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## ▶ On Jim Huang's Idea of Macro-Parameters

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作者/Author: 謝信一(Hsin-I Hsieh)

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## ON JIM HUANG'S IDEA OF MACRO-PARAMETERS\*

Hsin-I Hsieh  
*University of Hawaii*

### ABSTRACT

Intellectually, no less than economically, politically, and socially, globalization challenges an operational system or organized group with two key testing demands. One is the swift enlargement of production *scale*, such as by means of robotic production of cars, and the other is the speedy expansion of marketing *scope*, such as through multi-national marketing for the manufactured cars. Jim Huang's recent work on 'macro-parameters' promises to overcome these two challenges to the Generative Grammar. To assess Huang's program, four pairs of macro-parameters were examined: (i) synthesis and analysis, (ii) temporal sequencing and finite-verb hierarchy, (iii) the unergative and the unaccusative structures, and (iv) satellite-framing and verb-framing. Together they seem to provide a strong support for the viability and utility of Huang's innovation as one potential avenue leading to a fruitful adaptation of the Generative Grammar to globalization.

Key words: Generative Grammar, macro-parameters, synthesis and analysis, temporal sequencing and finite-verb hierarchy, the unergative and unaccusative structures, satellite-framing and verb-framing

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\* This is a significantly extended and amplified version of my paper entitled *The Interplay of the Synthesis and Analysis Macro-parameters in Jim Huang's New Theory*, which has appeared as 'The Interplay of the Synthesis and Analysis Macro-parameters in Jim Huang's New Theory' in the *Proceedings of IACL 18-NACCL 22*, pp. 196-208. I wish to express my deepest gratitude to the reviewer, who pointed out all my major and minor mistakes in theory, in concept, and in technique, and suggested ways to correct them. The quality of this paper no doubt has been greatly enhanced through this rigorous review, which one can only expect from a great scholar, who is generous and sympathetic.

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## 1. INTRODUCTION

Noam Chomsky's grand enterprise of Generative Grammar has proved a great linguistic movement. It was launched, expanded, and continuously refined in the few decades prior to the drastic landscape change ignited by current economic globalization. Globalization has natural impacts on other realms of human activities besides economy, including the intellectual field of linguistics. In the new environment of globalization, proponents of Chomsky's theory of Generative Grammar would do well to adapt for survival. Adaptation is a trial and error process, with no success guaranteed. Jim Huang's (2005, 2006, and 2007) new theory of *Macro-principles and Macro-parameters (MP&MP)* on syntax seems to hold a strong promise for a successful adaptation by Generative Grammar to globalization.

The standard idea of *Principles and Parameters (P&P)* makes a claim on universal rules or principles governing the sentence patterns in all languages. A principle on the traditional micro-level of syntactic analysis governs a number of narrow-scope micro-patterns of sentences, but a principle at the macro-level in Huang's theory of Macro-principles and Macro-parameters, or MP&MP, controls a number of broad-scope, macro-patterns of sentences, which are each condensed from a number of micro-patterns. If the micro-patterns are largely restricted to autonomous syntax, the macro-patterns, with a wider horizon of vision opened up on a higher level of scrutiny, can go beyond syntax to address the issues of semantics, pragmatics, discourse, and culture. If Huang achieves an initial success in the level-lifting and scope expansion of Generative Grammar, then Huang can help to make Generative Grammar invigorated, fortified, and survive in the era of globalization. It seems that Huang is fully capable of achieving this success.

'Analysis' and 'synthesis' as used by Huang are the two descriptive macro-parameters, which realize or deploy one macro-principle. Huang left that macro-principle unspecified, but we interpret it as a principle that aims to effectively express meanings in forms. Form can achieve brevity or 'concision', inducing meaning's opacity, or lack of 'transparency', and

meaning in turn can gain clarity or transparency, producing form's verbosity, or lack of concision. Transparency of meaning and concision of form are two equally desired effects, although they are two contradicting goals that have to be reconciled. Analysis aiming for transparency would express a meaning in an elaborated or detailed form, such as in a phrase like *call Bill on the phone*, and synthesis directed at concision would convey the same meaning in a brief or non-wordy form, such as in a phrase like *phone Bill*. As illustrated by this pair, the two ways of expression are examples of two broadly sweeping macro-parameters (or more precisely two broad values of a mega-, or macro-parameter), and not just two narrowly restricted micro-parameters. This opposition between analysis and synthesis is widely observed, as in the following contrasts: *put the wine into the bottle* versus *bottle the wine*, *put the books on the shelf* versus *shelve the books*, *put the apples into the box* versus *box the apple*, *put the saddle on the horse* versus *saddle the horse*, *give John a hug* versus *hug John*, *make the operation larger* versus *enlarge the operation*, and *make the search narrower* versus *narrow the search*.

Huang's proposal of his theory is initiated with a case study of the two opposing values of the analysis-synthesis macro-parameter interacting in the history of the Chinese language. His examination is revealing and his claims are convincing. If additional pairs of macro-parameters deploying a single macro-principle can be discovered, then they will strengthen the theory of MP&MP. There is evidence that this can be done. Huang himself has uncovered a pair of the unergative and the unaccusative macro-parameters. In addition, there is a pair of temporal-sequencing and finite-verb hierarchy macro-parameters, and a pair of macro-parameters that contrast as Talmy's (2000) satellite-framing and verb-framing. And hopefully, there will be more pairs to be discovered in the near future to further confirm the validity of Huang's innovation.

The reviewer's comments and suggestions on this section is very valuable and helpful, for which we are grateful. First, we are here referring to something as a parameter or a macro-parameter what in the original sense proposed in the Theory of P&P would be called values of that parameter of

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macro-parameter. This is a misuse of the terms, which should have been avoided. Second, we have also lumped together what traditionally would be distinguished as formal and functional macro-parameters, which can be separated for clearer exposition. Third, the opposition between Finite-verb Hierarchy and Temporal Sequencing does not fall neatly into a formal or a functional macro-parametric variation. But we still keep them as two values under the macro-parameter of conceptual-formal marking of elements of a sentence.

In the following space, we first review and discuss these four pairs of macro-parameters, or more accurately, value-pairs of a macro-parameter. In the process, we take the opportunity to explore how two divergent macro-parameters might interact in the contemporary state and in the history of a language. In describing this interaction, we appeal to a theory adapted from Soros' (2008) theory of economic changes, and we also invoke the theory of grammatical interaction, which Hsieh (1989, 1991, 2005) has proposed as an extension of Wang's (1969) theory of competition, and which Her (1991,1997,1999) has subsequently refined. We conclude our discussion with a reiteration of Huang's potential important contribution to Chomsky's Generative Grammar.

## 2. ANALYSIS AND SYNTHESIS AS TWO MACRO-PARAMETERS

### 2.1 Macro-parameters Favored Differently by Chinese and English

Huang's notion of a macro-principle spread out as two or more macro-parameters within one language or across languages can be explained with an illustrative example, which Huang himself has provided. Consider (1a) and (1b):

- (1) a. 張三打電話給李四。  
 Zhangsan da dianhua gei Lisi.  
 Zhangsan hit telephone give Lisi.  
 'Zhangsan telephoned Lisi.'
- b. John telephoned Bill.

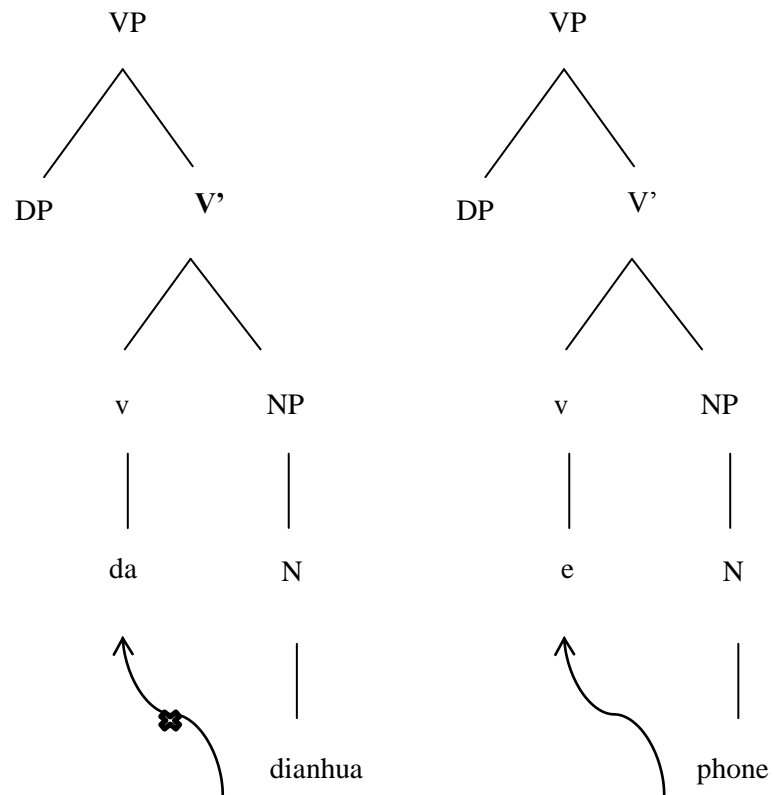
(1a) and (1b) have the same or equivalent meaning. They both express the event that a person makes a phone call to another person. (1a) in Chinese is *analytical*, since it analyzes the event as being composed of three 'simple' meaning elements: 打 *da* 'hit', 電話 *dianhua* 'telephone', and 給 *gei* 'give'. In contrast, (1b) in English is *synthetic*, because it combines or synthesizes these three separate simple elements-- 'hit', 'telephone', and 'give'-- into one complex element or one chunk. To account for the convergent meanings and the divergent forms of (1a) and (1b), and focusing on the light-verbal phrase, vP, Huang (2006) postulated two parallel X-bar structures for them, as in (2a) and (2b):

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(2) a. Chinese analysis

b. English synthesis



In (2a) the lexicalized light verb *da* ‘hit’ blocks the N *dianhua* ‘telephone’ from moving to merge with it, yielding (1a) in Chinese as an analytical form, or as an *analysis*. By contrast, in (2b), the empty light verb *e*

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allows the N *phone* to move into it and merge with it, yielding (1b) in English as a synthetic form, or as a *synthesis*.

Huang apparently thinks that languages have no inherent tendency to favor analysis or synthesis. Some languages such as Chinese in (1a) may by chance favor analysis, and some languages such as English in (1b) may incidentally opt for synthesis. Without knowing what drives the different inclinations, we can still describe them precisely. Both (1a) and (1b) have the same sub-structure or the same sub-tree, *vP*, as shown in (2a) and (2b). We assume that there is a universal macro-principle, which aims to produce an 'ideal expression' having both form concision and meaning transparency. In this example, the production relies on controlling the movement of a noun N or a main verb V, by either allowing or prohibiting it to move to the light verb *v*. On the one hand, if analyticity motivated by meaning transparency is in operation, then the light verb is lexically realized as in (2a), and the N is blocked from moving to merge with it. An analytic expression would be the result. On the other hand, if synthesis motivated by form concision is in action, then the light verb is lexically empty as in (2b), and the N will move to merge with it. A synthesis would then be the outcome. An ideal state or object, particularly an ideal expression, is often an impossible achievement. Complete meaning transparency can only be obtained through a complete lack of form concision, and conversely complete form concision can only be achieved through a complete absence of meaning transparency. Presumably, languages seek ideal expressions, and consequently a sentence is constantly caught in a struggle or competition between the two conflicting macro-parameters of analysis and synthesis (or the two conflicting poles of the analysis-synthesis macro-parameter), in a history and in a contemporary state.

If one were to describe this competition in the framework of P&P, one would be short of a formal device. A system-external remark about one alternative expression being meaning-transparent and the other being form-concise would have to be made. But that kind of remark, expressed as a side note, lacks a legitimate formal status in the P&P theory. With ingenuity, Huang offered a legitimate device. He postulated, for the shared source



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structure of the derived analysis and synthesis, a vP that has a light verb *v*. The light verb *v*'s being lexically filled or empty determines the alternative outcomes of the analysis and the synthesis. It determines, describes, and explains formally. The reviewer, however, pointed out that in a current version of Minimalism, there in principle can be a system-internal way of precisely stating a way for balancing the transparency need and economy need.

## 2.2 Historical Changes Driven by Macro-parameters

Huang examined historical changes in the syntax and morphology of Chinese, spanning from Old Chinese, through Middle Chinese, to Mandarin Chinese and modern Chinese dialects. During this long process of change, the two macro-parameters of analysis and synthesis acted like two powerful waves sweeping in opposite directions across the ocean of the Chinese language. According to Huang, Old Chinese (OC), or Archaic Chinese, a relatively synthetic language, has acquired high analyticity when it evolved into the Middle Chinese (MC), with the analyticity degree peaking during the late MC (Tang-Song dynasties), and then when MC developed into Modern Chinese (MnC), limited degrees of synthesis emerged that resulted in the micro-parametric differences in various modern dialects.

Hence, as Huang has depicted it, we have this sequence of macro-parametric alternation in the syntactic and morphological changes in Chinese: OC-synthesis → MC-analysis → MnC-synthesis.

## 2.3 The Interaction of Macro-parameters

Clearly, in the history of Chinese the two macro-parameters have constantly interacted and have competed to gain dominance over each other. During this contest, a syntactic *form* expressing a fixed semantic *content* can switch its '*shape*' from analysis to synthesis and from synthesis to analysis. What then is the nature of this shift in shape? A possible answer seems to be

hidden for discovery in George Soros's (2008) theory of economic change. Soros assumes that there is reciprocity, or in his own term, 'reflexivity', in any economic change affecting an individual participating in the change. A participant uses two methods or two 'functions' to achieve the goal of maximizing his benefit or profit. He is strategically positioned. When a new situation emerges, he uses both methods to cope. One is realistic and the other is anticipating. Realistically, he uses his tool of factual observation, or his 'cognitive function', to gain knowledge about the situation. Anticipating, he employs his device of effective manipulation, or his 'manipulative function', to achieve the maximal benefit or profit. Soros emphasized that, contrary to the conventional view in economics, these two functions are not isolated from each other but are constantly in a 'reflexive' or reciprocal interplay. The result is that just as the cognitive function is trying to 'objectively' gain knowledge about a situation, the manipulative function has already 'subjectively' reshaped that situation for reaction, in hopes of achieving the desired maximal benefit or profit. Hence there is always uncertainty or a wide range of variation in the presumed objective knowledge and in the possible subjective reactions. Appropriating Soros' theory, we equate Soros' cognitive function with the retreating macro-parameter-- which may be analysis or synthesis--and Soros' manipulative function with the advancing macro-parameter—which may in reverse be synthesis or analysis. And we deduce from Soros' theory of economic change a theory of grammatical change, which, to honor Soros, we may call the 'Sorosan procedure' of grammatical change. After the interaction of the two macro-parameters has produced an uncertainty or a wide range of variation, what would determine the speaker's choice of a particular variant for a focused response? The factors determining his choice likely falls into several types: lexical, morphological, syntactic, semantic, pragmatic, and cultural. A single factor may act alone as a constraint, or a combination of several factors may act together as a restriction.

To describe the Sorosan Procedure, we first characterize synthesis and analysis. Given a particular grammatical entity,  $e$ , we make a distinction

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between its syntactic form  $S(e)$  and its semantic content or meaning  $M(e)$ . The  $M(e)$  is ideally one fixed notion. But the  $S(e)$  has two alternate shapes: the analytic mode  $Ana(e)$ , and the synthetic mode  $Syn(e)$ .  $Ana(e)$  has the meaning  $M-Ana(e)$  and  $Syn(e)$  has the meaning  $M-Syn(e)$ . They are not fixed but are varying in various contexts. Specifically,  $M-Ana(e) = \{Ma(e)@C_1, Ma(e)@C_2, \dots, Ma(e)@C_k, \dots, Ma(e)@C_m\}$ , where  $Ma(e)@C_k$  denotes ‘the meaning of  $Ana(e)$  in the context  $C_k$ ’. Likewise,  $M-Syn(e) = \{Ms(e)@C_1, Ms(e)@C_2, \dots, Ms(e)@C_k, \dots, Ms(e)@C_n\}$ , where  $Ms(e)@C_k$  indicates ‘the meaning of  $Syn(e)$  in the context  $C_k$ ’. The context  $C_k$  can be of a lexical, morphological, syntactic, semantic, pragmatic, or cultural kind.

Let us see a concrete example of how the Sorosan Procedure works. As we can see in the chart in (3), the procedure starts with an input, which can be the analysis  $Ana(e)$  or the synthesis  $Syn(e)$ . If it is an  $Ana(e)$ , then it is some  $Ana(e)@C_i$ , with which the procedure starts, in step 0. Here, the  $Ana(e)$  is the form *A calls B on the phone*, and the  $C_i$  is an official communication. Next, the procedure applies the Cognitive Function and, by step (1), reads  $Ana(e)@C_i$  as  $Ma(e)@C_i$ , which is the meaning ‘A calls B on the phone.’ Next, it applies the Manipulative Function in five additional steps, steps (2) through (6). In step (2) it sets  $C_k$  as the desired (pragmatic) context, where  $C_k$  is a personal communication. Next, in step (3), it finds  $Ms(e)@C_k$  in  $M-Syn(e)$ : ‘A rings B’. Next, by step (4), it picks  $Ms(e)@C_k$ : ‘A rings B.’ In step (5), it identifies  $Syn(e)@C_k$  as denoting  $Ms(e)@C_k$ : *A rings B*. Finally, in step (6), it obtains the output  $Syn(e)@C_k$ : *A rings B*, and the procedure terminates. Assuming that the set  $Ana(e)$  and the set  $Syn(e)$  happen to have an equal number of elements, if we had started out with  $Syn(e)$  in  $C_k$ , *A rings B*, we would have reached  $Ana(e)@C_i$ , *A calls B on the phone*.

(3) The Sorosan Procedure illustrated with an example in English:

Operation Types	Operations and Products
Start with input:	(0) Ana(e)@ Ci; Ci= an official communication <i>A calls B on the phone.</i>
Apply the Cognitive Function:	(1) Read Ana(e)@ Ci as Ma(e)@Ci: 'A calls B on the phone.'
Apply the Manipulative Function:	(2) Set Ck as the desired (pragmatic ) context; Ck=a personal communication (3) Find Ms(e)@Ck in M-Syn(e): 'A rings B.' (4) Pick Ms(e)@Ck: 'A rings B.' (5) Identify Syn(e)@Ck as denoting Ms(e)@Ck: <i>A rings B.</i>
Obtain as output:	(6) Obtain Syn(e)@ Ck: <i>A rings B.</i>

## 2.4 Types of Constraint on Macro-parametric Shifts

As we have seen, there are various types of restriction on the shift from one end of macro-parameter to the other end. Making a survey of them, we first look at two examples involving a pragmatic constraint. Huang (2006, slide 40) gave this amusing example:

- (4) 吳王電越王。  
Wu wang dian Yue wang  
Wu king electrify Yue king  
'King Wu telephoned King Yue.'

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Huang's sentence is funny, because Huang pretends that there were electrical phones in Archaic China, when there weren't any. Taken seriously, the entity at issue is  $e = //dian//$ , which denotes that A does something to B by applying electricity. For this  $e$ ,  $Syn(e) = \{ (A) \text{ affects } (B \text{ with electricity}), (A) \text{ calls } (B \text{ on the phone}), (A) \text{ sends } (B \text{ a telegram}), (A \text{ asks God to help him}) \text{ attack } (B \text{ with storm electricity}), (A \text{ erotically}) \text{ attracts } (B), \dots, (A) \text{ delivers } (B \text{ an e-mail message}) \}$ . What would be the corresponding  $Ana(e)$ ? It would be  $Ana(e) = \{ A \text{ affects } B \text{ with electricity}, A \text{ calls } B \text{ on the phone}, A \text{ sends } B \text{ a telegram}, A \text{ asks God to help him attack } B \text{ with storm electricity}, A \text{ erotically attracts } B, \dots, A \text{ delivers } B \text{ an e-mail message}, A \text{ faxes } B \text{ a page } \}$ . If sentence (4) were to appear in a recently excavated archaic text, since we know that there was only natural electricity in a storm and no machine-generated electricity, we would pick as its matching or translating analysis the variant *A asks God to help him attack B with storm electricity*. So we can see that the switch from the  $Syn(e)$  to the  $Ana(e)$  is pragmatically constrained, having something to do with the culture and industry of a speech community.

But now consider another imagined Archaic Chinese sentence (5):

- (5) 梁山伯電祝英台。  
Liangshanbo dian Zhuyingtai  
Mr. Liang electrify Zhu  
'Mr. Liang erotically attracted Ms. Zhu (or better: Mr. Liang electrified Ms. Zhu [with his love, appearance or a kiss or ... ]).'

If we read this sentence today, our choice of a variant in the  $Ana(e)$  collection for  $//dian//$  would be different from when we read sentence (4). As speakers of Chinese we are all familiar with the beautiful love story of Liang and Zhu, hence we would choose *A erotically attracts B*. We would not have chosen *A asks God to help him attack B with storm electricity*. Again, the constraint is of a pragmatic kind. To see one more example of a pragmatic constraint, consider (6):

- (6) a. 李四會不會英文?  
 Lisi hui bu hui yingwen?  
 Lisi can not can English  
 'Can Lisi hear/speak/read English?'
- b. 李四會不會鋼琴?  
 Lisi hui bu hui gangqin?  
 Lisi can not can piano  
 'Can Lisi play piano?'
- c. \*李四會不會台北?  
 Lisi hui bu hui taibei?  
 Lisi can not can Taipei  
 'Will Lisi go to Taipei?' (intended meaning)

Sentences (6a,b) are grammatical, but (6c) is not. To render (6c) grammatical, we can insert a 去 *qu* 'go to' after 會 *hui* 'can/will do'. Apparently, the *hui* in (6c) is an auxiliary, not a full verb. But the word *hui* in (6a) and (6b), combining *hui* and possibly a light verb ZUO 'do', is a full verb in its synthetic form. It denotes the entity  $e = //$  can/will do something that requires skills  $//$ . In other words, for this *hui*,  $Syn(e) = \{can (hear), can (speak), can (read), can (write), can (play), can (dance), can (cook), \dots, can (sing)\}$ . And  $Ana(e) = \{can hear, can speak, can read, can write, can play, can dance, can cook, can sing, \dots, can jump\}$ . To the question posed in (6a) or (6b), one normally doesn't answer by just saying yes or no, but by specifying Lisi's skill, such as he can speak English but cannot read or write it. In other words, one gives an analysis as a reply to a question in synthesis.

A similar case of synthesis has been made well-known in English, especially through the work of Pustejovsky (1995). Consider (7):

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- (7)
- a. John began (to read, to write, to edit, ..., to translate) a novel.
  - b. John wants a beer (to drink).
  - c. John wants a book (to read).
  - d. John wants a cigarette (to smoke).
  - e. John wants a car (to drive).

The word *begin* in (7a) is a synthesis, and  $\text{Syn}(e) = \{\textit{begin}\}$ . The corresponding analysis is  $\text{Ana}(e) = \{\textit{begin to read, begin to write, begin to edit, ..., begin to translate}\}$ . We have to rely on world knowledge or pragmatics to know which element of the  $\text{Ana}(e)$  is the right or best choice for the single element *begin* in the  $\text{Syn}(e)$  in (7a). In a slightly different way, the word *want* in (7b), (7c), (7d), and (7e) is also a synthesis. Here,  $\text{Syn}(e) = \{\textit{want}\}$ , whose corresponding analysis is  $\text{Ana}(e) = \{\textit{want to drink, want to read, want to smoke, ..., want to drive}\}$ . However, unlike in (7a), the choice of the element from the  $\text{Ana}(e)$  is not pragmatically constrained, but is semantically or lexically constrained. If the direct object is *a beer*, then *wants to drink* is the right choice, and if the direct object is *a book* then *wants to read* is the right selection.

Let us now look beyond pragmatics, and see some examples involving syntactic, semantic, or lexical constraints. We start with the preposition *into* in English. It is an analysis, which is used to depict a trip or journey having two successive parts. To dissect this journey, we invoke Talmy's (2000, vol.1, ch.3) idea that a physical object may be construed or in his term 'idealized' as a point (of zero dimension), a line (of one dimension), a plane (of two dimensions), or a space (of three dimensions), in various grammatical contexts. The sentences in (8) through (11) all use a phrase to express the movement of a person or object into some space. In such a movement-into-space phrase, the person first moves toward or *to* the space, viewed initially as a point, which requires a *to*, then the person moves *inside* the space, which is now perceived as a space, and requires a *in*. The word *into*, according to the Oxford English Dictionary (OED), is originated from a combination of the adverb *in* and the preposition *to*. OED noted that *in* is

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‘expressing a motion from without certain limits to a place with these; especially into a house or other building.’ When *in* is changed from an adverb into a preposition, it has probably kept its meaning of ‘moving into a space’. In the evolved new sequence of prepositions, the order of *in* and *to* are not temporal but anti-temporal. With this etymology, we posit Ana(into) = {into} and Syn(into) = {in, to}. When we say ‘in or to something’, we are using *in* or *to* as a synthesis for the analysis *into*. As we see in (8), (9), (10), and (11), when *into* is preceded by a particular verb like *change*, *move*, *drop*, or *put*, only one but not both of the two variants in Syn(into) is permitted:

- (8) a. The horse changed into a unicorn.  
b. The horse changed to a unicorn.  
c. \*The horse changed in a unicorn.
- (9) a. John moved into New York City (from its suburb).  
b. John moved to New York City (from Boston).  
c. \*John moved in New York City (intended as moved into).
- (10) a. The flower dropped into the pond.  
b. \*The flower dropped to the pond.  
c. The flower dropped in the pond (intended as dropped into).
- (11) a. The ball dropped into the box.  
b. \*The ball dropped to the box.  
c. The ball dropped in the box.

In these examples, the switch from the analysis to the synthesis is constrained on two levels: syntactic and lexical. Syntactically, the external NP is a Theme and the NP of the PP is a Locative; lexically, some verbs (*change*, *move*) must take *to* and some other verbs (*drop*, *put*) must take *in*.

This constraint by the combined force of syntax and lexicon is further illustrated by another set of examples. Consider (12) and (13):



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- (12) a. John racked money into his wealth.  
b. John racked in money.  
c. \* John racked to money.
- (13) a. John drove the car into the garage.  
b. John drove the car in.  
c. \*John drove the car to.

Sentences in (12) and (13) employ a transitive or causative structure, which is different from the intransitive structure of sentences in (8) through (11). The lexical item *rack* demands a *in* rather than a *to*, presumably because if someone racks money, he wants the money to be in his wealth, viewed as a space, and not just nearby his wealth, viewed as a point. Similarly, the lexical item *drive* demands a *in* rather than a *to*, presumably because if someone drives a car into a garage, he wants the car to be inside the garage, viewed as a space, and not just in front of the garage, viewed as a point.

The choice of *in* or *to* as a synthesis matching the analysis *into* is somewhat complicated. It is determined not just by the lexicon and the syntax, but also by pragmatics or world knowledge. For example, if someone steps into a crisis to prevent the situation from getting worse, he wants to get *in* the crisis as a controller and not just go *to* the crisis as a bystander, as illustrated in (14):

- (14) a. The European Central Bank steps into the crisis to shore up market confidence.  
 b. The European Central Bank steps in to shore up market confidence.  
 c. \*The European Central Bank steps to to shore up market confidence.

The proper choice of a synthesis, *in* or *to*, for the same analysis, *into*, in the examples in (14) is apparently constrained by world knowledge: to be effective in dealing with a mess, one must step *into* or *in* the mess, and not just move close *to* the mess. The process of selection can become even more complex, and the complexity is revealed when we compare a pair of translation-equivalent sentences: (15) in English and (16) in Chinese:

- (15) (Easy money has turned into heavy debt. Baby boomers have postponed retirements.)  
 College graduates are *moving back in with* their parents.
- (16) 大學畢業生正在搬回父母的房子去跟他們住在一起。  
 Daxue biyesheng zhengzai *ban hui* fumu de fangzi  
 college graduate in-the-course-of move back parents DE house  
 qu *gen tamen zhu zai yiqi*  
 to with them live in together  
 ‘College graduates are moving back in with their parents.’

(15) is very synthetic. One way to convey the same idea in a more analytic form is (17):

- (17) College graduates are *moving back into* their parents’ house to *live together with* them.

The English sentence in (17) has six parts, as indicated by their italicized cores, and its equivalent Chinese sentence (16) also has six parts as signaled

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by their italicized centers. Though the two versions analyze with the same number of cores, they synthesize and shorten somewhat differently. The English *back into* and *live together with* in (17) is shortened as *back in* and as *with* in (15), respectively. The Chinese sentence (17) shortens the English phrase *back into* in (16) as *hui* ‘back’, and retains the English phrase *live together with* as *gen* ‘with’...*zhu* ‘live’ *zaiyiqi* ‘together’. Interestingly, shortening (17) drastically into a very terse sentence like (15) is not possible for Chinese. One explanation of this difference is perhaps that English is based on the FFH, which retains more grammatical structure after sentential shortening, unlike Chinese, which is based on FTS and does not retain as much grammatical structure as needed.

We can see one fact clearly from the above examples illustrating macro-parametric variation in the contemporary state or history of a language. And this fact is that various domains of a grammar, including lexicon, syntax, semantics, pragmatics, and culture, may exert their constraint on the switch from one end of the macro-parameter to the other. And this should suffice to show that Huang’s theory of MP&MP has the potential of expanding the scope of investigation for Generative Grammar from a restricted autonomous syntax to other connective components of the grammar.

### 3. TEMPORAL-SEQUENCE FRAME AND FINITE-VERB FRAME

Macro-parameters spreading out a macro-principle can affect different components of a grammar, perhaps reaching virtually every part and every corner of the grammar. Huang’s pair of analysis and synthesis macro-parameters is focused on the vP. At a higher level of inspection, macro-parameters may affect the way words denoting notions are ranked and successively combined into an increasingly larger chunk. If the words are treated as of the same rank, requiring no rank-markers, then the words are ordered sequentially according to some criterion, such as event time and thematic focus, and a ‘horizontal’ *Plain Sequence* of words and word combinations is obtained. On the other hand, if the individual words and

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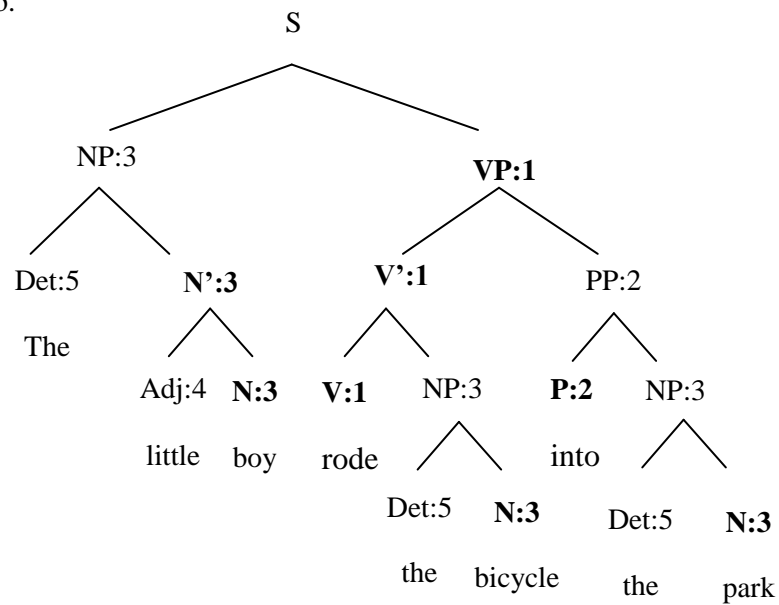
*Huang's Idea of Macro-Parameters*

word combinations are ranked and marked by their ‘primacy’, with primacy defined by some notion, such as the dynamic, active, and agile nature of an action or object, then ‘vertical’ *Primacy Hierarchy* is achieved. The pronunciation of a sentence necessarily turns such a sequence or hierarchy into a linear order, but syntactically, the two orders are distinct as one horizontal sequence and one vertical hierarchy. Languages have the potential to adopt the plain sequence and the primacy hierarchy primarily or exclusively, but virtually all languages adopt a mixture or alternation of the two strategies.

Tai (1985, 2002) has claimed that Chinese has adopted a Temporal Sequence of word ordering. The temporal sequence is what we have called a plain sequence based on the temporal order in which the sub-events in an event --or the simple events in a complex events-- take place. Based on his observation of a temporal sequence in Chinese, Tai suggested that Chinese is ‘iconic’ since it uses ‘concrete’ time difference rather than ‘abstract’ categorical distinction as a criterion for ordering the words in a sentence. Unlike Chinese, English is ‘abstract’ or ‘non-iconic’, because it habitually relies on categorical distinction, such as verb versus preposition, rather than temporal distinction, such as anterior versus posterior for the ordering of words. (cf. John came here by bus, Zhangsan zuo gongche lai zher, Zhang-rode-bus-come-here, ‘Zhang came here by bus.’) English seems to be controlled by a particular primacy hierarchy, which we may call the Finite-verb Hierarchy. Consider (18a) and its analysis tree in (18b):

(18) a. The little boy rode the bicycle into the park.

b.



Primacy-degree tree for (18a) The little boy rode the bicycle into the park.

In drawing the primacy-degree tree in (18b), we made use of the X-bar tree in P&P, which allows us to compose a modifier element or phrase and a head element or phrase into a phrase, which maintains the primacy rank of the head element but has a complexity of one degree higher. The hierarchical tree in (18b) and in general is built with two devices. Applying the first device, we assign to each lexical entry a descending degree of primacy from 1 to n: the lower degree an entry has, the higher its primacy. Primacy degrees can be precisely determined by comparing the relative primacy

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degrees of one category and another category in comparison. . If there are ten categories, then there are  $10 \cdot 10 = 100$  pairs for comparison. Let A be one category and B be another category in comparison with A, then there are 100 <A, B> pairs. We inspect all the 100 pairs to derive the relative ranking of the ten categories. For the purpose of explaining (18b), we skip this precise counting, and we simply assign primacy degree 1, or pd-1, to a verb, pd-2 to a preposition, pd-3 to a noun, pd-4 to an adjective, and pd-5 to a determiner. We abbreviate to save space in writing and in tree-drawing. We write, for example, 'V rode with primacy degree ng1' as 'V:1; rode'. In abbreviation, we get all the lexical entries in (18b) ranked: Det:5; *the*, Adj:4; *little*, N:3; *boy*, *bicycle*, *park*, P:2; *into*, and V:1; *rode*. Applying our second device, we derive the primacy degree of a phrase from that of its head element or phrase, as we obtain NP:3 from N:3. Let us see in detail how this works on each phrase and on the combination of the phrases in (18b). In the subject NP *the little boy*, we see that Adj:4; *little* and N:3; *boy* combine into N':3; *little boy*, and Det:5; *the* and N':3; *little boy* combine into NP:3; *the little boy*. Next, in the phrase V':1; *rode the bicycle*, Det:5; *the* and N:3; *bicycle*—whose raising to N':3; *bicycle* is not shown-- combine into NP:3; *the bicycle*, and then V:1; *rode* and NP:3; *the bicycle* combine into V':1; *rode the bicycle*. Next, in the PP:2; *into the park*, Det:5; *the* and N:3; *park*—whose raising to N':3; *park* is not shown-- combine into NP:3; *the park*. Following this, P:2; *into* and NP:3; *the park* combine into PP:2; *into the park*. Following this, the two phrases V':1 and PP:2 compose into VP:1, which then further composes with NP:3 into S. And the composition ends. The tree now shows (i) the primacy degree of each lexical entry and composed phrase, and (ii) the increase in complexity of a head resulting from its combination with a modifier. These two features are what we would expect from the X-bar three, which we have utilized.

Returning to Tai's proposal, we first look at (19a, b), which is Tai's well-known pair of sentences illustrating temporal sequence in Chinese:

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- (19) a. 張三坐公共汽車來這兒。  
Zhangsan zuo gonggongqiche lai zheer.  
Zhangsan ride bus come here  
(i) 'Zhangsan came here by bus.'  
(ii) 'Zhangsan took the bus to come here.'
- b. 張三來這兒坐公共汽車。  
Zhangsan lai zheer zuo gonggongqiche.  
Zhangsan come here ride bus.  
'Zhangsan came here to take the bus.'

In (19a), the Chinese sentence, obeying Tai's Principle of Temporal Sequencing (PTS), or what we may call Frame of Temporal Sequence (FTS), places the anterior sub-event *zuo* 'ride' before the posterior sub-event *lai* 'come'. In contrast, its English counterpart as indicated by the translation, subscribes to the Frame of Finite-verb Hierarchy (FFH). It has two alternative finite-verb selections. It can pick the sub-event denoted by 'come' in (i) or the sub-event indicated by 'take' in (ii). But in (19b), it is 'come' expressing a 'means' and not 'take' expressing an 'end' that is selected as the finite verb. This restriction could indicate that English tends to treat 'means' as primary and 'end' as not primary, but secondary.

Tai's idea of a PTS or in our term FTS is a significant and interesting claim. Some like Hsieh (1989) have found it convincing and offered confirming data and extended notions, and some like Newmeyer (1992) are skeptical. Newmeyer thinks that PTS is not a grammatical rule but a discourse principle that happens to become grammaticalized in Chinese. Tai (2002) replied, first by pointing out that if PTS is a pragmatic rule, the Grician implicature of 'A temporally prior to B' in the form A-and- B would have allowed for cancellation. For example, cancellation is allowed in (20a, b):

- (20) a. Mary went to the supermarket and bought some motor oil. ('A prior to B' holds)  
 b. Mary went to the supermarket and bought some motor oil, but not in that order. ('A prior to B' is cancelled)

Tai showed, however, that in a pair of Chinese sentences such as (21a, b), cancellation is not possible, proving that PTS is not a pragmatic rule but a grammatical rule:

- (21) a. 張三到圖書館拿書。  
 Zhangsan dao tushuguan na shu. ('A prior to B' always holds)  
 Zhangsan reach library take book  
 'Zhangsan went to the library to get books.'  
 b. 張三拿書到圖書館。  
 Zhangsan na shu dao tushuguan. ('A prior to B' always holds)  
 Zhangsan take book reach library  
 'Zhangsan took books to the library.'

Tai's reply with strong supportive data seems quite persuasive. Newmeyer seemed to have disagreed with Tai for the purpose of maintaining the formal as distinct from the cognitive perspective adopted in Generative Grammar. In view of Huang's idea of macro-parameters, we may be able to settle the debate. We can say that Chinese adopts FTS and English chooses FFH, and that these two frames are the two opposing values of a macro-parameter that apply to the respective two languages. The macro-principle in this case then is the principle that elements in a sentence must be consistently, coherently, and effectively ordered. Temporal sequencing in Chinese is one way, and finite-verb hierarchy in English is another way. If this is an acceptable reconciliation, then Tai's PTS or FTS is a syntactic mechanism just like the English FFH.



## 4. UNERGATIVES AND UNACCUSTIVE

### 4.1 Apparent Subject and Apparent Object

The third pair of macro-parametric values we will examine is related to the opposition between the Unergative Frame and the Unaccusative Frame, which Huang himself has used to distinguish between two sets of predicates ranging from one-place to three-place predicates. The reviewer pointed out that this distinction is a universal distinction affecting all predicates in a language and not a parametric contrast among languages. What we are trying to say is that verbs may be classified into two contrasting groups—the unergative and the un-accusative groups—and that one language may favor the pervasive use of one group and another language may prefer the extensive use of another group. Before we embark on a discussion of Huang's account, we review some of the previous accounts on issues ultimately related to this opposition. One of the many puzzles in Chinese syntax is that a non-agent thematic role, such as the patient, the locative, or the instrument can surprisingly appear as the VP-external DP, or the subject. In (22a) the subject is mapped from the agent, but in (22b) the subject is derived from the patient:

- (22) a. 兩個人吃一磅肉。  
 liang ge ren chi yi bang rou  
 two CL person eat one pound meat  
 (i) 'Two person eat one pound of meat.'  
 (ii) 'One pound of meat feeds/serves two persons.'
- b. 一磅肉吃兩個人。  
 yi bang rou chi liang ge ren  
 one pound meat eat two CL person  
 'One pound of meat feeds/serves two persons.'

To explain the contrastive derivations in this pair, Her (2009) adopts for his framework the Lexical Mapping Theory in LFG (Bresnan and Kanerva

1989, Bresnan and Zaenen 1990, Bresnan 2001). Her offered a succinct recapitulation of LMT, along the line of the account offered by Bresnan and Zaenen (1990), who begin their exposition by providing the sentences in (23) as illustrations:

- (23) a. We pound the metal flat. (transitive)  
 b. The metal was pounded flat. (passive)  
 c. The river froze solid. (unaccusative)  
 d. The dog barked. (unergative)

How does LMT work on these four sentences? It starts with the a-structure. An a- structure has three parts: (i) a predicator, such as *pound*, (ii) its semantic roles or thematic roles, ordered in their relative prominence in the Thematic Hierarchy (TH), with the agent on the left and the patient on the right in a pair of angled brackets, and (iii) the syntactic classification of each semantic role indicated by a feature, such as [-o] for an agent and [-r] for a patient. Thus, we have the following a-structures, (24a,b,c,d), for the predicators *pound*, *pounded*, *freeze*, and *bark* in (23a,b,c,d):

- (24) a. pound            < ag    pt >  
                               [-o]   [-r]  
 b. pounded           < ag    pt >  
                               [-o]   [-r]  
 c. freeze              <th >  
                               [-r]  
 d. bark                <ag >  
                               [-o]

The a-structure features [+/- o] (indicating an 'objective or non-objective syntactic function') and [+/- r] (indicating a 'restricted or unrestricted syntactic function') determine how the semantic roles are converted into the

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syntactic functions in f-structures (functional structures). The syntactic functions are grouped into natural classes by Bresnan and Zaenen as in (25):

- (25) (i) Subjects and objects (S and O) are [-r]  
(ii) Obliques and restricted objects (OBL $\theta$  and O $\theta$ ) are [+r]  
(iii) Subjects and Obliques (S and OBL $\theta$ ) are [-o]  
(iii) Objects and restricted objects (O and O $\theta$ ) are [+o]

The feature [-r] denotes an *unrestricted* syntactic function, a function which can originate as any semantic role. Only subjects and objects are [-r]. Obliques and restricted objects are [+r], being *restricted*. The feature [-o] denotes a non-objective syntactic function, a function which complements intransitive predicators, such as N (noun) or A (adjective). Only subjects and obliques are [-o], whereas objects and restricted objects are [+o]. Consequently, a [-o] role cannot be mapped onto an object, and a [-r] role can be mapped onto a subject or object:

- (26) a-structure:       $\theta$        $\theta$   
                         [-o]      [-r]  
                          $\downarrow$        $\downarrow$   
f-structure:      O      S/O

There are simple and general principles for determining the unmarked choices of syntactic features in the a-structures:

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(27) patient-like roles:	$\theta$ [-r]
secondary patient-like roles:	$\theta$ [+o]
other roles:	$\theta$ [-o]

With the a-structure, we can define notions akin to those of external and internal arguments: an internal argument takes one of the object features ([-r] or [+o]), and an external argument is a  $\theta$  that is [-o]. In sum, the a-structures of words contain the minimal lexical information that drives the projection of semantic roles onto surface syntactic functions. In contending for accession to a functional role, the thematic roles are lined up on prominence in the Thematic Hierarchy (TH), which has the descending arrangement agent > benefeciary > experiencer > goal > instrument > patient/theme > locative.

Going back to (24), we see that in (a) there are both a [-o] for agent and a [-r] for patient and since agent is more prominent than patient, the [-o] of agent will yield S (subject); in (b) there are both the [-o] for agent and [-r] for patient, but agent is suppressed and so the [-r] of patient will yield S; in (c) there is only one [-r] for theme, hence theme maps onto S; and finally in (d) there is only one [-o] for agent, hence agent maps onto S. (28) displays these mappings:



position, respectively. In (22aii), *liang ge ren* ‘two persons’ has the composite role *ag-ext*, and before this role is mapped, its *ext* component is ‘suppressed’, and this makes it an *ag*, and so it moves to the subject position. In (22b), *liang ge ren* ‘two persons’ has the composite role *ag-ext*, and before it is mapped, its *ag* component is suppressed and so it is *ext*, and *ext* is lower than the *th* of *yi bang rou* ‘one pound of meat’, and so it is mapped onto object, and the *th* is mapped onto subject. So this sentence has the word order OVS, with the subject and object reversed. Her astutely pointed out that subject-oriented adverbs like 故意 *guyi* ‘purposefully’, 全心全意 *quanxinquanyi* ‘wholeheartedly’ cannot modify the verb 吃 *chi* ‘eat’ in (22b). And this supports his view that the O is a genuine O, though it is an ‘apparent’ S occupying the usual pre-verbal subject position. The reviewer wonders why with a subject-oriented adverb, such as 故意 *guyi* ‘purposefully’ added, only option (22ai) is a possible meaning, but option (22aii) is not maintained; Her’s own explanation aside, we can assume that purpose, intention, determination, devotion, etc. can only be predicated of a animate thematic-role, and since *yi2bang4rou4* ‘one pound of meat’ is not animate, it cannot take be associated with the adverb *gu4yi4* ‘purposely’.

Her has evidently offered a reasonable and convincing account of the subject-object inversion in Chinese centering on the consumption verbs, such as 吃 *chi* ‘eat’, 喝 *he* ‘drink’, and 抽 *chou* ‘smoke’, and on the accommodation verbs, such as 住 *zhu* ‘live’, 坐 *zuo* ‘sit’, and 睡 *shui* ‘sleep’. This account confirms the insight we gain from LFG to the effect that subjects tend to be as agent-like as possible and objects tend to be as patient-like as possible. An extension of this notion of the subject to encompass agent, locative, and cause is executed by Lin (2001), as we will soon see. But let us see another treatment offered by Li (2010) on the apparent or ‘unselective’ subject.

## 4.2 Li's Notion of Unselective Subject

Li (2010), in her keynote speech at the IACL 18-NACCL 20 at Harvard University has positively commented on Her's paper, and offered additional patterns that may be explained in Her's approach. Particularly interesting is a pair like (29a) and (29b), which are not like the usual (29c):

- (29)
- a. 小杯喝綠茶。  
 xiao bei he lyucha  
 small cup drink green tea  
 'Use the small cup to drink the green tea.'
  - b. 綠茶喝小杯。  
 lyucha he xiao bei  
 green tea drink small cup  
 'Use the small cup to drink the green tea.'
  - c. 張三喝綠茶。  
 Zhangsan he lyucha  
 Zhangsan drink green tea  
 'Zhangsan drinks green tea.'

If we adopt Her's approach, in (29a) *xiao bei* has the more prominent or higher role *inst* and *lyucha* has the less prominent or lower role *pt/th*, and so they routinely fill the pre-verbal position of subject and the post-verbal position of object. In (29b) the lower *pt/th* of *lyucha* 'green tea' fills the pre-verbal position of subject and the higher *inst* fills the post-verbal position of object, apparently contradicting the prediction based on the TH. In line of Her's account, to treat the contradicting (29b), we could postulate a composite role *th-inst* for 綠茶 *lyucha* 'green tea', suppress the *inst*, rendering it a *th*, and map this *th* onto the subject position. There seems to be one problem: we would allow a predicator in LMT to have more than one a-structure or one associated f-structure. In the case of 喝 *he* 'drink', one a-structure would be <inst pt > (for (29a)) and the other a-structure would be <ag-th inst> (for (29b)). Indeed, we need a third a-structure <ag pt> (for

(29c)). This means that if we assign multiple a-structures to a predicator, then a verb like 喝 *he* 'drink' can function as three varying predicators, each of which has its a-structure, or its combination of thematic roles. We might as well write these predicators as *he-1*, *he-2*, and *he-3*. It appears that this device of varying predicators is legitimate in LFG. In (28), we can see that the transitive *pound* and the passive *pounded* have a hidden difference in the a-structure, which surfaces as a difference in the f-structure. The *ag* in the a-structure of *pounded* is suppressed into 'empty', leaving the *pt* to surface as the subject. So this problem of multiple a-structures for one single predicator for Her is solved: multiple a-structures are legitimate in the theory of LFG. When used in tandem, Her's *ext* role and suppression device can solve the unselective-subject problem in (29). Specifically, for (29a) we could postulate <pt inst-ext>, suppress *ext* to render *inst* the (apparent) subject (construed as 'Let's use the small cup to drink green tea'), and for (29b) we could postulate <th inst-ext> (construed as 'Green tea is what we use the small cup to drink'), suppress *inst* and turn *th* into (apparent) subject, and for (29c) we would postulate the normative <ag th> (construed as 'Zhangsan drinks green tea. '), and make *ag* the subject. And they will all yield apparent SVO, as Her would have expected.

The apparent subjects in (29a,b) are just more spectacular examples of the so-called *unselective* subject and object. Li meanwhile referred to the work of Lin (2001), cited all the patterns which Lin has used to illustrate his taxonomy of subject types. In total, Li identified four thematic roles as capable of yielding possible *unselective subjects*: agentive, existential, causative, and progress; and eight *unselective objects*: theme/patient, instrument, location, time, reason, inclusion, and occurrence. Seemingly echoing Lin, Li has taken an innovative step. A DP/NP originating from a thematic role is no longer just a person-like or object-like entity, but an entity that can subtly convey the meaning of, for example, existence, causation, and progress.

Let us now examine Lin's fresh account closely. Consider Lin's examples in (30):



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- (30) a. 高速公路上開著一排坦克車。  
Gaosugongu shang kaizhe yi pai tankeche. (Existential)  
expressway on drive-durative one row tank  
'There is one row of tanks moving on the expressway.'
- b. 這輛破車開得我嚇死了。  
Zhe liang po che kai de wo xia si le. (Causative)  
DEM CL broken car drive extent I scare dead perf.  
'Driving this broken car made me scared to death.'

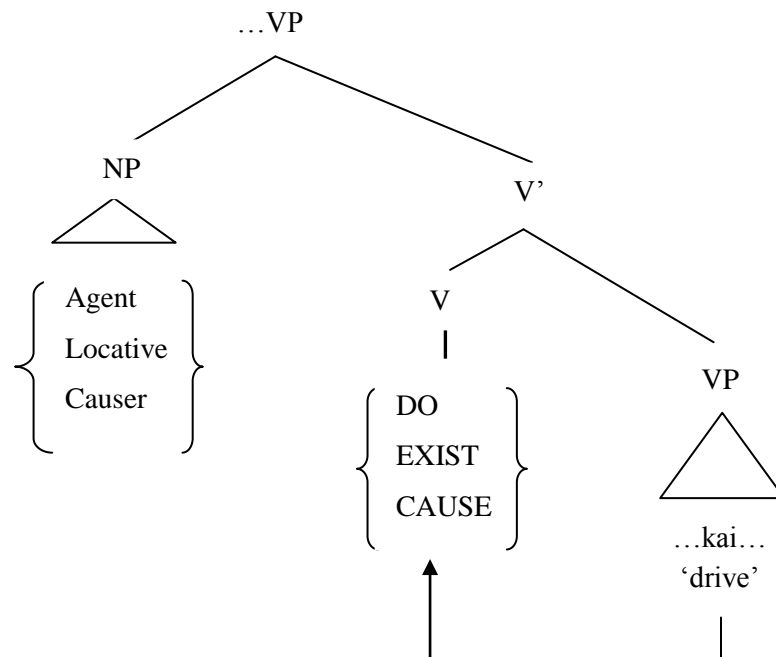
The phrase *Gaosugonglu shang* 'on the expressway' is now not just a locative indicating the location of the *tankeche* 'tanks', but also that the tanks *exist*. Similarly, *Zheliang po che* 'this broken car' is not just a theme in an event but a *cause* of someone's fear. In English, which has subject marking, we can be sure that something is a subject if the finite verb agrees with it in person, number, and tense (e.g. *John plays piano*.) However, since a pre-verbal Chinese NP functioning as a subject lacks a marker, it is usually identified as the subject on account of a source thematic role such as agent or theme. What Lin observed is that agency or agent-likeness is not a reliable enough indication. Some other thematic roles such as the locative in (30a) or the patient in (30b) can function as the subject. This observation generates a keen insight that has eluded most other linguists, who tend to think that subject in Chinese is derived from an agent, a theme, an agent-like role, or a theme-like role.

### 4.3 Light Verbs Coming to the Rescue

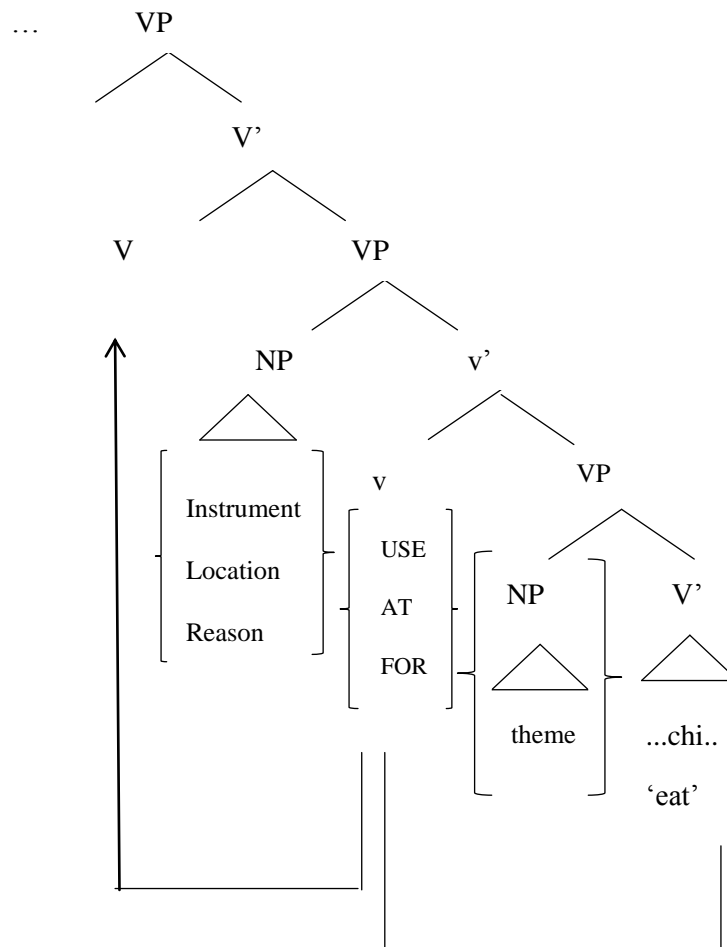
Since the surface syntax provides only an unreliable clue for identifying the subject, Lin ingeniously resorts to a special kind of 'deep' structure for solution. Lin assumes that the status of the subject or the object is determined by its licensing *light* verb. Lin (2001, pp.119-120) provided two trees to illustrate how the light verb, rather than the main verb, determines whether an external DP will be an agent, a locative, or a causer, and whether

an internal DP will be an instrument, a location, a reason, or a theme. Lin's two trees are as shown below in (31) and (32) (repeated and renumbered from his tree (3) on p.119 and his tree (4) on p.120, in chapter 3):

(31) Selection of subjects in Mandarin Chinese



(32) Selection of object in Mandarin Chinese



As (31) shows, different subjects are licensed by different light verbs. The Agent is licensed by the light verb DO, the Locative by EXIST, and the Causer by CAUSE. The subject-selecting light verb picks a VP as its complement, and the main verb within the VP, in this case *kai* 'drive', gets incorporated into the light verb V, resulting in DO-*kai*, which surfaced as *kai* 'drive'. (The light verb is written as a big V by Lin, though as a small v by some others). The different objects, except the regular theme/patient object, are explained in a similar way in (32). Different objects, including the instrument, the location, the reason, are licensed by the light verbs USE, AT, and FOR, respectively. The regular object (NP as Theme) is base-generated as the specifier of the V'(...*chi*... 'eat'). The main verb first moves to and gets incorporated into these object-selecting light verbs, resulting in USE-*chi* in the case of *chi* 'eat', and this combination then moves up into the subject-selecting light verb DO to get incorporated, resulting in DO-USE-*chi*, which is finally surfaced as *chi* 'eat'. In this way, Lin has offered a way of defining subject as a functional category. Subject used to be *formally* defined as the specifier YP of the X' under XP, in the X-bar tree  $XP \rightarrow \langle YP, X' \rangle$  (Huang, Li, and Li 2009, p.44), but *functionally* subject is not clearly defined. LFG's definition of subject inherited the formalist limitation from Generative Grammar, except that it refers to deep thematic roles. Lin's significant achievement is to have postulated needed light verbs to identify various kinds of subjects understood as *syntactic functions that are motivated by verbal meaning*. They are syntactic functions because they denote such notions as Agent, Locative, and Causer, which are not all derivable from thematic roles. To the extent that the P&P theory wants to address the issue of syntactic functions, Lin seems to have made an important contribution to Generative Grammar.

Until Lin's innovation, given a sentence like (30a), a linguist working on Chinese would usually be tempted to assume that since (30a) is translation-equivalent to (30a'), it is also structure-equivalent to it:

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(30a') *On the express-way the soldiers are driving a row of tanks.*

The omitted subject in (30a) would be 'the soldiers', since English is the standard. This would be like fitting the Chinese foot into an English shoe. But Lin ingeniously gave the Chinese foot its own Chinese shoe, refreshingly echoing Bill Wang's clarion call from the long past to construct an 'indigenous' Chinese grammar for the Chinese language. The reviewer thinks that our interpretation of Lin's contribution to the issue of the indigenous Chinese grammar is mistaken. He said that:

*I don't think Lin means to echo any call for the construction of an indigenous Chinese grammar. In fact, he assumes the light verb structure for all languages. It is the nature of analyticity—the fact that the verbs in Chinese do not come from the lexicon with fixed theta role requirements that must be projected to syntactic positions (i.e., the Chinese verbs are less 'grammaticalized' than English). His purpose is to develop a parametric account within UG, against indigenous grammars that purport not to be derived from UG.*

The reviewer's skepticism of an indigenous grammar of Chinese which 'purport[s] not to be derived from UG' in principle can be removed, if we blend an UG-based tier with a regionally created tier in the syntax of Chinese. Indeed, this is what Hsieh (2012) has proposed to do, anticipating the reviewer's doubt. With respect to the meaning of 'existence' associated with 開 *kai* 'drive' in Lin's sentence cited as (30a), we can say that UG provides a light verb EXIST and that light verb has the meaning 'exist' in the regional or 'indigenous' grammar of Chinese, but not in the regional grammar of English, which rules out (30a') as ungrammatical:

(30a') \*On the high way, drives a tank.

With respect to the issue of unselective subjects, with Lin's approach, we could posit an additional light verb EXTEND with a matching NP Extent in (31) that makes use of Her's *extent* as a thematic role. Also, to account for the 'progress' subject recognized by Li in (33), we could posit a light verb PROGRESS:

- (33) 這場長途賽車已經開了三分之一的路程了。  
 Zhe chang chang tu saiche yijing kai le  
 DEM M long distance car race already drive Perf.  
 sanfenzhiyi de lu cheng le (Progress)  
 one of the three parts DE road journey Perf.  
 'This long-distance car racing has proceeded for one third of the  
 journey'

If we proceed in this way, the task of explaining unusual, apparent, or unselective subjects would become partly a problem of figuring out what light verbs we would need to postulate. And yet the problem of what sort of NP, or DP, can be licensed or selected as the subject is still with us. We notice that literal translations of Li's (29a,b) as (29a',b') are not acceptable in English:

- (29) a'. \*The small cup drinks green tea.  
 b'.\* Green tea drinks the small cup.

Mapping from thematic roles onto syntactic functions as in Her's approach cannot explain the difference between Chinese, with its acceptable (29a, b), and English, with its unacceptable matching (29a', b'). If the two Chinese sentences (29a, b) lack an agent and allow an instrument ('the small cup') or a theme ('green tea') to function as the subject, why wouldn't the same be allowed in their English counterparts (29a', b')? In other patterns, Chinese and English may be in close agreement. For example, in causative

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sentences Chinese and English agree in allowing the instrument to function as the subject:

- (34) a. 鑰匙打開了門。  
yaoshi da kai le men  
key hit open perf. door  
'The key opened the door.'  
b. The key opened the door.

But in a sentence with a consumption verb (e.g. *he* 'drink', *chi* 'eat') or an accommodation verb (e.g. *zuo* 'sit', *shui* 'sleep'), only Chinese but not English allows the instrument or the theme to appear as the subject, as indicated by the acceptable (29a,b) in Chinese, and the unacceptable (29a',b') in English. If we want to explain this sort of regional diversity in LFG, we have a solution. We postulate a 'template' or 'model' sentence for a number of translation-equivalent sentences across languages, and we assign slightly different predicators to a model verb. In this approach, for example, English has only the usual <ag pt> for *drink*, but Chinese has, besides this predicator, the other two predicators that allow the consumption verb *he* 'drink' or the accommodation verb *shui* 'sleep' to take the unusual thematic-role configurations: *he* <pt inst-ext>, <th inst-ext> (with suppression of *inst*); *shui* <th inst-ext> (with suppression of *inst*). Not only verbs of these two types, but other verbs, such as 炒 *chao* 'fry', 鋪 *pu* 'spread (on top of)', 掛 *gua* 'hang', and 種 *zhong* 'plant', also allow unusual thematic-role configurations:

- (35) a. 新鍋炒肉，舊鍋炒飯。  
xin guo chao rou, jiu guo chao fan  
new pot fry meat, old pot fry rice  
'Fry meat with the new pot, and fry rice with the old pot.'

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- a'. 肉炒新鍋，飯炒舊鍋。  
rou chao xin guo, fan chao jiu guo  
meat fry new pot, rice fry old pot  
'As for the meat, fry it with the new pot; and as for the rice, fry it with the old pot.'
- b. 棉被鋪大床，毯子鋪小床。  
mianbei pu da chuang, tanzi pu xiao chuang  
quilt spread big bed, blanket spread small bed  
'Spread the quilt on the big bed; spread the blanket on the small bed.'
- b'. 大床鋪棉被，小床鋪毯子。  
da chuang pu mianbei, xiao chuang pu tanzi  
big bed spread quilt, small bed spread blanket  
'Spread the quilt on the big bed; spread the blanket on the small bed.'
- c. 牆上掛照片，柱上掛風鈴。  
qiang shang gua zhaopian, zhu shang gua fengling.  
wall on hang photo pillar on hang wind bell  
'Hang the photo on the wall; hang the wind bell on the pillar.'
- c'. 照片掛牆上，風鈴掛柱上。  
zhaopian gua qiang shang, fengling gua zhu shang  
photo hang wall on, wind bell hang pillar on  
'Hang the photo on the wall; hang the wind bell on the pillar.'
- d. 前院種桃樹，後院種李樹。  
qian yuan zhong tao shu, hou yuan zhong li shu  
front yard plant peach tree, back yard plant plume tree  
'Plant peach trees in the front yard; plant plume trees in the backyard.'
- d'. 桃樹種前院，李樹種後院。  
tao shu zhong qian yuan, li shu zhong hou yuan  
peach tree plant front yard, plum tree plant back yard  
'Plant peach trees in the front yard; plant plume trees in the backyard.'



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(35a), with the verb *chao* ‘fry’, has the <inst pt> configuration, yielding the instrument-verb-patient sequence, and (35a’) (with the same verb) has the <pt loc> configuration, yielding the patient-verb-locative sequence; (35b), with the verb *pu* ‘spread upon’, has the <th loc> configuration, supplying the theme-verb-locative sequence, and (35b’) has the <loc pt > configuration, supplying the locative-verb-patient sequence; (35c), with the verb *gua* ‘hang’, has the <loc pt> configuration, providing the locative-verb-patient sequence, and (35c’) has the <th loc> combination, providing theme-verb-locative sequence; (35d), with the verb *zhong* ‘plant’, has the <loc pt> configuration, leading to the locative-verb-patient sequence, (35d’) has the <th loc> configuration, leading to the theme-verb-locative sequence. (Puzzlingly, the TH, which ranks pt/th higher than loc, is violated in the <loc pt> predicator for (35b’), (35c’), and (35d’).) The exact shape of a thematic-role configuration posited for a sentence in the above four pairs is subject to dispute, because the sentence lacks overt syntactic markers like 用 *yong* ‘with’ and 在 *zai* ‘in’ to ensure that an apparent subject or object has originated from an instrument role or a locative role. For example, for (35a) the <inst pt> might as well be replaced by <loc pt>. Disputable as they may be, these thematic-role configurations are reasonable postulations useful for explaining the apparent subject and object. These four verbs behave like Her’s consumption and accommodation verbs, but it seems hard to find their meaning commonality or the commonality that they share with the consumption and accommodation verbs. For this reason, we begin to suspect that mapping from thematic roles to syntactic functions may have both syntactic and lexical restrictions. Indeed, an approach utilizing these combined restrictions is proposed and explicated by Huang (2007) (Huang offered the essence of his approach in the form of an enlightening audience-comment after Li (2010) finished giving her keynote speech at IACL 18-NACCL 20 at Harvard University).

## 5. HUANG'S DICHOTOMY OF THE UNERGATIVE VERSUS THE UNACCUSTIVE

Instead of using behavioral features such as consumption and accommodation to classify verbs, Huang (2006) used the syntactic characteristics and behavioral features of verbs to classify them. Huang recognized six verb categories as follows:

- (36) (i) unergative intransitive verbs: *cry, laugh, jump*, etc. in English, and their correspondences *ku* 'cry', *xiao* 'laugh', *tiao* 'jump', etc. in Chinese.
- (ii) unaccusative intransitive verbs: *appear, happen, come*, etc. in English, and their counterparts *chuxian* 'appear', *fasheng* 'happen', *lai* 'come', etc. in Chinese.
- (iii) unergative transitive verbs: *eat, drink, hit, win*, etc. in English, and their equivalents *chi* 'eat', *he* 'drink', *da* 'hit', *dasheng* 'win', etc. in Chinese.
- (iv) unaccusative causative verbs: *open, close, break, defeat*, etc. in English, and their matches *kai* 'open', *guan* 'close', *dapo* 'break', *dabai* 'defeat', etc. in Chinese.
- (v) unergative three-argument verbs in Chinese: *tou* 'steal', *qiang* 'rob', *na* 'take from', etc.
- (vi) unaccusative three-argument verbs in Chinese: *gei* 'give', *mai* 'sell', *song* 'present to', etc.

Huang gave a concise definition of the unergative intransitive verb and of the unaccusative intransitive verb as follows:

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- (37) A one-argument unergative sentence is an objectless sentence, taking the agent as its external argument; a one-argument unaccusative sentence is a subjectless sentence, taking the patient or theme as its internal argument.

He gave (38) as an example of the unaccusative verb:

- (38) 張三來了。  
Zhangsan lai le  
Zhangsan come perf.  
'Zhangsan has come.'

*Zhangsan* is the NP that moves from the internal-argument position to the external argument position to become an 'apparent' subject. Huang showed that transitive verbs, just as intransitive verbs, also fall into two types as unergatives and unaccusatives. For example, *dasheng* 'play and win' is unergative and *dabai* 'play and fail' is unaccusative. Consider (39):

- (39) a. 中國隊打勝了韓國隊。  
Zhongguo dui da sheng le hanguo dui (transitive)  
Chinese team play win perf. Korean team  
'The Chinese team has won out over the Korean team.'
- a'. 中國隊打勝了。  
Zhongguo dui da sheng le (unergative)  
Chinese team play win perf.  
'The Chinese team won.'

- b. 中國隊打敗了韓國隊。  
 Zhongguo dui da bai le hanguo dui (causative)  
 Chinese team play fail perf. Korean team  
 'The Chinese team has defeated the Korean team.'
- b'. 中國隊打敗了。  
 Zhongguo dui da bai le (unaccusative, but not shortened from b)  
 Chinese team play fail perf.  
 'The Chinese team has lost.'
- b''. 韓國隊打敗了。  
 Hanguo dui da bai le (unaccusative, and shortened from b)  
 Korean team play fail perf.  
 'Korean team is defeated.'

We can derive (39a') from (39a) by deleting the object *hanguo dui* 'the Korean team', but we cannot derive (39b') from (39b) by similarly deleting the object *hanguo dui* 'the Korean team', since the meaning of (39b), with the Chinese team as the winner, would be changed in (39b'), with the Chinese team as the loser. Huang told us that (39b') has an unaccusative verb *dabai* 'play and lose' and the object *zhongguo dui* has moved from the object position to the subject position to pose as an 'apparent' subject. The correct shortened form of (39b) would be (39b''), with the causative-verb object, the Korean team, understood as the loser of the game, moved to the subject position.

Thus, there is a dichotomy. A transitive verb such as *dasheng* 'play and win' (in 39a) and an unergative intransitive verb such as *dasheng* 'play and win' (in 39a') form an 'unergative class', and a causative verb such as *dabai* 'play and make fail' (in 39b) and an unaccusative verb such as *dabai* 'play and fail' (in 39b'') form an 'unaccusative class'.

Huang then went on to compare a pair of three-argument sentences, one unergative-like, with the verb *qiang* 'rob' as in (40a) and one unaccusative-like, with the verb *gei* 'give' as in (40b):

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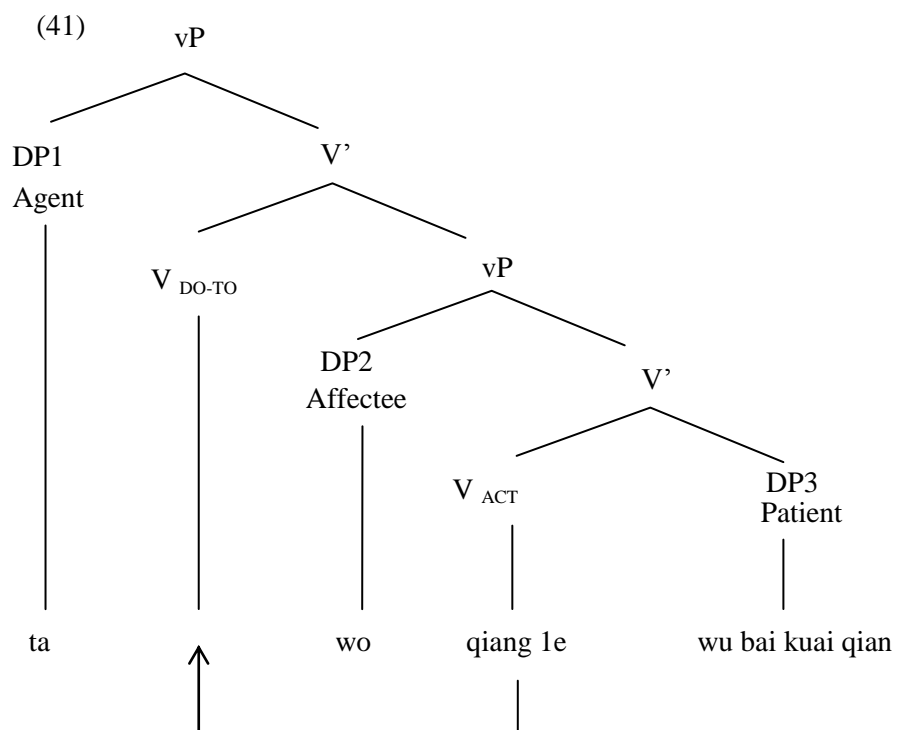
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- (40) a. 他搶了我五百塊錢。  
ta qiang le wo wu bai kuai qian  
He rob perf. me five hundred dollars money  
'He robbed me of five hundred dollars.'
- b. 張三給李四一本書。  
Zhangsan gei le Lisi yi ben shu  
Zhangsan give perf. Lisi one CL book  
'Zhangsan gave Lisi a book.'

Huang provides two X-bar trees in (41) and (42), which we repeat below, to show the structures of these two sentences and the movement of their main verbs to their light verbs.

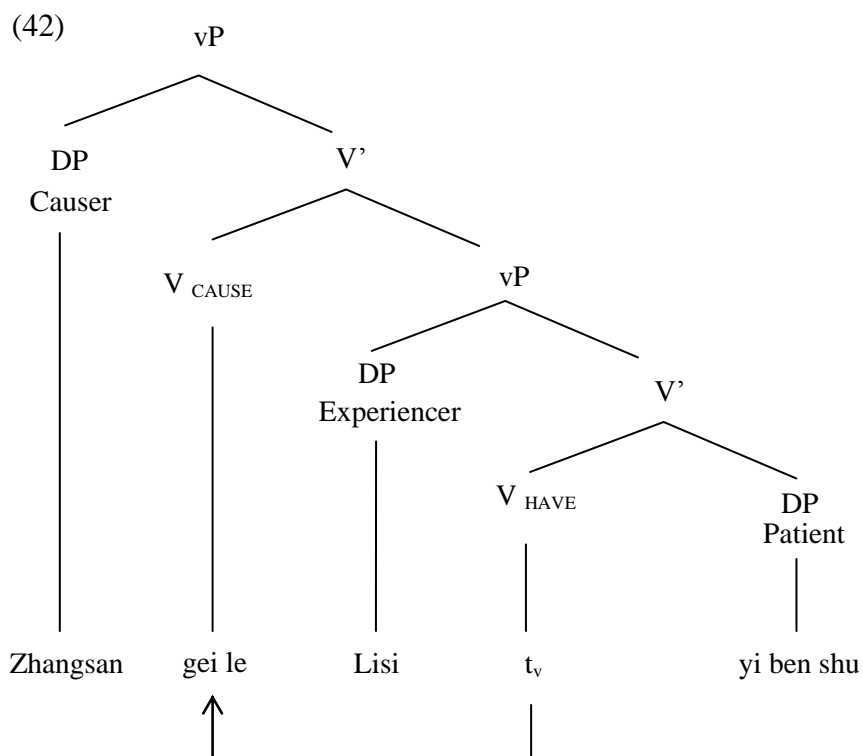
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In the unergative structure tree (41), the main verb  $V_{\text{ACT}}$  *qiang le* moves into the light verb  $v_{\text{DO-TO}}$ , which has no phonetic ingredient. Huang pointed out that other than *qiang* ‘rob’ and *tou* ‘steal’, many verbs not sharing any meaning with *qiang* and *tou* nor with each other can occur in this structure, such as the verbs *fa* ‘fine’, *da* ‘spank’, *pian* ‘swindle’, *ying* ‘win’, *mo* ‘fumble’, and *qian* ‘owe’. For this reason, Huang suggested that a behavior-based verb class such as a *rob-steal* class is not an adequate label. Obviously, this inadequate class is similar in nature to Her’s consumption

class and accommodation class of verbs. Huang's way to get out of this problem is to say that we should forget about the unwarranted class of *rob-steal* verbs and just focus on this 'bunch' of verbs on account of their occurrence in the three-argument unergative structure. Regarding the unaccusative sentence (42), we see that the main verb  $V_{\text{HAVE}}$  *gei le* moves to the light verb  $v_{\text{CAUSE}}$ . More precisely, *gei le* is the result of incorporating the main verb *yong you* 'to possess' into the light verb *shi* 'make', resulting in *gei le* 'gave'. Again, a behavior-based give-transfer class would be improper, just as the *rob-steal* class, since there are verbs without shared meaning, such as 賣 *mai* 'sell', 借 *jie* 'loan', and 送 *song* 'give as a gift', that also behave in this way. It would be better to set up a 'bunch' of verbs that can appear in an unaccusative structure. In view of (41) and (42), we might want to stipulate for each lexical verb something that is equivalent to the thematic-role configuration in the a-structure posited in the LMT of LFG. In this formulation, every verb that can occur in Huang's tree (41) or (42) would be lexically specified as to its permitted occurrence in Huang's unergative or unaccusative structure. In other words, the verb's behavior would be restricted both lexically and syntactically.

In his concluding section, Huang took the opportunity to tell us that the unergative structure and the unaccusative structure are two major types, which amount to two opposing values on a macro-classification of verb types, and in this sense, it has the flavor of a macro-parameter, though the latter is a parameter of cross-linguistic variation, not one of predicate-type variation within one and the same language. 'Unaccusative verbs describe all events that are patient-centered, but unergative verbs represent all events which are agent-oriented.' (Huang 2007:18). Huang thinks that any verb falls into one of these two categories. He considered control verbs (*try*, *eager*, *promise*) as unergative verbs and raising verbs (*seem*, *easy*, *likely*) as unaccusative verbs. He also regards the control verb *persuade* in (43a) as an unergative taking Bill as the affectee (cf.(41)), and the control verb *promise* in (43b) as an unaccusative taking Bill as the experiencer (cf.(42)):



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- (43) a. John<sub>i</sub> persuaded Bill<sub>j</sub> [PRO<sub>j</sub> to be brave].  
b. John<sub>i</sub> promised Bill<sub>j</sub> [PRO<sub>i</sub> to be brave].

Having offered this macro-classification, Huang is cautious to point out that the boundary of these two categories is not clear cut. Sometimes, one verb can be an unergative in one context but an unaccusative in another context. One example is 跑 *pao* ‘run’. In (44a) *pao* is unergative but in (44b) *pao* is unaccusative:

- (44) a. ta zhengzai pao.  
he in-the-course-of run  
‘He is running.’  
b. ta pao (diao) le  
he run lose perf.  
‘He has run away.’

Why is there this sort of alternation? If we look at a language not only as a contemporary state but also as a prolonged phase of a historical change, then we can say that the double uses of a verb like *pao* in (44) signal two values of a macro-parameter, which in the sense of Wang (1969) is competing in a historical change. Which one of these two contending macro-parametric values, especially as they act on the particular verb *pao*, is receding and which one is advancing? Only a careful historical study can hope to give a good answer. Nevertheless, if we examine some idiomatic expressions like *pao jianghu* ‘roam in the rough world’, *pao danbang* ‘operate as a loner’, *pao matou* ‘work from one wharf to the next’, we can see that *pao* is unergative in all these idioms, since there is no true object. If we assume that idiomatic expressions like these are fossilized and are hence more conservative, then we can also conclude that *pao* is in the process of shifting from an unergative to an unaccusative.

The reviewer pointed out that 跑 *pao* ‘run’ in these idioms are like light verbs, and as we know, a light verb can have a range of meanings, so 跑 *pao* could mean ‘wander about’ as in *pao jianghu*, ‘operate’ in *pao danbang*, ‘work from port to port’ in *pao matou*. If we analyze *pao* this way, then the assumption of *pao* shifting from an unergative to an unaccusative need not hold. Yet, if we assume that light verbs are historically derived from genuine verbs, then this assumption about a shift can still hold.

If the unaccusative and unergative macro-parametric values are really in a competition, we should be able to find more pervasive supporting examples than just the random examples like *pao*. And we do find such reconfirming examples. A set of such supportive examples is the sentences having the free inversion of apparent subject and apparent object in Li’s pair in (29a, b), as contrasted with (29c), and another set is the pairs (35a, a’), (35b, b’), (35c, c’), and (35d, d’). We see that (29c), being unergative transitive, has the *ag* surfaced as the subject, in contrast to (29a, b), which being unaccusative, has the *inst* or *pt* float up as the subject. And we also see that in each pair in (35), except pair (a, a’), the non-primed member moves a higher role, such as *th* in (35b) to the subject position. By contrast, the primed member moves a lower role, such as *loc* in (35b’) to the subject position. And we have registered our puzzle over this violation of the TH, when we commented on these pairs. We seem to have a solution to this problem now. If a higher role tends to occur in an unergative structure as its apparent subject, and a lower role is inclined to occur in an unaccusative structure as its apparent subject, then the violation of the TH is explained. Furthermore, the contrast observed in the pairs in (35) would serve to prove that the unergative macro-parameter and the unaccusative macro-parameter are engaged in a competition. Without conducting a historical investigation, it is difficult to determine which one of the two macro-parameters is advancing and which one is receding.

## 6. INTERPLAY OF THE UNERGATIVE AND THE UNACCUSATIVE

If the pairs in (35) are not perfect examples of the unergative versus the unaccusative distinction, due to the lack of a contrast between a genuine agent and a genuine patient, there are better ones. There is a pattern of alternation involving the ‘V *zai*’ form for the unergative, which has an agent, and the ‘V *zhe*’ form for the unaccusative, which has a patient. Consider (45):

- (45) a. 講員坐在台上，聽眾坐在台下。  
 jiangyuan zuo zai taishang, tingzhong zuo zai taixia.  
 speaker sit at stage-up audience sit at stage-down  
 ‘The speakers sit on the stage, and the audience sits below the stage.’
- a’. 台上坐著講員，台下坐著聽眾。  
 taishang zuo-zhe jiangyuan, taixia zuo-zhe  
 stage-up sit-durative speaker stage-down sit-durative  
 tingzhong.  
 audience  
 ‘On the stage the speakers are seated, and below the stage the audience is seated.’
- b. 帽子戴在頭上，鞋子穿在腳上。  
 maozi dai zai toudang, xiezi chuan zai jiaoshang.  
 hat wear at head-up shoe wear at foot-down  
 ‘The hat is put on the head, and shoes are put on the feet.’
- b’. 頭上戴著帽子，腳上穿著鞋子。  
 toudang dai-zhe maozi, jiaoshang chuan-zhe xiezi.  
 head-up wear-durative hat head-down wear-durative shoe  
 ‘On the head is the hat, and on the feet are the shoes.’
- c. 書放在書架上，筆放在書桌上。  
 shu fang zai shujiashang, bi fang zai shuzhuoshang.  
 book put at bookshelf-up pen put at desk-up  
 ‘The books are put on the bookshelf, and the pens are put on the desk.’

- c'. 書架上放著書，書桌上放著筆。  
 shujiashang fang-zhe shu, shuzuoshang fang zhe bi.  
 bookshelf-up put-durative book desk-up put-durative pen  
 'On the shelf books are put, and on the desk pens are put.'

The plain member of a pair are of the unergative type, which has an 'apparent subject', and the primed member is of the unaccusative type, which has an 'apparent object'. We can easily find many more examples of this pattern of alternation, particularly sentence pairs sharing the verb *zhan* 'stand', *tang* 'lie (down)', *shui* 'sleep', *ting* 'park', *gua* 'hang', *tie* 'paste', *fu* 'float', etc. A second kind of verbs, sharing no obvious syntactic structure but restricted by particular lexical traits, allows only the unergative *V-zai* form and disallows the unaccusative *V-zhe* form, as in (46); and a third kind of verbs, taking a time word or phrase as its object, favors the unaccusative *V-zhe* form over the unergative *V-zai* form, as in (47):

- (46) a. 貓跳在桌上。  
 mao tiao zai zhuoshang.  
 cat jump at table-up  
 'The cat jumps upon the table'  
 \* a'. 桌上跳著貓。  
 Zhuoshang tiao-zhe mao.  
 table-up jump-durative cat  
 'On the table the cat is jumping.'
- b. 張三留在日本。  
 Zhangsan liu zai riben.  
 Zhangsan stay at Japan  
 'Zhangsan stays in Japan.'  
 \*b'. 日本留著張三。  
 Riben liu-zhe Zhangsan  
 Japan retain-durative Zhangsan  
 'Zhangsan stays in Japan.'

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c. 蘋果掉在地上。

pinguo diao zai dishang.  
apple drop at ground-up  
'Apples drop on the ground.'

\*c'. 地上掉著蘋果。

dishang diao-zhe pingguo.  
ground-up drop-durative apple  
'Apples drop on the ground.'

(47) ? a. 風刮在白天，雨下在夜裡。

feng gua zai baitian, yu xia zai yeli.  
wind blow at daytime rain drop at night-in.  
'Wind blows in the day, rain drops in the night.'

a'. 白天刮著風，夜裡下著雨。

baitian guazhe feng, yeli xia-zhe yu.  
day blow-durative wind night-in drop-durative rain  
'Wind blows in the day, rain drops in the night.'

? b. 花開在春天，葉落在秋天。

hua kai zai chuntian, ye luo zai qiutian.  
flower open at spring, leaf drop at autumn  
'Flowers open in spring, leaves drop in autumn.'

b'. 春天開著花，秋天落著葉。

chuntian kaizhe hua, qiutian luo-zhe ye.  
spring open-durative flower autumn drop-durative leaf  
'Flowers open in spring, leaves drop in autumn.'

?c. 太陽照在白天，月亮照在夜裡。

taiyang zhao zai baitian, yueliang zhao zai yeli  
sun shine at day, moon shine at night  
'The sun shines in daytime, the moon shines in the night.'

c'. 白天照著太陽，夜裡照著月亮。

baitian zhao-zhe taiyang, yelie zhao zhe yueliang.  
day shine-durative sun night-in shine-durative moon  
'The sun shines in daytime, the moon shines in the night.'

The variations in (45), (46), and (47) fall into three categories. In the first type in (45), the sentence equally favors the *V zai* and *V zhe* forms; in the second type in (46) the sentence exclusively favors the *V zai* form; and in the third mode in (47), the sentence favors the *V zhe* mode over the *V zai* mode, possibly because the locative object of the verb denotes a time rather than a space.

As we see in (45) through (47), these three categories of variation show that, as far as the *V zai* and the *V zhe* opposites are concerned, Huang's unergative macro-parameter and unaccusative macro-parameter are engaged in an intense competition, with results that are not fully predictable from the syntactic context but are partly dependent on lexical restrictions.

## 7. TALMY'S VERB-FRAME AND SATELLITE-FRAME

Although Huang has cast his theory of macro-parameters in the formalist GB or P&P framework, the brilliant insight that the main verb of a sentence can be expressed by emphasizing form-concision as a synthesis or by stressing meaning-transparency as an analysis can also find its confirmation in a cognitive framework, such as in Talmy's (2000) cognitive semantics. To see this, consider the following two pairs (48a, b) and (49a, b):

- (48) a. John walked across the street.  
b. John crossed the street (by walking).
- (49) a. 張三走過馬路。  
Zhangsan zou guo malu  
Zhangsan walk pass road  
'Zhangsan walked across the street.'

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- b. 張三(步行)過了馬路。  
Zhangsan (buxing) guo le malu  
Zhangsan (walking) pass perf. road  
'Zhangsan crossed the street.'

In Huang's terms, (48a), with *walk across*, would be analytical, and (48b), with *cross*, would be synthetic. Similarly, (49a), with 走過 *zouguo* 'walk across' would be analytical, and (49b), with 過 *guo* 'cross' would be synthetic. For (48), we would postulate the shared source form <John, <<CROSS, the street>, walk >>, with the main verb *walk* and the light verb CROSS. To derive (48a), we move *walk* to join CROSS, but we leave them separated to achieve an analysis, *walk across*. To derive (48b), we move *walk* to join CROSS, and we mix them into *cross*. The derivation of (49a, b) is similar to that of (48a, b), and the shared source structure would be <張三, <過, 馬路>, 走>, where 過 is the light verb and 走 is the main verb.

As this example shows, Huang's idea of formal-syntactic macro-parameters sometimes has an exact parallel in cognitive syntax or semantics. Spectacularly, Huang's idea of a contrast between two opposite macro-parametric values finds a correspondence in Talmy's now famous idea of a contrast between a 'verb frame' and a 'satellite frame'. To better appreciate this precise correspondence, it may be worthwhile to take a close look at Talmy's two frames. Consider (50):

- (50) a. The bottle floated into the cave (Satellite-framed; English)  
b. La botella entro flotando a la cueva (Verb-framed; Spanish)  
the bottle enter float to the cave  
'The bottle floated into the cave.'  
c. 瓶子浮/漂進洞裡。  
pingzi fu/piao jin dong li (Satellite-framed; Chinese)  
bottle float/enter in cave inside  
'The bottle floated into the cave.'

A sentence has five potential event types, one of which is the 'motion' type. (For the types, see Talmy 2000, vol.II: 217-218.) A particular complex event has one main event, or *framing event*, and one secondary event, or *co-event*. The framing event is analyzed in four parts: Figure (F), Activating Process (AP), Association Function (AF), and Ground (G). The AP can indicate anyone of the five event types. When the AP denotes a 'motion' type, it is expressed by the form MOVE, and its associated AF is a 'path' expressed by a particular notion such as *into*. The framing event and the co-event maintain a *support relation*, in which the co-event may express the 'precursion, enablement, cause, manner, concomitance, purpose, and constitutiveness' of the framing event (Talmy 2000, vol.II:220). In the framing event, the AF is the core or 'verb', and the AF together with G is the core schema. The Satellite-framing and the Verb-framing of the three sentences in (50) are shown in (51):



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(51)

## Talmy's Verb-frame and Satellite-frame illustrated:

	Framing Event		Support		Co-event
Figure (F)	Activating Process (AP)	Association Function (AF)	Ground (G)	Manner	
The bottle	<i>MOVE</i> , floated	into	the cave		<i>by floating</i>
	↑				
La botella	<i>MOVE</i> , entro	entro	flotando	a la cueva	<i>flotando</i>
	↑		↑		
Ping2zi0	<i>MOVE</i> , (i) piao1 (ii) fu2	jin4le0	dong4li3		(i) fu2 & dong4=piao1 (ii) fu2
	↑				
'Bottle'	(i) 'float & move' (ii) 'float'	'into'	'cave'		(i) 'float & move' (ii) 'float'

**Note:** Italics indicates Talmy's or Talmy-style postulations; regular font indicates actual lexical and phrasal expressions. Movement is shown by arrow-headed connecting lines. English is **Satellite-framed**, since it moves the satellite co-event *by floating* to the position of *MOVE* to combine with it; Spanish is **Verb-framed**, since it moves the Association Function or core *entro* to the position of *MOVE* to combine with it (besides optionally moving *flotando*). Chinese is like English, except that it has two alternatives for the English *float*. As the three translation-equivalent sentences suggest, all or most languages have a hypothetical common or universal structure which is a macro-event, reflecting a macro-principle, whose two macro-parametric values are the Satellite-framing and the verb-framing.

As we can see in (51), A Framing Event has four parts: Figure (F), Activating Process (AP), Association Function (AF), and Ground (G). It is combined with the Co-event by the support relation Manner. This combined event or macro-event is the source or underlying structure, from which we derive, through supplying different strings of lexical entries, (50a), (50b), and (50c), in English, Spanish, and Chinese, respectively.

To create a satellite-framed sentence in English, we move the satellite verb 'by floating' into the position of MOVE, and we obtain (50a). To derive a verb-framed sentence in Spanish, we move the core verb 'enter' to MOVE and adjust the word order to make 'by floating' intervene between 'enter' and 'the cave', and we obtain (50b). To produce a satellite-framed sentence in Mandarin Chinese, we move *fu* 'float' or *piao* 'float and move' into MOVE, and we obtain (50c). Recalling Huang's light verb approach to the x-bar tree, we can quickly see that there is a close parallel between Talmy's two contrastive frames and Huang's two ways of moving a lexical element into the light verb MOVE. As the diagram in (52) shows, both the English sentence (50a) and the Spanish sentence (50b) have the same source or the same x-bar tree structure. For ease of comparison, we use the convergent meanings instead of the divergent forms to represent the lexical items in (52). As we can see, if we move the main verb 'float' to MOVE, we derive the satellite-framed English sentence in (50a), and if we move the preposition 'into' to MOVE, we obtain the Spanish sentence in (50b).

The parallel between Talmy's notion of framing and Huang's notion of light verb movement is close. The fact that a linguistic insight, which is presented in one framework, whether it is cognitive or formal, can find a close parallel to an insight in another framework may suggest that it is not unlikely that someday the long debate between cognitive grammar and formal grammar may be resolved in a partial if not full convergence.

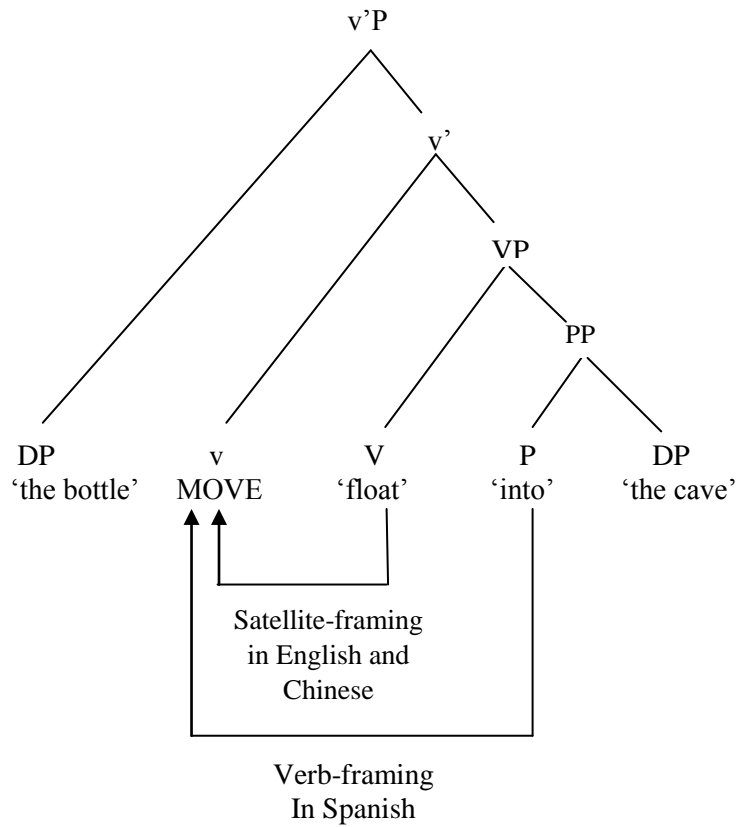
Traditional P&P, when given two different framing results, can simply claim that one of them is built in a satellite-framing and the other is constructed in a verb-framing. Yet, without resorting to a side note, it might

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fail to give an account of how the two opposite framings are created from the same source. With Huang's MP&MP, which translating Talmy's two framings as two macro-parameters, the opposition is explained. The two diverging macro-parameters--one satellite-framing and one verb-framing--result from deploying the same macro-principle of organizing a sentence consistently and coherently. In this context, we can see that Huang's innovation of MP&MP has begun to move P&P ahead on a path leading to a broader realm of linguistic investigation.

(52)



The parallel between Talmy's two frames and Huang's two ways of movement in an x-bar tree. Satellite-framing in English corresponds to moving the main verb 'float' to the light verb MOVE to result in the verb *float*, and verb-framing in Spanish corresponds to moving the preposition 'into' in English to the light verb MOVE to result in the verb *entro* 'enter'.

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It may be worthwhile to depict Talmy's two frames in more details, and we propose a descriptive framework, with which we can make an account of the following five types of sentences:

- (53) a. The bottle floated into the cave. (intransitive )  
b. The water floated the bottle into the cave. (transitive)  
c. I rolled the keg out of the storeroom. (transitive)  
d. John said that the bottle floated into the cave (embedding)  
e. The bottle floated. (unergative)  
f. The bottle fell (to the floor). (unaccusative)

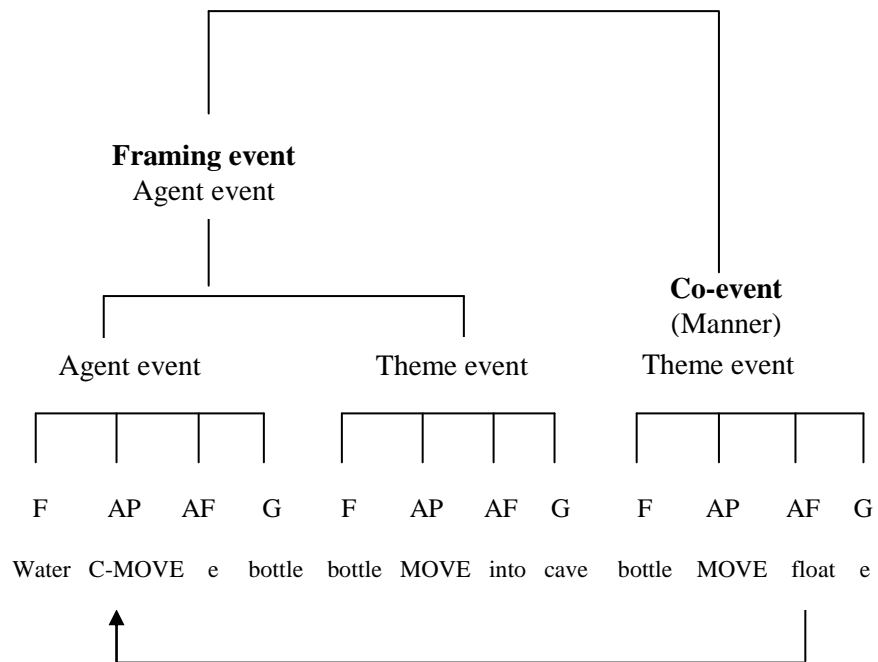
Talmy used a convenient  $\Delta$ MOVE to indicate an AP, to which an agentive verb like *roll* in (53c) is shifted from a co-event expressing manner (see Talmy 2000, vol. II: 228). Maybe we can do better by unpacking this convenient  $\Delta$ MOVE as CAUSE-MOVE. We will use three thematic roles to set up three types of thematically-determined event, or three *thematic events*: theme-event, agent-event, and patient-event. An event, whether it is a framing event or a co-event, will be analyzed as a composition of these three thematic events. Each thematic event has the same four parts as postulated by Talmy:  $\langle F, \langle \langle AP, AF \rangle, G \rangle \rangle$ . Thus, the framing event in (53a) is a theme-event ('move'), and its co-event is also a theme-event ('float'). The framing event in (53b) as well as in (53c) is composed of an agent-event ('cause') and a theme event ('move'), and the co-event is a theme event ('float'). (53d) is an embedding, and its embedded clause is the same as (53a). (53e), unergative, is a theme-event. (53d), unaccusative, is a patient-event. The support relations relating the framing event and the co-event are as would be recognized by Talmy.

Now we compose simple thematic events into a complex thematic event. First, if A and B are both framing events or both co-events, then the higher-ranked type is the combined type for  $\langle A, B \rangle$ , with the ranking conforming to the usual TH (Thematic Hierarchy). Second, if A and B are

one framing event and one co-event, then the combined type for <A, B> is the type of the framing event. (54) is a simplified tree representing (53b):

(54)

**Macro-ev**



An Agent event has the F as an agent, the AP as C (AUSE)-MOVE, the G as a person or a thing **affected** by the AP, and an empty AF. A Theme event has its G as a **targeted** or **oriented** person or thing, to which the theme F moves. A patient event has no F but has a G that shifts to the F position. In this tree, the AF *float* shifts to the position of *MOVE* in the Agent event on the left. The three simple thematic events compose into a Macro event,

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which is a complex Agent event, yielding sentence (53b). The symbol ‘e’ indicates an ‘empty’ entity.

Just as Huang’s syntactic macro-parameters of synthesis and analysis are engaged in an interaction, Talmy’s verb-framing and satellite-framing are also involved in an interaction. As we learned from Talmy’s observation (2000, vol. II: 240-241), an English or Spanish sentence does not necessarily take an exclusive framing form. It may exhibit (i) a predominant satellite-framing, with a minor verb-framing, (ii) an even distribution of the satellite-framing and the verb-framing, and (iii) a predominant verb-framing, with a minor satellite-framing. (55) covers all of the three situations in English:

- (55) (i) For a Motion event, predominantly satellite-frame forms:  
The bottle floated into the cave. (satellite-framed)  
The man walked into the room. (satellite-framed)
- (ii) For a State of Change event, equal distribution of satellite-frame forms and verb-frame forms:  
I burned him to death. (satellite-framed)  
I killed him by burning him. (verb-framed)
- (iii) For special cases of a State of Change event:  
I broke the window with a kick (verb-framed)  
\*I kicked the window broken (satellite-framed)

Hsieh (1989,1991, 2005) and Her (1997) have proposed a theory that can be used to describe this type of interaction. According to Hsieh (1991), given two rules A and B, they are engaged (i) *in complementation*, if each one applies to a separate syntactic pattern or lexical unit to yield a distinct result; (ii) *in conflict*, if they both apply to the same pattern or unit to yield two conflicting results; and (iii) *in conspiracy* or cooperation, if they apply in a sequence to the same pattern or unit, to yield one single result. Her offered a refined version of Hsieh’s theory. If we use Hsieh’s theory of interaction to explain (55), we can say that (55i) involves complementation (in favor of the

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satellite-frame), (55ii) concerns conflict (allowing both frames), and (53iii) relates to complementation (in favor of the verb-frame).

In Mandarin, the satellite-framing is predominant for Motion events as it is in English, but here and there we see sporadic conflicts between the two frames:

- (56) a. 張三已經來到台北了。  
Zhangsan yijing *lai* dao taibei le. (satellite-framed: *dao* 'reach' is the verb; *lai* 'come' is the satellite)  
Zhangsan already come arrive Taipei Perf.  
'Zhangsan has already arrived at Taipei.'
- a'. 張三已經到台北來了。  
Zhangsan yijing *dao* taibei *lai* le. (verb-framed: *dao* 'reach' is the verb, *lai* 'come' is the satellite)  
Zhangsan already arrive Taipei come Perf.  
'Zhangsan has already come to Taipei.'
- b. 火車開向台北。  
huoche *kai* xiang taibei (satellite-framed: *xiang* 'toward' is the verb, *kai* 'drive' is the satellite.)  
train drive toward Taipei.  
'The train drove toward Taipei.'
- b'. 火車向著台北開。  
huoche *xiang-zhe* taibei *kai* (verb-framed: *xiang* 'toward' is the verb, *kai* 'drive' is the satellite.)  
train toward-durative Taipei drive.  
'The train drove toward Taipei.'
- c. 他住在鄉下。  
ta *zhu* zai xiangxia (satellite-framed: *zai* 'in' is the verb; *zhu* 'live' is the satellite).  
he live in countryside.  
'He lives in the countryside.'



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- c'. 他在鄉下住。  
ta zai xiangxia zhu (verb-framed: zai 'in' is the verb; zhu  
'live' is the satellite).  
He in countryside live  
'He lives in the countryside.'

Talmy's two framing types depend crucially on the notion of a verb and its satellite. The distinction of these two categories is not a huge problem in English or Spanish, which employ the FFH (Frame of Finite-verb Hierarchy). However, since Chinese, as Tai has told us, utilizes the FTS (Frame of Temporal Sequence) having little morpho-syntactic marking, the distinction is hard to characterize. In a Resultative Verbal Compound (RVC), having a  $V_1$ - $V_2$  sequence, such as *chi1wan2* eat-finish 'finish eating', *du2 wan2* read-finish 'finish reading', *chi1bao3* eat-full, 'eat to full', *he1wan2* drink-finish, 'finish drinking', *he1zui4* drink-drunken 'get drunk', *fu2jin4* float-into 'float into', *fu2chu1* float-out 'float out', etc., it is not easy to determine which one of the two verbs is the main verb, or the 'verb', and which one is the secondary verb, or the 'satellite'. There is disagreement among different scholars espousing distinct theories and with divergent assumptions. On the one hand, (Chu-ren) Huang and Mangione (1985) think that  $V_2$  is the main verb, and  $V_1$  is the secondary verb. On the other hand, (C.-T. James) Huang (1988) thinks that  $V_1$  is the main verb, and  $V_2$  is the secondary verb. Recall that in (50), we view (50a) and (50c) as translation-equivalent. Even though Talmy thinks that *float* is the 'satellite' and *into* is the 'verb', English with its preferred FFH, seems to have rejected Talmy's ranking and picks *float* as the **finite verb** and *into* as a preposition. If Chinese had adopted an FFH as English did, Chinese could clearly mark the form unit 'float' or 'enter' in the RVC *fu2 jin4* as the main verb. But as Tai has suggested, Chinese prefers FTS. And if Chinese really employs FTS, then the question will be whether the anterior  $V_1$  or the posterior  $V_2$  is the main verb, in the sense that *float* in English is the main verb. Consider (57):

- (57) 張三寫完了報告。  
 Zhangsan xie wan le baogao.  
 Zhangsan write finish Perf. report  
 'Zhangsan finished writing the report.'

What is the message this sentence is supposed to convey? Is it more about the writing or more about the finishing? Without an emphatic stress on *xie* 'write', which would emphasize that it is writing rather than reading or editing that is the issue, the normative core of the message is the finishing of the report, indicated by  $V_2$  *wan* 'finish'. So from Tai's FTS perfective, the  $V_2$  would be the 'main' verb. When the perfective marker *le* is placed after the  $V_1$ - $V_2$  sequence, one could argue that *le* is placed after the entire sequence and not just after the segment  $V_2$ . But *le*, unlike *bu* 'not', cannot be placed after the segment  $V_1$  and before  $V_2$ , as in *xie-bu-wan* write-not-finish 'cannot finish writing'. Assuming that a tense or aspect marker like *le* should be placed right next to the main verb, and putting these two behavior traits of *le* together, it would be reasonable for us to conclude that in the  $V_1$ - $V_2$  sequence, the  $V_2$  that takes the *le* is the main verb.

## 8. CONCLUSION

It is a Darwinian truism that as an organism finds its environment change, it may react in two alternative ways, with two predictable consequences. Either it timely adapts its entrenched skills and attitudes to ensure survival, or it preserves the established expertise and ways of thinking and risks extinction. Faced with the new environment of globalization, it would be wise for the school of Generative Grammarians to swiftly adapt. Huang's innovative, promising idea of two or more macro-parameters deploying one macro-principle offers a new adaptive measure of survival for the theory of Generative Grammar. In essence, the effect of Huang's proposal of the MP&MP is to move the scheme of syntactic descriptions in two coordinated and mutually reinforcing dimensions: vertically from the level of Principles

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and Parameters (P&P) up to the level of Macro-principles and Macro-parameters (MP&MP), and horizontally from an isolated domain of syntax to cover other connecting domains of the grammar. This two-axis extension will serve to connect, on the one hand, the syntax, semantics, and pragmatics, which are rooted in universal inclinations in cognition and language, and, on the other hand, cultural values and choices, which particularize these inclinations in individual languages. If P&P is what the generative grammarians take as their comfort zone, Huang's MP&MP is a visionary new terrain. In our entire discussion, we first surveyed Huang's macro-parameters of synthesis and analysis, as they interplayed in historical changes and in contemporary states. We then showed that temporal sequencing, as first pointed out by Jim Tai, is one macro-parameter contrasting with the familiar macro-parameter of finite-verb hierarchy. Next, we tried to understand the notion of 'apparent subject' or 'unselective subject', which Her and Li have discussed with insights and valuable data, and for which Lin has offered a most comprehensive explanation. Following Huang, we point out that an apparent subject can be the surface subject in an unergative or an unaccusative structure. Finally, we described Talmy's idea of a contrast between the satellite-framing and the verb-framing as two complementary schemes, and we took the opportunity to show that they are two macro-parameters in Huang's sense. The contrast is a close parallel to a distinction between moving the verb and moving the preposition to the position of the light verb, as Huang would have approved. In an English sentence, moving the verb would result in the satellite-framing and moving the preposition would create the verb-framing. The two framings are just two macro-parameters. Although Huang has started discussing his new idea of macro-parameters with the synthesis and analysis macro-parameters, we have adduced three additional pairs, as they concern the opposition between temporal sequencing and finite verb hierarchy, between the unergative and the unaccusative structures, and between the satellite-framing and the verb-framing. And these four pairs converged into a solid proof that Huang's brilliant idea of macro-parameters is not just a fine theoretic abstraction, but a fact-supported new method to move the Generative Grammar resiliently

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and vibrantly ahead into the challenge posed by the new environment of intellectual globalization.

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Hsin-I Hsieh  
 Department of East Asian Languages & Literatures  
 University of Hawaii  
 hhsieh@hawaii.edu

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*Hsin-I Hsieh*

## 論黃正德的宏觀參數理論

謝信一  
夏威夷大學

黃正德所提出的宏觀參數觀念可以用來幫助生成語法理論適應全球化的攷驗。本文深入探討了四對宏觀參數：(i)綜合與分析，(ii)時間詞序與有定動詞階層，(iii)非作格與非賓格，(iv) 衛星架構與動詞架構。結論是黃正德的途徑確實具有強烈的適應功效。

關鍵字：生成語法理論、宏觀參數、綜合與分析、  
時間詞序與有定動詞階層、非作格與非賓格、衛星架構與動詞架構