-tian-de fannao.

    he  BA  me  sing-forget-LE  a-day-DE worry

    ‘His singing made me forget the whole day’s worry.’

b.  chang  ‘sing’: <Agent>
wang ‘forget’ <Experiencer <Patient>>

chang-wang ‘sing-forget’: <Agent <Experiencer <Patient>>>

The three theta-roles from V1 and V2 are assigned individually to three NP arguments in (9), one of which receives a Case from ba. No theta-identification is necessary.

The second restriction on composite argument structure formation can be appreciated, again, by considering (6b), where the two theta-roles are not identified.

Taking for granted that the event in question is one party’s crying leading to the other party’s leaving, why can’t (6b) mean that many guests’ crying made you leave? To obtain this reading, the same compound ku-zou ‘cry-leave’ would need the impossible argument structure in (10):

(10) cry: <θ1>

    leave: <θ2>

    cry-leave: *<θ2 <θ1>>

In Y. Li (1990) and (1993), it is suggested that, of the two verbal components in the compound, V1 serves as the morphological head. It is a well-established fact that certain key properties of the head H are always maintained in the word containing H (cf. Lieber 1983, Di Sciullo and Williams 1987). For instance, in xiao-hai ‘little-child’, xiao is A in

7 The most direct support for this claim lies in comparing resultative compounds in Chinese and in Japanese, the latter being a well-known head-final language. Y. Li (1993) shows that the different locations of the head lead to differences in the two languages both in the semantic behavior of the compound and the transitivity options of its components. The reader is referred to the original work for details.
category and *hai* is N; the whole compound is N, inheriting the category from *hai*, the head of the word. Extending the list of inheritable properties to thematic information, it is proposed in Y. Li (1990) that the prominences of the theta-roles of the head, i.e., V1, must not be altered in the resultative compound. Since theta1 is, trivially, the most prominent role in the argument structure of V1, it must stay as the most prominent in the composite argument structure of the compound. This explains why (10) is ungrammatical, where θ1 is placed lower than θ2 from V2, the non-head. Meanwhile, since no similar restriction applies to V2, θ2 may be either treated as a less prominent theta-role in the argument structure of the compound, or it may be merged with θ1, as seen in (6).

### 2.1.3. Compounds vs. phrases

We start with a brief introduction of the basic theory for phrase structure. There is no doubt that language employs some combinatorial algorithm so as to construct a potentially infinite number of phrases and clauses from words. A major task of syntax is to figure out what this algorithm is. The most widely adopted hypothesis at the moment is the X’-theory, initially proposed in Chomsky (1970) and revised into the current form via the works of many subsequent researchers:

(11)
X is a word/morpheme and serves as the head of its own phrase, XP. ZP is the *complement* of X. When X is a lexical item such as a verb (cf. Chapter 1, Section 1.2), ZP would be called the object of X in traditional terminology. The head and its complement combine, as indicated by the linking branches, to form a “sub-phrase” inside XP, labeled as X’. WP is the *adjunct*, performing the typical function of a modifier. Merging WP with X’ yields another X’. X’-theory itself imposes no intrinsic limit to the number of adjuncts inside any given phrase, i.e., XP may contain any number of X’ nodes. YP is the *specifier* (Spec) which corresponds to, among other things, the subject if X is a verb and the possessor if X is a noun.

In (11), X, Y, W and Z are variables ranging over all lexical and functional categories. In other words, this theory claims that the way a phrase is constructed is cross-categorial. (11) is also held to be cross-linguistic with respect to the hierarchical relations among the constituents in it. The most important hierarchical relation for syntax is *c-command*, defined as follows:

(12) Let A, B and C be any symbols in a tree, then

A c-commands B iff

a. neither A nor B contains the other, and

b. every C containing A contains B.

For instance, the specifier YP in (11) c-commands the complement, ZP, because neither of them is a component of the other (i.e., (12a)) and YP is part of XP which also contains
ZP (= (12b)). The same logic prevents ZP from c-commanding YP, as the reader can verify. While this asymmetric c-command relation between the specifier and the complement of the same phrase is taken to hold for all phrases in all languages, linear relations among constituents vary from language to language and sometimes perhaps from category to category. If the head precedes the complement, as in Chinese VP, the phrase structure is *head-initial*; if the head follows the complement, found in Japanese and Korean, then the phrase is *head-final*.

Now consider the examples below:

(13) a. ta sheng-chi-guo henduo shucai.
    he raw-eat-GUO many vegetable
    ‘He has eaten many (kinds of) vegetables raw.’

b. */ta sheng-zhe chi-guo henduo shucai.
    he raw-ZHE eat-GUO many vegetable
    Intended reading: Same as above.

c. henduo shucai, ta sheng-zhe chi-guo.
    many vegetable he raw-ZHE eat-GUO
    Same as (13a).

Upon first hearing it, native speakers’ judgments of (13b) vary somewhat, from marginal to downright bad, but everyone we consulted agrees that it sounds worse than the other two sentences. That (13a) is good is no surprise. The two morphemes, *sheng* ‘raw’ and *chi* ‘eat’, have the argument structures <θ1> and <θa <θb>>, respectively. In (13a), they
form a compound with the argument structure \(<\theta a <\theta b-01>>\). These theta-roles are assigned to the subject and object of the compound in syntax, yielding the reading that the object of the verb chi also refers to the material which is raw. As we would expect from the previous section, this is legitimate.

In contrast with (13a), sheng and chi in (13b-c) are in separate phrases, as indicated by the presence of the aspectual suffix zhe. Omitting many irrelevant details (via triangles, as is the convention), the VP structure of (13b) is given in (14):

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(14)
 VP
   NP1  V'
     XP  V'
       V  NP2
 he raw-ZHE eat-GUO many vegetables
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Whatever is the category of the phrase containing sheng ‘raw’ and the aspect marker zhe, the single theta-role of sheng needs to be assigned under the theta-criterion. Anticipating more substantial justification in later chapters, we assume that this theta-role is assigned to a phonetically empty pronoun, call it Pro, in the Spec of XP in (14). Cross-linguistically, a basic property of Pro is that its antecedent, if there is one, must c-command it (Chomsky 1981, Y. Li 1985, Huang 1989). In (14), NP2 doesn’t c-command the Pro inside XP, so it is not a good antecedent, and the poor acceptability of (13b) is explained.
This analysis receives support from its predictive power. First, it predicts that putting NP2 at the beginning of the sentence improves its acceptability. As (14) suggests, constituents occurring earlier in the utterance generally c-command those occurring later (cf. Kayne 1994). It follows that if the object *henduo shucai* ‘many vegetables’ is placed at the beginning of the sentence, it will c-command every other constituent, including the Pro inside XP. As a result, it becomes a legitimate antecedent for Pro. This is corroborated by (13c). Secondly, we also expect a good sentence if Pro can take the subject as antecedent, for the simple reason that the subject NP c-commands Pro, among other things. The examples below confirm this prediction:

(15) a. ta ku-su-le qinluezhe-de baoxing.
   he cry-tell-LE invader-DE atrocity
   ‘He complained about the invaders’ atrocities tearfully.’

b. ta ku-zhe sushuo-le qinluezhe-de baoxing.
   he cry-ZHE tell-LE invader-DE atrocity
   Same as (15a).

(15a) contains the compound *ku-su* ‘cry-tell’. If *ku*’s argument structure is $\theta_1$ and *su*’s is $\theta_a < \theta_b>$, the compound has the structure $\theta_1 - \theta_a < \theta_b>$. In (15b), *ku* heads a separate phrase and is suffixed with the aspectual marker *zhe*. The VP structure of this example is identical to the one in (14). But the subject of the whole sentence, *ta* ‘he’, is a semantically felicitous antecedent for the Pro inside XP. Since the subject also c-commands Pro, (15b) is 100% acceptable.
2.2. On the nature of theta-roles

Given the fact that theta-roles and thematic operations participate significantly in linguistic computation, as illustrated in the previous section, it is inevitable to wonder why theta-roles have the particular properties that they do. In this section, we review three works, Hale and Keyser (1993), T.-H. Lin (2001), and Borer (2005), which attempt to answer this question.

2.2.1. Theta-roles produced by the syntax

Hale and Keyser (1993) (hereafter referred to as H&K) are the first authors to attempt an explicit theory on the origin of theta-roles. Specifically, they hope to explain why there are so few theta-roles and why language links theta-roles to syntactic arguments in this particular manner (cf. 2.1.1).\(^8\) In their view, both of these properties of theta-roles result from a particular form of syntax in the lexicon.

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\(^8\) Actually, H&K’s second question is about the Uniformity of Theta Assignment Hypothesis (UTAH), as defined by Baker (1988):

i. Identical thematic relations are represented by identical syntactic relations.

The UTAH is a stronger condition on \(\theta\)-role assignment than simply aligning the thematic hierarchy with the syntactic hierarchy of arguments, as we introduced in 2.1 above. Since the content of this book doesn’t hinge on the UTAH, we will not bring it into the text. See Y. Li (2005) for a critical evaluation of its status in the human language faculty.
2.2.1.1. Hale and Keyser’s theory

The key assumption in H&K is given in (16):

(16) At the lexical level, a verb can be represented as a *lexical relational structure* (LRS) which is constructed only with the four lexical categories, V, N, A, P, associated with four elementary notional types: event, entity, state, and interrelation, respectively.

Given the $X'$-template in (11) minus the irrelevant adjunct, (16) produces four possible LRSs for verbs, in which the relation between V and its complement phrase translates to semantic “implication.” The LRSs based on A and P are given below:

(17) a.  

```
          VP
         /  
        NP  V'
       /   
      V    AP
```

b.  

```
          VP
         /  
        NP  V'
       /   
      V    PP
```

(17a) is the LRS for intransitive verbs like *clear* as in *The sky cleared*, with the adjectival root (hereafter represented as “$\sqrt{}$”, borrowing Pesetsky’s 1995 notation) $\sqrt{clear}$ heading

Also worth noting is that the theory in H&K differs in many ways from Hale and Keyser 2002. However, the essence of H&K remains intact in their later work, and the essence of our discussion in this section applies accordingly.
the AP. Semantically, it represents an event implicating a state. For H&K, this is interpreted as a “change resulting in a state (p. 73).” The subject of AP (= NP in the tree) is therefore understood as the Theme of the whole verb because it refers to an entity undergoing a change of state. In other words, the Theme role is nothing more than the semantic interpretation of the NP being in the Spec of VP in this particular LRS. The semantics associated with (17b) is an event implicating an interrelation, or in plainer words, the situation in which an entity, referred to by the NP, “comes to be involved in an interrelation (p. 71)” expressed through the PP. This LRS again expresses the meaning of change, so the NP also carries the Theme reading.

A verb also may be formed out of a nominal or verbal category. Rather than directly substituting NP and VP for AP and PP in (17), however, H&K propose two extra conditions for LRS:

(18) a. The Spec position of VP in the LRS representation of a lexical verb is filled only when forced by predication. (p. 76)

   b. NP and VP are not predicates in the LRS. (p. 76, p. 80)

The direct consequence of (18) is the following LRSs:

(19) a. 

```
  VP
 /  
V NP
```

b. 

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  VP
 /  
V VP1
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Given (18b), neither the NP in (19a) nor the VP1 in (19b) is a predicate; namely, neither supports an external subject. In the absence of an external subject, then, no constituent will fill the Spec position of the (upper) VP according to (18a). The LRSs in (19) illustrate the “Specless” LRSs. In contrast, since AP and PP are predicates, each has a subject. This forces the Spec position of the VP to be filled, as shown in (17) above.

The LRS in (19a) is for denominal verbs such as sneeze in *The colt sneezed*. This LRS explicitly codes the verb’s relation with the corresponding noun in *the colt had a sneeze*, translated as an event implicating an entity (e.g., a sneeze). H&L paraphrase (19a) as “the implicate event is completed, or perfected, by virtue of the ‘creation’, ‘production’, or ‘realization’ of the relevant entity (p. 74)”. (19b) describes an event implicating another event, the typical causal relation. This LRS also provides the basis for recursion. With VP being a possible complement of V, any basic LRS in (17) and (19) may occur as a complement, giving rise to new and more complex LRSs and hence more verb types. For instance, the LRS for the verb *put* is analyzed as substituting (17b) for VP1 in (19b), roughly paraphrased as someone “causing X to be in an interrelation with whatever is the object of P”. For reasons to become clear shortly, H&K also adopts (20) (cf. p. 78, 82), which is based on Marantz’ (1984) study of syntactic idioms (also see Kratzer 1996):

(20) The subject of the verb types in (19) are external to the LRSs and occur only in a clausal context. The relation between this subject and the VP is interpreted as Agent.
In summary, H&K propose that the two most fundamental theta-roles, Agent and Theme, are nothing more than relations between an NP and the rest of a given LRS, which is composed of some generic type of V and other lexical categories. In the literature, the generic verb type is often called a light verb\(^9\) and attributed with more graspable semantic content in the given context. In this tradition, a light verb is conventionally, though not necessarily accurately, expressed with a capital lettered verb – CAUSE for (19b), DO or HAVE for (19a), and BE or BECOME for (17a-b). This tradition is adopted in this section merely to facilitate discussion.

In support of this syntactic representation of a verb’s LRS, H&K offer arguments most of which are based on denominal verbs in English. Due to limited space, only two of their arguments are presented below for illustration. One of these concerns English denominal verbs, which show the following pattern:

(21) a. A cow calved.
   b. *It cowed a calf.

Assuming both of them to correspond to a cow had a calf, the generalization is then that a denominal verb can be formed only when the nominal root is understood as the object of

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\(^9\) The term light verb is originally used to referred to verbs like take and give in expressions such as take a walk and give him a kick, which are lexical verbs that are semantically “light” because the action is actually described by the nominal object. In current syntactic literature, a light verb is typically a structural or semantic component of a lexical verb and hence often has no independent phonetic form of its own. This is the sense used in the text.
the light verb HAVE, but not as the subject. This follows directly from (19a), repeated below with details:

\[(22)\]

\[
\begin{array}{c}
\text{VP} \\
V \\
\text{NP} \\
N' \\
N \\
\text{HAVE} \\
\sqrt{\text{calf}}
\end{array}
\]

By hypothesis, the nominal root, say \(\sqrt{\text{calf}}\), must be merged with the light verb in order to appear as a verb. In the current theory, this merger of two lexical categories is done through movement, as was systematically used first by generative semanticists in the late 1960’s and early 70’s and later populated by Baker 1988. Critically, \(\sqrt{\text{calf}}\) as the head of the object NP can move to HAVE because movement is known to obey the Proper Binding Condition (cf. Fiengo 1977, Lasnik and Saito 1993):

\[(23)\] Movement must target a c-commanding position.

In (22), \(V\) c-commands \(N\), so the nominal root may move to the light verb as desired. On the other hand, the subject of the whole VP (= \(\sqrt{\text{cow}}\) in (21b)) is not even part of the LRS.
in (22) because of (20). It follows that the head of the subject NP cannot be c-commanded by V at all. This is sufficient to block the merging of √cow with HAVE, and the contrast in (21) is thus explained.

The conditions in (18) and (20) are also used by H&K to account for the impossible examples in (24):

(24) a. *The clown laughed the child. (cf. The clown made the child laugh.)

b. *The alfalfa sneezed the colt. (cf. The alfalfa made the cold sneeze.)

As intransitive denominal verbs such as sneeze have the LRS in (19a), substituting this LRS for the VP complement in (19b) would generate (25), with √sneeze moving to V2 and V1 to produce the hypothetical causative variant of sneeze in (24b):

(25)

This LRS determines, however, that the alfalfa in (24b) is the Agent subject of CAUSE and the colt is the Agent subject of HAVE, and that both are necessarily outside the LRS and represented only via a clause. This variant of sneeze would be a “double-subject” verb. If each clause can only license one subject, there is no legitimate way in syntax to license both the alfalfa and colt, and the impossibility of (24) is expected.
Denominal locatum verbs such as *saddle* and *blindfold* provide another argument for H&K when compared with impossible verbs like *church* in the pair below:

(26) a. She saddled the horse.
   
   b. *She churched her money.

Taking the verbs in these examples to have the same LRS in (27) below, the question is why the noun root √*saddle* can become a verb whereas √*church* can’t.

(27) 

The answer lies with another UG principle that has the following effect:

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10 H&K paraphrased *church her money* in two different ways: *give a church her money* and *provide a church with her money*, but paraphrased *saddle the horse* only as *provide the horse with a saddle*. Meanwhile, the LRS they provide for both verbs seem to follow the *provide ... with* pattern. This illustrates an intrinsic weakness in semantic decomposition: how do we know for sure that a verb’s LRS takes one form but not another? We leave this question open.
(28) No constituent can move out of a non-complement phrase.

That is, non-complements (adjuncts and subjects) are ‘islands’ (in the sense of Ross 1967) that block extractions but complements are not.\textsuperscript{11} This straightforwardly prohibits N2 from merging with V1 (or V2), explaining the impossibility of (26b). On the other hand, N2 can move to P, V2, and finally V1, at each step moving out of a complement phrase and to the closest c-commanding position, in satisfaction of (28) and the Proper Binding Condition in (23). This explains the grammaticality of (26a).

\textbf{2.2.1.2. The critique}

H&K’s theory of theta-roles and syntactic LRSs for lexical verbs (which they call l-syntax in order to distinguish it from the conventional sense of syntax, referred to as s-syntax) is influential among scholars working on the interactions between the lexicon and the syntax. In this subsection, we evaluate some technical claims in their theory, hoping to arrive at a better understanding of the issues involved.

To begin with, we note that the essence of H&K’s proposal, that the general types of semantic roles of a lexical verb (i.e., theta-roles) are associated with the small number of lexical categories available in the lexical-relational decomposition of the verb, is independent of their particular utilization of the l-syntactic LRS. Suppose that a lexical verb may indeed be decomposed into various “atoms” (root and light verb(s)) but the

\textsuperscript{11} This falls under Huang’s (1982b) Condition on Extraction Domain (CED). H&K actually used a version of the Empty Category Principle (ECP) in Chomsky (1981, 1986b) to account for the data.
relation between these atoms are not syntactic, with “syntactic” meaning conforming to
the X’-structure and subject to various constraints at the sentential level (cf. (23) and
(27)). Dubbed as lexicalist, this alternative view on word-formation was first explicitly
articulated in Chomsky (1970) to counter the attempt at the time to unify both word-
formation and sentence-formation with syntactic tools. In a typical lexicalist theory, the
components of a word are directly concatenated and interpreted accordingly, without the
help of a syntax-like structure. For a representative of this approach, see Di Sciullo and
Williams (1987). In such a theory, one may still treat a theta-role as the semantic relation
resulting from combining a light verb with the lexical root of a particular category,
simply minus the syntactic structures shown in the previous subsection. With this in mind,
one way to evaluate H&K’s l-syntactic theory is to see how it compares with a lexicalist
alternative in accounting for various theta-role-related facts.

Suppose that we agree with H&K and adopt (20). Then the data in (21), which provides one of the arguments for H&K’s l-syntax, has an alternative explanation. In
particular, H&K’s decomposition of the denominal verbs calve and *cow in (22) can be
directly translated into the two lexicalist representations in (29), which we call lexico-
semantic structures (LSS) (with linear order between components for facilitating
discussions only):

(29) a. [ HAVE-√calf ]  →  calve (cf. (21a))
    b. [ √cow-HAVE ]  →  *cow (cf. (21b))
That (29a) is allowed is straightforward: the light verb HAVE requires an object in its basic semantics, and the noun $\sqrt{\text{calf}}$ fills the spot. The result is the intransitive verb *calve* meaning “to have a calf”. (29b), on the other hand, is in violation of the principle of Full Interpretation (FI; cf. Chomsky 1995, p. 151), which is also adopted by H&K:

(30) An element can appear in a representation only if it is properly interpreted.

According to (20), HAVE is incapable of supporting a subject until a VP is constructed from it in syntax. Because there is no VP (or any phrase) at the word-formation level under the lexicalist theory, $\sqrt{\text{cow}}$ in (29b) cannot bear the intended semantic relation with the light verb HAVE and thus has no interpretation. It follows from (30) that *cow* cannot be used as a verb this way. Note that both the lexicalist theory and H&K’s allow *cow* to mean “to have a cow”. Whether this reading is indeed available depends on factors outside the current concern. In sum, with assumptions such as (20), the contrast in (21) can be explained with the Proper Binding Condition in (23) through H&K’s l-syntactic LRS, but can also be naturally accounted for in a lexicalist theory which critically employs no syntactic LRS. In other words, this argument for their theory is weak in the sense that the data *can* be handled by the theory, not that the data *must* be handled by it.

Next consider H&K’s argument based on (26). Given their LRS of locatum verbs such as *saddle*, the generalization from (26) is that the head of the nominal complement may merge with a light verb to form a denominal verb, whereas the head of an NP in the Spec position may not undergo this process even when the NP is understood as an object of the whole denominal verb. For H&K, this fact follows directly from a general UG
principle (i.e., our (28)). However, this theory also wrongly rules out well-formed compounds such as *horse-saddling and *book-shelving. The LRS of these verbs is given below, adapted from (27):

N2 moves up via P, V2 and V1 to form verbs *saddle and *shelve, but N1 is prohibited from merging with any of these heads because of the ECD violation it would incur, for the same reason that *church the money is not possible (cf. (26b)). But this predicts horse-saddling to be bad, contrary to fact. It is also worth noting that this conclusion stays unchanged whether such compounds are formed in l-syntax or s-syntax, because for H&K, the l-syntactic LRS of a lexical verb is “inserted into an s-syntactic structure as a phrasal category, and its insertion will be grammatical if the point of insertion sanctions a verb phrase. (p. 95)” Minimally, this means that both l-syntax and s-syntax refer to the same structure, (31) in our case.
In comparison, a lexicalist theory of word-formation, without utilizing X’-structures and syntactic principles such as the CED, can handle the relevant data without a hitch. Let the LSS of *saddle* be something like [ CAUSE [ BE [ P \(\sqrt{saddle}\) ]]]. Since there is no known reason against associating such a structure with the argument via the Theme relation, *horse-saddling* is permitted in a trivial manner. We return with a more specific account in a later section. Overall, the data H&K use to argue for an l-syntactic theory of word-internal structure and theta-roles all have a straightforward lexicalist explanation, whereas certain compounds prove to be problems for them but not for a lexicalist theory. See Y. Li (in progress) for details in this regard.

### 2.2.2. What’s in a verb?

T.-H. Lin (2001) observes that the thematic relations between a Chinese verb and its arguments are more miscellaneous than those found in English. First consider the thematic interpretations of the subject:\(^{12}\)

(32) *ta kai-guozhe sou\(^{13}\) motuoting.*

he drive-GUO this-CL motorboat

‘He drove this motorboat before.’

---

\(^{12}\) All the examples in this section are ours, but where it matters, they confirm Lin’s original observation on the freer theta-relations between the verb and the subject/object in Chinese.

\(^{13}\) According to *Ci Hai*, this classifier may also be read as *sao*. 
This motorboat has already been driven for many years."

b.  

A motorboat can’t be driven on this river.

In (32), *kai* ‘drive’ is used as a transitive verb, as in any other language. Unlike English, however, the subject of the verb is not limited to being an Agent. (33a) shows a Theme subject and (33b) a Location, and in both examples, the verb form remains intact, in contrast to the required passive form in English when the Agent subject is absent (cf. the English glosses). To this observation, we also add the following fact:

This motorboat has already been cautiously driven for many years.

Intended reading: Same as (34a).

The adverb *xiaoxinyiyi de* implies an Agent. (34a) is perfectly acceptable, where this adverb is coupled with *bei*, a “passive” morpheme to be carefully examined in Chapter 4.
This is compatible with the general understanding that passives have an implied Agent.\textsuperscript{14}

In contrast, though native speakers’ judgment varies somewhat, (34b) without \textit{bei} is generally perceived to be less acceptable. The contrast can be explained if \textit{kai} ‘drive’ in (33a) and (34b) are truly Agentless for the purpose of syntax. The reason that (34b) is not totally ruled out can be attributed to a separate fact mentioned earlier: that Chinese allows a phonetically empty Pro subject. Those who find (34b) marginally acceptable perhaps try to treat an otherwise ungrammatical sentence as if it had an Agent subject in the form of Pro.

Chinese also differs from English in allowing non-Theme objects more freely:

(35) a. \texttt{ta kai-gu o weixian shui yu.}

he drive-GUO dangerous waters

‘He drove in dangerous waters.’

b. \texttt{ta xihuan kai shang wu.}

he like drive morning

‘He likes to drive in the mornings.’

c. \texttt{ta neng kai yibiao.}

he can drive instrument

‘He can drive only by instruments.’

\textsuperscript{14} For proposals that implement this idea syntactically, see Baker, Johnson and Roberts (1989), Feng (1995), Ting (1995, 1998) and Chapter 4.
As reflected through the English translations, the object in (35a) is actually a Location, the one in (35b) a Time, and the one in (35c) an Instrument. Before turning to Lin’s specific proposal, it should be pointed out that the situation is not as clear-cut as it appears. Even though Chinese allows *he da bei* ‘drink big cup,’ presumably another case of an Instrument serving as an object, it is nonetheless very odd to say *he ci shao* ‘drink porcelain spoon’ with the same Instrumental reading, at least out of the context. Also, there are actually various expressions in English where a verb typically taking a Theme object can take an Instrument instead. *Drive stick* is an idiomatic expression for driving a car with a manual transmission, which sports a gear shift control in the vague shape of a stick. Less idiomatically, one can either *slash someone with a sword* or *slash a sword at someone*. Still, we agree with Lin that Chinese is far less restrictive in this respect than English. The examples below make the point:

(36) a. *xie maobi* ‘write calligraphy brush = write with a calligraphy brush’
    b. *za da chui* ‘pound big mallet = pound with a big mallet’,
    c. *chang yangsangzi* ‘sing Western style of singing = sing in Western style’,
    d. *ci hongyingqiang* ‘stab red tasseled spear = stab with a red tasseled spear’
    e. … …

In sum, Chinese verbs are demonstrably less rigid than their English counterparts in terms of thematic relations, a fact deserving an explanation.

Along the lines of H&K’s l-syntactic decomposition of lexical verbs, T.-H. Lin (2001) proposes a theory for the data in question that consists of two assumptions:
(37) a. A verb contains both the lexical root and the light verb(s) in English but only the lexical root and no light verb in Chinese (p. 109).\textsuperscript{15}

b. The combination of lexical roots and light verbs can be “quite liberal” in s-syntax (p. 106).

The l-syntactic LRS of \textit{drive} in English is given below (Lin deviates from H&K in various technical details, one of which is to ignore (20) by placing every argument, including the subject, in the Spec of a VP headed by a light verb):

\begin{center}
\begin{tikzpicture}
  \node (vp1) {VP1} [grow'=up]
  \node (v1) at (0,-1) {V'}
    child {node (vp2) {VP2}
      \node (np2) at (0,-2) {NP2}
        child {node (v2) at (0,-3) {V2}
          \node (vp3) at (0,-4) {VP3}
            \node (drive) at (0,-5) {√drive}}}
    child {node (np1) at (0,-2) {NP1}
      child {node (v1) at (0,-3) {V1}}}

\end{tikzpicture}
\end{center}

Moving √\textit{drive} to the light verbs V2 and V1 derives the transitive verb \textit{drive}, with NP1 the Agent subject and NP2 the Theme object. Crucially, the lexical entry of \textit{drive} \textsuperscript{15}This is only part of Lin’s theory which is actually based on a three-way contrast among Chinese, Japanese and English. We focus on the Chinese-English contrast here due to the nature of this book. Also see Y. Li (in progress) for a critical review of Lin’s three-way contrast.
contains no more and no less than (38), and the thematic relations encoded in the structure are not subject to change. *Kai* ‘drive’ in Chinese differs from English *drive* in having only VP3 as the lexical entry (cf. (37a)). It may merge with the same light verbs as *drive* does, only in s-syntax. The result would be non-distinguishable from *drive*, as shown in (32). But given (37b), other light verbs are also available in s-syntax that may be “quite liberally” merged with \( \sqrt{kai} \). Depending on the selection of these light verbs, some licensing an Instrument relation and some a Location, all the examples in (33) and (35) are generated. Lin’s theory interprets theta-roles in the same way as H&K’s, i.e., that a theta-role is simply the relation between a light verb V and the argument in the Spec of the VP headed by V. However, given the difference between Chinese and English, as stated in (37b), the theta-roles of an English verb are all determined in l-syntax, whereas those of a Chinese verb come into existence only in s-syntax.

Lin’s theory offers a way to account for the Chinese-English contrast in a verb’s permitted argument structure(s) which we find insightful. In effect, (37b) also recognizes that the lexicon, with its mechanism for generating lexical entries, needs to be somewhat autonomous from syntax despite all the efforts, as exemplified in H&K, to assimilate it into syntax – in order to explain certain critical facts, we need lexical operations to behave differently from those in syntax. This is a point we made in the previous section while reviewing H&K’s third argument for an l-syntactic LRS; it is restated via (37b). Lin’s theory also raises questions. First, by adopting H&K’s l-syntax to represent the compositional structure of a verb and by placing all arguments in the Spec positions, Lin inherits H&K’s problem with compounds such as *horse-saddling* (cf. 2.2.1.2). Secondly, the assumption in (37b) inevitably makes one wonder why the combination of light verbs
and roots are not as liberal in the lexicon when, by hypothesis, the same X’-structure is used as the combinatorial mechanism. The question is actually weightier than it first appears. If Chinese employs all those light verbs in s-syntax to provide arguments of Instrument, Location, and several more (cf. Lin, Chapters 3 and 4), are these light verbs part of UG? If they are, why doesn’t English (or Japanese) use them in l-syntax or even s-syntax? If they are not part of UG, then something more needs to be said in order to properly constrain the utilization of light verbs in the cross-linguistic context.

2.2.3. Squeezing a lexical foot into a functional shoe

Whereas H&K and Lin have attributed the origin of theta-roles to relations between arguments and particular light verbs in some syntactic structure, Borer (2005) goes further by claiming that a theta-role, to the extent we can still refer to it as such, only reflects the interpretation that a phrase acquires in the Spec position of a certain functional category in syntax. Given the voluminousness of Borer’s theory, only what we consider to be directly relevant to the content of this section is addressed. To avoid sophistications unnecessary for this book, not all terminology in Borer’s work is adopted here.

Briefly, Borer proposes that the linguistically critical properties of the event described by a clause are largely determined not by the lexical root √ of the verb, contra the intuitions and common beliefs, but by the syntactic environment that √ is placed in, with the syntactic environment being the phrases headed by the event-related functional
categories. The sentence *Anna read the book*, for instance, is given the following (somewhat simplified) structure (cf. p. 85):

(FP1)
```
NP1  F1'
|      |
F1    FP2
|      |
NP2  F2'
|    VP
Anna the book √read
```

F1 and F2 are the event-related functional heads. Together with the constituents that fill the Spec positions of their phrases, these functional heads define a particular type of event labeled with the root. Roughly, (39) is interpreted as “there is an event e such that Anna is the originator of e, the book measures e,\(^\text{16}\) and e is an event of reading.” In this theory, the small number of event-related functional categories determines that there can be only a few interpretations (e.g., originator, …) for the phrases in their Spec positions. The √ doesn’t participate in semantic role-assignment at all (e.g., see p. 227); it functions in the sentence merely as a modifier to the event type defined by FP1 and FP2 (p. 30). It doesn’t change the event type thus defined but is instead affected by it.

One of the motivations for this theory is the class of “variable-behavior” verbs, the intransitive verbs whose single argument functions like either an Agent or Theme,

\(^{16}\) That the object of a verb provides a way to measure the event is generally accepted in the field. See Dowty (1991) for an explicit proposal on this. We return to this issue in Chapter 3.
depending on the context. Borer drew data from Dutch, Italian and Hebrew. We use Chinese to illustrate the same point. In Chinese, as in any other language, there are adverbs that specifically require the subject of the sentence to be an Agent. Examples in (34) were such examples, and more are given in (40):^17

(40)

a. ta (guyi) han/chang/tiao.
   he intentionally yell/sing/jump.
   ‘He intentionally yelled/sang/jumped.’

b. yi-kuai boli (*guyi) sui/diao-le.
   a-CL glass intentionally break/fall-LE
   ‘A piece of glass (*intentionally) broke/fell.’

Given this fact, the examples below show that in a resultative compound, the second verb (V2) must not be one with an Agent:

(41)

a. tamen za-sui/peng-diao-le yi-kuai boli.
   they smash-break/knock-fall-LE a-CL glass
   ‘They smashed/knocked to the ground a piece of glass.’

   they infuriate-yell/hit-jump/cheer-sing-LE that-CL stranger

Compare the examples in (41b) with another resultative form, call it V-*de*, in (42):

---

^17 For using *guyi* ‘intentionally’ to force the Agent reading, see Cheng and Huang (1994).
(42) a. tamen qi-de na-ge moshengren dasheng han.
   they infuriate-DE that-CL stranger loudly yell
   ‘They made that stranger so angry he yelled loudly.’

b. tamen da-de na-ge moshengren luan tiao.
   they hit-DE that-CL stranger aimless jump
   ‘They hit that stranger and made him jump around.’

c. tamen dou-de na-ge moshengren chang-le qilai.
   they cheer-DE that-CL stranger sing-LE up
   ‘They cheered that stranger into singing.’

We return to some properties of this V-de construction in Chapter 3. For now, (42)
indicates that there is nothing semantically or pragmatically wrong with (41b) because
both groups use the same V1 and V2 sets and are meant to have the same interpretations.

   Given the contrast in (40a-b), it is interesting to note that certain Agentive verbs are
nonetheless permitted as V2 in a resultative compound:

(43) a. ta guiyi xiao/ku/pao/zou-le.
   he intentionally laugh/cry/run.away/leave-LE
   ‘He intentionally laughed/cried/ran away/left.’

b. ta ba haizi dou-xiao/ku-le.
   he BA child play.with-laugh/cry-LE
   ‘He treated the child playfully and made him laugh/cry.’
c. ni ba huidan da-pao/zou-le.

you BA bad.guy hit-run.away/leave-LE

‘You hit the bad guy and made him run off.’

One must conclude from (40), (41) and (43), then, that certain verbs have variable behaviors. In the literature, intransitive verbs with an Agent argument are called unergative verbs and those with a Theme argument, unaccusative verbs. Variable-behavior verbs alternate between the two classes.

For Borer, the existence of such verbs suggests that the lexical root does not determine the argument structure, the decisive factor being the environment in which the root occurs. But if the lexical root is ruled out, it must be functional categories that perform the task of introducing arguments, hence the theory shown in (39). Compared with miscellaneous proposals, including Lin’s, which quite freely use light verbs with lexical meanings (e.g., CAUSE, USE, AT) in syntax to introduce thematic arguments, Borer’s theory is more restrictive because no matter what the lexical root is, the arguments in a clause are limited in both number and semantic content which are already determined by the couple of event-related FPs. If such FP structures are part of UG, then it automatically follows that languages in general have only a tiny number of “theta-roles” with cross-linguistically identical behavior. What is not addressed sufficiently in her theory is the lexical root. This is where Lin’s study of Chinese becomes significant.

As we saw in (33)-(35), Chinese allows more thematic relations to be associated with the subject and object of a clause. Later on, we will examine another fact in Chinese where even the basic thematic hierarchy appears to be violated. The question is how such
“anomalies” are to be accounted for. Chomsky (1995) proposes that the syntax consists of a set of simple structure-building and structure-altering operations that function identically in all languages, with linguistic variations solely due to parametric differences among languages at the lexical level. From this perspective, the reason for the Chinese-English contrast can be sought only in the lexicon, and Lin’s theory points at a viable solution: in comparison with English, a verb in Chinese is under-specified in thematically relevant ways, which in turn gives syntax more freedom in choosing what arguments to represent.

2.3 Sketching an alternative theory of theta-roles

The theories reviewed in Section 2.2, and indeed all the theories regarding theta-roles and arguments, have tried to answer one central question: How much information does a lexical verb contain that bears on syntactic computation? For H&K, each lexical verb contains a fully developed syntactic structure (l-syntax) and much of what is coded in l-syntax is also available to clause-formation (their s-syntax). Borer denies any direct involvement of lexical roots in argument-related syntactic computation, exploring the possibility that what participates in syntactic computation is purely syntactic, with the lexical root contributing only as a modifier with semantic details that enrich but don’t fundamentally determine the representation of arguments. Lin leans on H&K’s view while arguing that languages may vary in how much syntactically coded information is in a lexical verb. In this section, we articulate a theory that combines some important ideas
from these authors. To keep the task more manageable, we focus only on verbs that describe dynamic events.

2.3.1. How a lexical entry contributes to the argument structure

To begin with, it must be noted that the very fact that Borer can talk about the class of variable-behavior verbs entails that there are verbs that behave differently. For instance, though xiao ‘laugh’ and ku ‘cry’ may alternate between having an Agent argument or a non-Agent (cf. (43), there are also many verbs that either intrinsically reject an Agent, as in (40b), or cannot acquire a non-Agent interpretation even in the context that converts xiao and ku (41b). At least on the surface, this rigidity suggests that a lexical entry affects argument-representation in non-trivial ways, irrespective of the structural context in which it occurs. Borer’s theory attempts to address this problem by saying that lexical entries determine the functional structure only “insofar as some denote concepts which are ‘odd’ in certain grammatical contexts, in the sense that such grammatical contexts return an interpretation that conflicts with world knowledge. (p. 1)”. Logically, this is a plausible way out of the problem. Whether it is how language works, however, can only be determined empirically.

Both resultative constructions in Chinese, the compound (in 44) and the V-de construction in (45), exhibit a phenomenon that has been known for a long time due to its apparent thematic oddity:

(44) a. na-ping jiu he-zui-le quan zhuo de ren.
that-CL wine drink-drunk-LE whole table DE person
‘Drinking that bottle of wine made everyone at the table drunk.’

b. zhe-pi ma qi-lei-le wo le.
this-CL horse ride-tired-LE me SFP
‘Riding this horse made me tired.’

(45) a. na-ping jiu he de ta zui-le san-tian.
that-CL wine drink DE he drunk-LE three-day
‘Drinking that bottle of wine made him drunk for three days.’

b. zaochen de xinwen ting de dajia feichang zhenfen.
morning DE news listen DE everyone very excited
‘Listening to the morning news made everyone excited.’

All these examples share the same three traits: the first verb (V1) is a typical transitive verb, the subject of the whole sentence is interpreted as the Theme argument of V1, and the NP after V1 carries the reading of V1’s Agent. In other words, with respect to the argument structure of V1, the thematic hierarchy seems to be associated with the two NP arguments in the sentence in reverse order.

Various analyses have been proposed within the theoretical framework we adopt here (Cheng and Huang 1994, Y. Li 1995, 1997b, 1999, Sybesma 1992). Regardless of the technicalities used to account for this phenomenon, however, it is clear that the fundamental factor cannot be syntactic in Borer’s sense. English also has a resultative construction, but no thematic inversion is allowed:
(46) a. Bill drank himself into a stupor.
   b. *This bottle of whisky drank Bill into a stupor.

If the argument structure of a predicate were solely determined by the event-related functional structure of a clause and the effect of the lexical verb were merely found at the level of naturalness with respect to world knowledge, then the fact that he ‘drink’ in Chinese can be used as in (44a) should be enough to prove that this particular way of utilization of Borer’s universal functional structure (cf. (39)) is not at odds with world knowledge. The ungrammaticality of (46b), then, must have an explanation outside syntax. An obvious possibility is to attribute the Chinese-English contrast to intrinsically lexical differences. In fact, it is quite straightforward to link the apparent thematic anomalies in (44)-(45) to the facts behind Lin’s theory: that Chinese transitive verbs like he ‘drink’, qi ‘ride’ and kai ‘drive’ may easily drop their Agent argument (cf. 2.2.2).

2.3.2. The theory

The essence of the theory is simple: A lexical root $\sqrt{}$ conceptualizes a set of events $e$ and contains the information on all the participants of $e$; a lexical verb $V$ is composed of $\sqrt{}$ and a small number of light verbs (Lv) which indicate the event type(s) of $e$; only the information on those participants of $e$ which bear directly on the nature of the event type sifts through Lv and remains accessible to syntax – this is the origin of stereotypical theta-roles; Chinese differs from English in allowing the option of not having any Lv in
V, exposing all participant information encoded in √ to syntax and thereby creating the
effect of thematic liberality. The theory is more explicitly defined as follows:

(47) \(V \in \{ (\sqrt{\cdot}), [Lv1 \ \sqrt{\cdot}], [Lv2 \ \sqrt{\cdot}], [Lv2 \ [Lv1 \ \sqrt{\cdot}]] \} \), where the option of \(V = \sqrt{\cdot}\) is available
only in Chinese.

(48) Let E stand for a dynamic event, S for a state, and R for a relation, then

a. \(Lv1\) manifests the type of event which happens without an external cause and
may be approximately described as ‘enter S’ or ‘enter R’. The participant that
enters the state or relation is interpreted as Theme.

b. \(Lv2\) manifests the type of event with an external cause which may be
approximately described as ‘bring about E’ or ‘bring about R’\(^{18}\). The external
cause, interpreted as Agent (or perhaps more accurately, Originator; cf. van
Voorst 1988 and Borer 2005), is implicated by \(Lv2\) but is not an argument of \(V\) because,
as an external factor, it is not conceptualized as part of the event described by \(V\).

c. Other intrinsic participants of \(E, S, \) and \(R\) are manifested as optional or
obligatory theta-roles, as determined by \(\sqrt{\cdot}\).

d. The choice of an \(Lv\) must not conflict with the type of event already coded in \(\sqrt{\cdot}\).

(49)Participant-information resulting from (48) must satisfy the theta-criterion.

Other than the language-specific option of \(V = \sqrt{\cdot}\), to which we return shortly, (47) is a
lexicalist adaptation of H\&K’s theory of l-syntactic LRSs. With these authors, we assume

\(^{18}\) For lack of space, we leave aside the discussion on whether \(Lv2\) has the interpretation of “bring about S”.
that there must be intrinsic reasons for why, when both Lv1 and Lv2 are in V, the former
combines with √ first – somehow, the fact that Lv2 is associated with an external cause
determines its peripheral position, but we will not speculate any further at this point.
Another insight from H&K (also see Hale and Keyser 2002) finds its place in (48a-b),
namely the theta-roles Theme and Agent/Originator are the results of Lv1 and Lv2
combined with √. Where we differ from H&K, and indeed from every other author
working with light verbs, is that for us, an Lv does not add meaning to √; rather, it only
spells out the event type already included, albeit “mixed” with other information, in the
meaning of √. Likewise, a theta-role such as Theme is not provided by Lv1. The root
already contains information about participants and other relevant factors for the event;
Theme is simply the one that is “selected” by Lv1 because it is the participant in the Lv1-
type of event.

(48c) is best illustrated with an example. Consider V = [Lv2 √] with Lv2 marking
an event of ‘bring about R’. It is the intrinsic property of a relation to involve two parties.
According to (48c), then, both participants can be manifested via the theta-roles of V; that
is, this particular type of event may maximally have three theta-roles, two due to the
nature of R and one implicated as Agent/Originator. Whether or not a given verb actually
has the two R-related theta-roles depends on the event conceptualized in √. √give
describes the bringing about of the transactional relation between an entity and goal of
the transaction (cf. Bowers 1993 and H&K), with both parties viewed as necessary
participants of the event. This results in give with two object theta-roles as in give X to Y.
Aside from semantic details irrelevant at the thematic level, √donate conceptualizes the
same type of event as √give, but differs from the latter in not treating the goal of
transaction as a necessary participant. Hence we have donate X (to Y).

That the theta-roles a given V may or must have are fundamentally determined by
the type of event already coded in the root is stated in (48d), contra Borer. With this
information carried in the root, an Lv, by default, is only a linguistic “spell-out” of that
information, not something totally independent of the semantics of the root. It is for this
reason that √sneeze in English and √han ‘yell’ in Chinese are compatible only with Lv2
which implicates an external Agent role, whereas the intransitive use of verbs such as
melt and hua ‘melt’ must consist of the root plus Lv1 and thus necessitates a Theme role.

Presumably, in human conceptualization, events of sneezing and yelling necessarily have
an originator but the melting of snow is identified as an event that simply comes about,
with snow being an intrinsic part of melting. The event of snow-melting may also be
viewed as being caused by an external factor, resulting in both Lv1 and Lv2 inside the
verb. In this view, variable-behavior verbs exist precisely because certain events are
perceived to be ambiguous between the two types. In this respect, one language may opt
to define the set somewhat differently from another. English simply treats laughing and
crying on a par with sneezing, but Chinese regards such events as either ones with an
originator or involuntary outbursts of emotions that just happen in the right context.19

Below are the LSSs of these Chinese verbs:

(50) a. han ‘yell’: [ Lv2 √han ]

b. hua ‘melt’: [ Lv1 √hua ] or [ Lv2 [ Lv1 √hua ]]

19 A similar idea was independently expressed in Gu (1992).
c. ku ‘cry’: \([ \text{Lv2} \sqrt{ku} ] \) or \([ \text{Lv1} \sqrt{ku} ]\)

(50a) represents the unergative. (50b) shows the alternation between the unaccusative and the causative. Verbs with these two options are also referred to as being *ergative*. (50c) characterizes Borer’s variable-behavior verbs.

As it is, (48d) also leaves room for denominal verbs like *calve*. In itself, the nominal root \(\sqrt{\text{calf}}\) doesn’t describe any event. Combining it with Lv2, then, would have no interpretation unless a calf is the intrinsic participant of some presumed event which is compatible in type with Lv2. In the case of *calve*, the presumed event is to give birth to a calf. In other words, \(\sqrt{\text{calf}}\) functions as a cue to help “fill up” the missing information about the exact nature of the event. Similarly, we find the following data in certain subdialects of northern Chinese:

(51) a. ta caoji-le.
   he\text{-LE}
   ‘He chickened out.’

b. *ta zhengzai caoji.
   he\text{PROG} hen
   ‘He is chickening out.’

c. *ta guiyi caoji-le.
   he\text{on.purpose} hen\text{-LE}
   Intended reading: ‘He chickened out on purpose.’
The unacceptable (51b-c) suggest that caoji ‘grass.chicken = hen’ in this use is perhaps not an action verb or does not have an Agent subject. If this is correct, then caoji should be decomposed into [Lv1 √caoji], with the interpretation of, roughly, entering a hen-like state, i.e., being cowardly like a chicken. As in the case of calve, √caoji does not describe any event in itself, only helping to furnish the missing information of the Lv1-type event.

Two points are worth making at this moment. First, it should be noted that in neither Chinese nor English are these brute-force conversions from a nominal root to a verb fully productive. It is impossible to say ta laohu-le ‘he tiger-LE’ to mean he was fierce or fearless like a tiger, nor is it considered acceptable to replace This hen just laid an egg with This hen just egged. This fact has a natural explanation in our theory. The function of Lv is to spell out the event type of a root. Once the UG mechanisms in (47-48) are in place, a language may choose to allow non-event-describing roots to merge with an Lv provided that the critical information can be recovered from the root on the basis of world knowledge, but doing so is a stretch of the Lv-system, not the norm. The second point, closely related to the first, is that when the root is non-event-describing, the interpretation of the relation between the root and the light verb is essentially out of the control of the deterministic mechanisms of UG and into the hands of pragmatics, idiomaticity and language-specific choices. So even though English allows a cow to calve and a mare to foal, Chinese has no denominal verbs of this kind, nor should English be expected to apply this form of denominalization to all offspring-denoting nouns.

Lin’s proposal on the Chinese-English distinction is incorporated in (47). We directly adopt from Lin the notion that a Chinese verb may consist of the bare root

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20 This is the same idea as Borer’s (cf. Section 2.2.3) but applied inside a lexical verb.
regardless of its event type and thereby differs from its Lv-containing counterpart in English. Departing from his theory in (37), however, ours does not reallocate these Lvs to syntax. Conceptually, (47) retains the logical minimum of (37) by discarding two stipulations. First, if an Lv is not present in a lexical entry, we see no logical necessity that it must be found another home. By default, a verb with a missing Lv in the lexicon remains that way in all other components of language and thus exhibits whatever behavior the lack of Lv causes during subsequent linguistic computation. As the direct consequence of this minimalist approach to Lv, (47) also avoids another and arguably more problematic stipulation in Lin’s theory: that light verbs are used “liberally” in syntax. As we note in Section 2.2.2, this liberality is a powerful mechanism with unclear theoretical and empirical repercussions.

Lastly, to the extent that Lvs and Lvs give rise to what are called theta-roles, it is self-evident in the UG framework that such theta-roles obey the theta-criterion, as specified in (49). Especially worth clarification is the Agent role. According to (48b), the external cause of an event is “implicated” by Lvs but not considered part of the event described by the lexical verb containing Lvs. What this means is best illustrated by an analogy. Consider a university in which a faculty committee is designated to provide advice to the president. The committee has its own composition (chair and a set number of members), and its existence necessarily implicates the existence of the president who is, nonetheless, not part of the committee. Comparably, when Lvs implicates Agent, the latter must satisfy the theta-criterion even though it is not regarded as part of the event described by the lexical verb containing Lvs. Now we proceed to demonstrate how the theory formulated in (47) through (49) works toward accounting for various English and
Chinese data, taking for granted that a function of syntax is to license NPs, via the Case filter, etc., so as for the NPs and the verb to satisfy the principle of Full Interpretation defined in (30).

2.3.3. Facts explained

The basic subject-object asymmetry in denominal verb formation, demonstrated in (21), follows straightforwardly from our theory. That *calve* means to give birth to a calf is just accounted for. The impossible *cow*, meaning ‘a cow gives birth to’ is the outcome of (48b). Since Lv2 implicates an Agent role but does not “have” it, merging √cow with Lv2 at the lexical level leaves the root semantically unconnected from Lv2, in direct violation of Full Interpretation. This is the same analysis we gave in Section 2.2.1.2 while evaluating H&K’s work. The ungrammatical *The alfalfa sneezed the cow* in (24b) also has a simple account. Adopting the essence of H&K’s LRS of the transitive *sneeze* in (25) yields (52):

\[
(52) \text{sneeze: } [ \text{Lv2 } [ \text{Lv2 } \sqrt{\text{sneeze}} ] ]
\]

This LSS is not legitimate according to (47), which in turn is based on the assumption that in human conceptualization, a single event may have no more than one external cause (cf. Borer 2005 for the same effect achieved via syntax).

The same logic also explains why the second verbal morpheme of a resultative compound must be non-Agentive (cf. (41)). To the extent that such a compound behaves
like a regular verb (cf. Y. Li 1997b, 2005), what it encodes must be regarded as one (albeit internally complex) event, with (53) being the maximum composition it may have (√1 and √2 standing for the two lexical roots21):

\[(53) \quad [\text{Lv2} \ [\text{Lv1} \ √1 - √2]] \]

Given the fact that √1 is the head of the root-cluster and determines the fundamental properties of the whole word (Y. Li 1990, 1993, Cheng and Huang 1994; also see note 8 of this chapter), whether the event they together describe has an external cause hinges on √1. Put differently, if the compound verb has Lv2 in its composition, the light verb must spell out the event type of √1 the head. As there is no more than one Lv2 per verb, √2 is effectively prevented from having its own Lv2, resulting in the data in (41). In contrast, the resultative V-de construction in (42) consists of two separate verbs, each heading its own clause (Huang 1989, Y. Li 1999) and thus describing a separate event. It is only expected that each event may have its own external cause.

Proceeding to the locatum verbs in (26), suppose the LSS of the denominal verb *saddle* is as follows, a lexicalist conversion of H&K’s (27).

\[(54) \quad \text{saddle: } [\text{Lv2} \ [\text{Lv1} \ √\text{saddle}]] \]

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21 See Borer (2005) for a comparable analysis of the resultative cluster, out of partially overlapping considerations.
As in the case of *calve, the root in (54) doesn’t describe any event, making it necessary to provide the missing information on the event in question, with *saddle being the only overt cue. If H&K are correct (cf. (27)), [ Lv1 *saddle ] is to be interpreted as entering a relation R with a saddle. The precise nature of R is again determined by factors outside the theory of (47-49). Next consider the impossible *church used in church the money (cf. (26b)). Given H&K’s decomposition of church in (27), where the nominal root *church is interpreted as a Theme, it is straightforward that the hypothetical verb violates the principle of Full Interpretation in (30). Recall that in our theory (and in H&K but not in Lin’s), Lv1 does not create the Theme theta-role by itself; rather, the Theme is that participant of the event, described by the root, which enters the specific state or relation and is thus “picked out” by Lv1. Since there is no Theme from Lv1 alone, merging *church with a bare Lv1, with the intended Theme reading, would only leave the root semantically unrelated with the light verb, making it impossible for church to have the hypothetical use in (26b). This theory can also explain why, though church the money and horse the saddle are bad, horse-saddling is acceptable, a problem intrinsic to H&K’s I-syntactic theory of denominal verb formation (cf. 2.2.1.2). Since saddle has a legitimate derivation in (54), in which Lv1 and *saddle are properly combined, the resulting denominal verb does have a Theme role, which horse receives in horse-saddling to satisfy Full Interpretation.

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22 Again, Borer’s world-knowledge factor may be at work, with *saddle restricting the plausible nature of R. It has also been suggested that spatial relations are among the most basic notions in human conceptualization of the world. For recent works on this fairly old idea, see Svorou (1994) and Haspelmath (1997). In this view, it is natural for R to be understood as a spatial relation when * fails to provide relevant information.
It is worth noting that locative and locatum denominal verbs also require filling the missing information on events by means of world knowledge and/or language-internal choices. This explains why such verbs, though quite popular in modern English (*can the beans, cradle the child,...*) as well as in Old Chinese (*sheng zhi yi fa ‘rope him with law’, *yi zhi ‘clothe him’, ...*), are hard to find in modern Chinese.

Now we move to the differences between Chinese and English, a significant fact being that the thematic relations between a transitive verb in Chinese and its NP arguments are generally more flexible (cf. (33), (35), (36)). Two possibilities arise from (47). If the event type intrinsically coded in the root is spelled out with an Lv, the resulting verb in Chinese is thematically the same as its counterpart in English. Apparently, this is the cross-linguistic norm. Alternatively, a Chinese verb may choose to contain the lexical root only. When such a verb, call it $V_{\text{root}}$, appears in syntax, two factors come into play:

(55) a. $V_{\text{root}}$ has no theta-roles in the sense defined in (48) and therefore, according to (49),

whatever semantic relations the lexical root encodes between the event and its participants are not subject to the theta-criterion.

b. Syntax provides ways, through such mechanisms as the X’-structure (cf. (11)) and the Case filter (cf. (50) of Chapter 1), to license NPs that are independently expected to satisfy the principle of Full Interpretation.
From (55a-b) one deduces that an NP may function legitimately as the subject or object of $V_{\text{root}}$ provided that it bears some compatible participant-relation with $V_{\text{root}}$. This, we suggest, is the reason for the “liberal thematic relations” found with the Chinese NP subject and object.

As a specific example, when $kai$ ‘drive’ takes the Lv-less option, the NPs in the subject and object positions of the clause may still satisfy Full Interpretation, as long as they are understood as, say, the location where the driving event takes place and the vehicle that is involved in the driving event. Hence the example in (56):

(56) zhe-tiao he bu neng kai ni-de na-sou po motuoting.
    this-CL river not can drive your that-CL shabby motorboat

    ‘That shabby motorboat of yours can’t be driven on this river.’

In fact, at least given the way our theory is formulated at the moment, it imposes no restriction on how these semantic relations are represented in syntax. Therefore, unless there are other independent principles preventing it, the semantic relations, which we still call Location and Theme just for the purpose of easy discussion, may be reversely represented as well:\(^{23}\)

\(^{23}\) This may also be the reason why temporal and locative adjuncts don’t display intrinsic hierarchy even in English, where other classes of adverbs are known to be hierarchically arranged:

i. Sam chased the coyote noisily deliberately.
ii. *Sam chased the coyote deliberately noisily. (only good if deliberately modifies noisily)
iii. Sam chased the coyote yesterday in the woods.
iv. Sam chased the coyote in the woods yesterday.
(57) ni-de na-sou po motuoting bu neng kai zhe-tiao he.

your that-CL shabby motorboat not can drive this-CL river

Same as (56).

The examples below illustrate other “thematic” relations represented in this flip-flopped manner:

(58) a. xiao bei he lücha.  (subj = Instrument, obj = Theme)

small cup drink green.tea

‘Use the small cup to drink the green tea.’

b. lücha he xiao bei.  (subj = Theme, obj = Instrument)

green.tea drink small cup

(59) a. ni-de keren shui na-zhang chuang ba. (subj = Experiencer?, obj = Location)

your guest sleep that-CL bed SFP

‘Let your guest sleep on that bed.’

b. na-zhang chuang shui ni-de keren ba. (subj = Location, obj = Experiencer?)

Assuming that manner and subject-oriented adverbs are parts of corresponding functional phrases (Cinque 1999), then their linear order is determined by the intrinsic hierarchy in which their functional phrases are arranged in a clause. On the other hand, if time and location are two of the relations already coded in the lexical root as part of the event, then the fact that they are not “picked up” by Lv1 and Lv2 exempts them from the θ-criterion. Then whatever reason allows the flip-flop in (57-58) in Chinese allows these adjuncts to do the same in English.
that-CL bed sleep your guest SFP

(60) a. jieri liwu dou gei-le pengyou-men le.  (subj = Theme, obj = Goal)
    holiday gift all give-LE friend-PL SFP
    ‘Holiday gifts were all given to the friends.’

b. pengyou-men dou gei-le jieri liwu le.  (subj = Goal, 24 obj = Theme)
    friend-PL all give-LE holiday gift SFP
    ‘Friends were all given gifts.’

We hasten to note that it is not our intention to claim that such “thematic liberality”
is a fully productive process in Chinese. In fact, it is easy to find action verbs in the
language that do not permit such swaps. This alone, however, does not falsify the theory
because there may well be other principles/factors at work. The question we hope to
address with the proposed theory is why the examples above and in Section 2.2.2 are not
observed in English or, indeed, in any other language we are aware of, though they are so
easily produced in Chinese. Also, quite independently of the thematic flip-flop, Lin’s
original observation is still valid: the subject and object in Chinese are not limited to
Agent and Theme even with an action verb in a non-passive context. At a dinner party
not long ago, a university professor of Chinese linguistics passed a pair of chopsticks to
one of the authors and said:

24 The subject NP of this sentence may also take the Agent reading, which is irrelevant to our discussion at
this point.
(61) ni chi zhe-shuang kuaizi ba.
   you eat this-CL chopstick SFP
   ‘Use this pair of chopsticks for the dinner.’

Such sentences, perhaps deemed unacceptable in formal texts, are nonetheless produced by native speakers in everyday conversations quite freely. This is a fundamental difference between Chinese and many other languages; our theory, built on Lin’s initial proposal, aims to address it.

Another issue worth bring up is the Agent interpretation. In the presence of Lv2, a verb necessarily implicates an Agent/Originator. Given (49), this theta-role must be borne out by an argument in syntax. We side with the various authors (Marantz 1984, Hale and Keyser 1993, Kratzer 1996, Borer 2005, among others) that syntax provides a particular way to manifest this Agent argument in a clause, which will be elaborated on in Chapter 3. The question for now is what happens when Lv2 is not present. The most straightforward answer is that without Lv2, no Agent theta-role is implicated, the theta-criterion doesn’t apply, and therefore a verb that would have an obligatory Agent subject in English can occur without one in Chinese. This explains the fact in (33).25 Interestingly, though such data from Chinese argue against Borer’s indiscriminate claim that the Agent/Originator and Theme (Subject-of-quantity for her) roles are purely from syntax

25 Another question is whether in the absence of Lv2, the NP bearing the interpretation of the external cause, which we conveniently call Agent, is also subject to the kind of flip-flop shown in (56) through (60). The logic of the theory suggests that it is not, because the external cause is not part of the event and therefore depends on a syntactic structure outside VP to be introduced. This seems to be consistent with facts: typical action verbs reject an Agent reading on the object.
(cf. 2.2.3), our treatment of Chinese $V_{\text{root}}$ is conceptually very close to her theory: the verb without any Lv in it has no theta-role, the NPs structurally licensed in syntax are “thematically” interpreted based on their semantic relations with the root, and as we saw through the examples above, such miscellaneous “thematic” readings are characterized with a certain degree of context-dependent flexibility. Meanwhile, we disagree with Borer by recognizing that given the contrast between Chinese and English, if Chinese verbs are best analyzed this way, then English verbs, at least typical ones, must not be. The solution lies in keeping syntax to be universally identical and accounting for the thematic “anomalies” in Chinese via differences at the lexical level. In this respect, we echo Chomsky 1995 (also see Chomsky 1970) that linguistic variations should be attributed to the lexicon.

The last phenomenon to be addressed is the apparently reversed theta-role assignment in Chinese resultative constructions, shown in (44)-(45). The compound form of the data is schematically illustrated below, with a simple explanation:

(62) wine drink-drank me.

Since Chinese has the option of not including Lvs in a verb, the whole compound as a verb may be composed of just the two roots $\sqrt{\text{drink}}$ and $\sqrt{\text{drunk}}$. Specifically, in the absence of Lv2, no Agent reading is required under the theta-criterion. When this $V_{\text{root}}$ compound is placed in syntax, the NP wine is interpreted in connection with $\sqrt{\text{drink}}$ as the passive participant of drinking, and the NP me is interpreted in connection with $\sqrt{\text{drunk}}$.

\footnote{Unlike in English, these two roots are not derivationally related in Chinese.}
Both NPs satisfy Full Interpretation semantically and are licensed syntactically by receiving the subject and object Cases, respectively. That me is also understood as the drinker can be attributed to “world knowledge” without any structurally established relation between me and vdrink (cf. Hoekstra 1988): In a normal world, if wine-drinking caused me to get drunk, then I must have done the drinking. In brief, the problematic thematic reversal is only apparent, due to the unique property of Chinese in (47). The V-de construction receives the same account:

(63) wine drink-de I drunk.

The only difference is that with two separate verbs, only the first verb needs to be a V\textsubscript{root} to generate (63). In this analysis, English (or any other language we know of) doesn’t have the comparable phenomenon precisely because the Agent subject is obligatory for such verbs, which in turn is attributed to (47).

Direct support for this analysis comes from the examples below:

(64) a. na-shou ge hang-ku-le wo le.

     that-CL song sing-cry-LE me SFP

     ‘Singing that song made me cry.’

     b. na-shou ge chang-de wo luo-le lei.

27 This account, arrived at from a different perspective, resembles in spirit the analysis in Her (2007), which proposed accounting for Y. Li’s (1995) data by suppressing the subject θ-role of V1. Her’s theory is constructed in Lexical Functional Grammar.
that-CL  song  sing-DE  I  shed-LE  tear

‘Singing that song made me shed tears.’

Pertinent to the current discussion is that the singer in these sentences can be either me or some unidentified person. At least with the second reading, chang ‘sing’ must be used as an Agent-less verb, necessarily excluding wo ‘me’ as the thematic subject of the first verb morpheme. Further substantiating the \( V_{\text{root}} \) analysis are the examples in (65):

(65) a. ?na-zhi da wan he-zui-le wo le.
that-CL big bowl drink-drunk-LE me SFP

‘Drinking with that big bowl made me drunk.’

b. xin kai de na-jia fanguan chi de tamen zhang-le haoji bang.
newly open DE that-CL restaurant eat DE they gain-LE several pound

‘Eating in that newly opened restaurant made them gain several pounds.’

In (65a), the subject of the sentence is understood as the instrument of eating; in (65b), the subject of the matrix clause is the location of eating. Similar examples may be easily constructed, indicating that the Theme reading on the subject is not required. Given the option of treating the compound or the matrix verb in the \( V-de \) construction as \( V_{\text{root}} \), this thematic flexibility is expected.\(^{28}\)

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\(^{28}\) Jen Ting pointed out the following contrast (personal communication):

i. wo he-zui-le jiu.
I drink-drunk-LE wine

‘Drinking wine made me drunk.’
Also pertinent is the next set of examples, starting with (66):

(66) a.  
  
  gangcai  de   bisai pao de  tamen manshendahan.
  
  just.now  DE race  run  DE  they  sweat.all.over
  
  ‘Running the race a moment ago made them sweat profusely.’

b.  *
  
  gang lai       de jiaolian pao de  tamen manshendahan.
  
  just   arrive  DE coach  run  DE  they  sweat.all.over

Intended reading: ‘The new coach made them run to the extent of sweating profusely.’

(66a) is a perfect sentence because the verb pao ‘run’ may independently take bisai ‘race’ as the object (cf. pao yi chang bisai ‘run a race’). As long as the verb takes the form of $V_{\text{root}}$, the Agent argument is “dropped”, with tamen ‘they’ understood as the runners only on the basis of world knowledge. That is, the sentence receives the same analysis as a typical “thematically anomalous” case. (66b) is unacceptable because, under the intended interpretation, there is no plausible semantic relation between the subject xin lai de

---

ii.  *

  *wo he-zui-le       da wan.

  I drink-drunk-LE big bowl

  Intended reading: ‘Drinking in a big bowl made me drunk.’

To this data, we add (iii):

iii.  *

  *wo he-zui-le       xiangbin/na-ping jiu/henduo jiu.

  I drink-drunk-LE champagne/that-CL wine/much wine

Apparently, there are restrictions even on the Patient/Theme PN object of he ‘drink’ when the verb is used in the context of the compound, indicating factors at work independently of thematic flexibility.
jiaolian ‘new coach’ and the verb pao ‘run’, whether the latter is $V_{\text{root}}$ or has corresponding $L_v(s)$ in it.\(^{29}\)

In comparison, (67) below look like similar examples but display a milder contrast:

(67) a. (?na-chang dianying ku de wo xin dou sui le.

that-CL movie cry DE I heart even broken SFP

‘I cried so much during that movie that event my heart broke.’

b. (?na-ge dianying ku de wo xin dou sui le.

that-CL movie cry DE I heart even broken SFP

‘That movie made me cry so much that even my heart broke.’

---

\(^{29}\) This NP, of course, may serve as the Agent of the verb, creating a totally different reading. The problem then would be lack of real world plausibility: Why would the coach’s running make THEM sweat? If a different predicate is used, then the sentence becomes acceptable:

i. xin lai de jiaolian pao de tamen dou buhaoyisi le.

new arrive DE coach run DE they all embarrassed SFP

‘The new coach’s running made them feel not at ease.’

The scenario may be, for instance, that the coach ran so fast or practiced so hard that the athletes felt embarrassed because they should have done better.

Worth stressing is that the unacceptability of (66b) suggests that thematic interpretations, whether via $\theta$-roles resulting from $L_v$s or through more liberal participant interpretations between an NP and a verb root, don’t come out of the blue. Logically, it is imaginable that the coach functions solely as the “causer” for making the athletes run and sweat. But $\sqrt{\text{pao}}$ ‘run’ does not encode such a causer participant (nor does $\sqrt{\text{manshendahan}}$ ‘sweat profusely’), so what’s logically possible in the real world is not allowed in a linguistic construction such as (66b).
The native speakers we consulted vary in how readily to accept (67b), but there is a consensus that (67b) is not as good as (67a). Especially interesting is that the two examples differ only in the choice of the classifier inside the subject NP. The explanation, we believe, lies in the fact that the classifier *chang*, meaning a ground for a special purpose in its original nominal interpretation, allows the NP to mean either a movie or the space/time in which a movie is shown. (67a) is acceptable, then, because the matrix verb *ku* ‘cry’ can be used as V\(_{\text{root}}\) and the subject NP is interpreted as holding a space/time relationship with the event of crying. In (67b), however, the classifier *ge* limits the interpretation of the subject NP to the movie itself, which has no natural semantic relation with the verb *ku*.\(^{30}\) That the example isn’t as bad as (66b) is the result of a separate fact in Chinese, i.e., under marked contexts, *ku* may indeed be used as a transitive action verb:

(68) a. Zhuge Liang ku Zhou Yu.

Zhuge Liang cry.for Zhou Yu

‘Zhuge Liang cried for (= mourned weepingly for) Zhou Yu.’

\(^{30}\)The contrast in (67) is likely to be connected with the following contrast:

i. *ta ku-le zhengzheng yi-chang dianying.

he cry-LE whole a-CL movie

‘He cried throughout the whole time of the movie.’

ii. * ta ku-le zhengzheng yi-ge dianying.

he cry-LE whole a-CL movie

Only the NP with *chang* as the classifier and thus meaning the time of the movie is acceptable in the postverbal position. So (i) may be the base for the example in (67a). For sure, the subject NP in (67a) doesn’t just have the space/time/process reading; it is also understood as the cause for my broken heart. But there is evidence that this is the result of a separate semantic factor at work. See Y. Li (1995, 1999).
b. ni zai ku shenme? wo zai ku shidao de bu gongping!

you cry.about what I cry.about world DE not fair

‘What are you crying about? I’m crying about the lack of fairness in the world!’

This use of *ku* is not fully productive in modern Chinese, but it helps salvage (67b). That is, *na ge dianying* in the sentence may be marginally understood as what crying is about, making it more interpretable than (66b).

Comparing (67) with two other pairs of examples lends support to this analysis. First, substituting *ku* with *kan* ‘watch’ eliminates the contrast caused by the two different classifiers:

(69) a. na-chang dianying kan de wo feichang bushufu.

that-CL movie watch DE I very uncomfortable

‘Watching that movie made me very uncomfortable.’

b. na-ge dianying kan de wo feichang bushufu.

that-CL movie watch DE I very uncomfortable

Same as (69b).

This is because the normal use of *kan* allows both *yi chang dianying* and *yi ge dianying* as the semantic object. As a result, the subject NP in (69) is consistently associated with the V$_{root}$ *kan* as the “Theme”, unlike in (68b) where the semantic relation between the two components can be established only through a stretch. Secondly, compare (67) with (70):
The two examples both use xiao ‘laugh’ as the matrix verb, differing again in choosing between the classifiers chang and ge. Remarkably, both examples are perfect, in contrast to (67). At first sight, it may seem unexpected that ku and xiao should differ in this way. But the difference correlates with another one between these otherwise similar verbs:

Independently, xiao has a causative use, shown in (71), whereas ku doesn’t. No matter why this happens (recall from 2.2.3 that both ku and xiao may be used as Agent-less verbs in certain contexts, suggesting that the contrast in (71) is language-specific in nature), (71) is sufficient to help understand (70) vs. (67). That is, if xiao already has a causative use, (70b) doesn’t even need to involve V\textsubscript{root}. na ge xiangsheng ‘that piece of talk show’ is already the thematic subject of the verb with wo ‘I/me’ being the object.
Each NP has the standard thematic interpretation, fundamentally different from the stretched semantics involved in interpreting (67b).

2.4. In place of a conclusion

We finish this chapter with a question and an observation. The question is why Chinese differs from English in the manner of (47) in the first place. A possible direction to look is whether the existence of $V_{\text{root}}$ is correlated with its high degree of analyticity. For example, compared to Old Chinese, where words were primarily monosyllabic, Modern Chinese has clearly shifted to a disyllabic- or multi-syllabic-word language. Logically, if a monosyllabic word is deprived of its “wordhood” and reused as a component of the new disyllabic word, then its original lexical boundary might be removed, exposing the inside. Possibly, this process involves separating the Lvs from the lexical root.\footnote{For works that explore the extensions of this possibility, see Huang (2005, 2006, to appear) and Li (in progress).}

The observation is with respect to the status of theta-roles and the various analyses based on them. If Chinese allows $V_{\text{root}}$ which, by definition, has no theta-roles and provides semantic interpretations for NPs in the syntactic structure only on the basis of world knowledge more or less in the sense of Borer (2005), then are those theta-role-based accounts of Chinese compounds in 2.1 still valid? The answer is yes, for the following reasons. First, there is no evidence that Chinese verbs always take the $V_{\text{root}}$ form. At least when verbs do contain Lvs, everything we have said remains valid. Second, whether a compound always consists of two bare roots or not, the fact remains that a
given NP may still be interpreted as the participant of the subevents described by both morphemes in the compound. At some level of description, multiple semantic relations can still be said to converge on a single NP argument. In other words, we still need the identification, in Higginbotham’s sense, of semantic relations, thematic or not. Third, regardless of the nature of these semantic relations, the number of NPs available in a given clause is still restricted by such principles as the Case filter – Chinese may allow thematic liberality as Lin calls it, but it doesn’t mean a Chinese verb could take five or eight NP arguments. Fourth, even in the cases where the compound can be shown to be a V\textsubscript{root}, the first root (\sqrt{1}) still determines the basic properties of the compound. For instance, there is no proper use of the compound where the subject of the sentence is semantically related only with \sqrt{2}. In short, all the basic principles introduced in 2.1 are intact. It is for this reason that in subsequent chapters, unless necessary, we will simply use the term theta-role to describe all the semantic relations between a verb and its arguments.