Proceedings of the 22nd North American Conference on Chinese Linguistics (NACCL-22) & the 18th International Conference on Chinese Linguistics (IACL-18). 2010. Vol 2. Clemens, L.E. & C.-M. L. Liu, eds. Harvard University, Cambridge, MA. 196-208.

The Interplay of the Synthesis and Analysis Macro-parameters in Jim Huang's New Theory

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Huang's innovative idea of macro-parameters deploying a macro-principle is insightful and inspiring. We explicate Huang's synthesis and analysis macro-parameters, and we show that the two macro-parameters are engaged in a constant interaction, with the speaker trying to reach a balance between syntactic concision, yielding synthesis, and semantic transparency, producing analysis. To describe this interaction, we adapt the concept of 'reflexivity', or reciprocity, in the theory of economic change proposed by the renowned financial investor George Soros.

Globalization is changing everything, and it seems unlikely that it will leave Chomsky's theory of Generative Grammar untouched. Globalization concentrates on the increasingly faster speed at which an increasingly larger volume of physical mass or informational content is transmitted. As the Generative Grammar tries to adapt to the new era of globalization, it may take several possible routes, of which Jim Huang's new theory of macro-parameters appears to be a relatively promising one.

Huang (2005, 2006, and 2007) proposed to set up an additional level of syntactic representation at which 'analysis' and 'synthesis' function as two alternate forces, or as two macro-parameters, deploying the same macro-principle. Analysis would express a meaning in an elaborate form, such as in a phrase like *call Bill on the phone*, and synthesis would give it a terse form, such as *phone Bill*. The two ways of expression are two sweeping macro-parameters, because they apply widely to a huge range of sentence patterns, such as exemplified by *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 apples*, *put the saddle on the horse* versus *saddle the horse*, *give John a hug* versus *hug John*, *give Mary a kiss* versus *kiss Mary*, *make the operation larger* versus *enlarge the operation*, and *make the search narrower* versus *narrower the search*. A wide range of alternations like this cannot be well described by relying on the standard notion of a principle and its varying parameters, because not just one homogeneous but several heterogeneous patterns may be involved. Macro-parameters are therefore needed. We explicate Huang's idea of macro-parameters, and, adapting Soros' theory of reflexivity in

economic change, lay out a procedure, which guides a speaker aiming for grammatical equilibrium to convert an analysis to a synthesis or a synthesis to analysis.

1. Analysis and synthesis as two macro-parameters

Huang's notion of a macro-principle deployed 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):

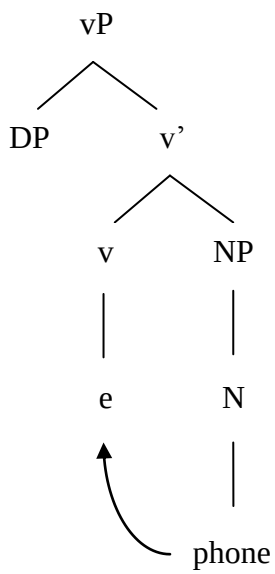
(1) a. Zhang1san1 da3 dian4hua4 gei3 Li3si4.
Zhangsan- hit -telephone -give-Lisi.
'Zhangsan telephoned Lisi.'
張三 打電話給李四.
b. John telephoned Bill.

(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* and it analyzes this event of telephoning by using three meaning elements, da3 'hit' 打, dian4hua4 'telephone'電話 , and gei3 'give' 給. In contrast, (1b) in English is *synthetic* and it combines the corresponding three separate elements ' hit', 'telephone', and 'give' into one complex element *telephone*. To account for the convergent meanings and the divergent forms in (1a) and (1b), Huang (2006) postulated two parallel light-verb phrases, or two vP's, as seen in (2a) and (2b) (see next page).

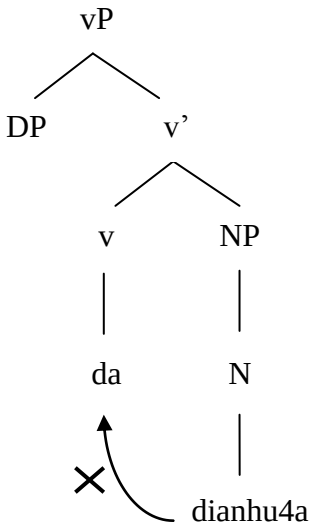
In (2a) the lexicalized light verb *da3* 'hit' blocks the N *dian4hua4* 'telephone' from moving into it, yielding (1a) in Chinese as an analytical form, or as an *analysis*. By contrast, in (2b), the empty light verb *e* allows the N *phone* to move to it and merge with it, yielding (1b) in English as a synthetic form, or as a *synthesis*.

Huang rightly thinks that languages have no inherent tendency to favor analysis or synthesis. Some languages such as Chinese, as seen in (1a), may by chance favor analysis, and some languages such as English, as observed in (1b), may incidentally opt for synthesis. Although we don't know why different selections are made, we know how to describe them. The representation trees for (1a) and (1b) both have the same sub-tree, vP, as shown in (2a) and (2b). There is a universal *macro-principle*, which determines the movement of a noun N or a main verb V to the light verb v.

(2a)



(2b)



This macro-principle, as we interpret it, is the requirement that a syntactic expression must be aimed at transparency in meaning or targeted on concision in form. Meaning transparency leads to the analytical alternate on the *analysis macro-parameter*, and form concision yields the synthetic alternate on the *synthesis macro-parameter*. If the analysis macro-parameter is in operation, then the light verb is lexically realized as in (2a), and the N is blocked from moving to merge with it. On the other hand, if the synthesis macro-parameter begins to function, then the light verb is lexically empty as in (2b), and the N will move to merge with it. Synthesis and analysis work as a pervasive opposition within individual and across different languages. A sentence is thus caught between two conflicting needs: the need for form concision and the need for meaning transparency. And these two different needs motivate two different processes--one is movement and one is non-movement—which achieve two divergent effects: synthesis and analysis. Thus, the issue is not an issue on the application of a syntactic rule or the function served by the syntactic rule, but an issue on the '*cognitive effect'* produced by the application of the syntactic rule. In the standard theory of Principle and Parameters (P&P), this sort of cognitive effect lacks an inherent, system-internal device for expression. And Huang solved this problem with a technical innovation. He postulated, for the shared source structure of potential analysis and potential synthesis, a vP that has a light verb v, which may be either lexically filled or left empty. If the v happens to be non-empty, then the movement of the N or V up to the light verb v is blocked, and the cognitive effect of analysis is achieved, as in (2a). However, if the v happens to be empty, then the N or V will move up to merge with it, and the cognitive effect of synthesis is obtained, as in (2b).

If Generative Grammar wants to look beyond pure syntax to explore such 'supra-syntactic' phenomena as the cognitive effects of synthesis and analysis, then Huang's light-verb technique appears to have initiated such an exploration. In this sense, Huang may have opened up a promising new path for Chomsky's theory as it faces the challenge of globalization.

2. Historical changes driven by macro-parameters

Huang investigated historical changes in the syntax and morphology of Chinese, viewing a syntactic pattern as being propelled by the two conflicting macro-parameters of synthesis and analysis. A metaphor can help us to better understand Huang's view. A syntactic expression for a meaning can be compared to a small boat floating in an ocean, and the two macro-parameters can be compared to two waves pushing it in two opposite directions. If the synthesis wave is more powerful, the syntactic expression will be pushed by it to approach the synthesis shore, or to grow more synthetic; and if the analysis wave is more forceful, the syntactic expression will be driven by it to come near to the analysis shore, or to become more analytical. The contest of the synthesis and analysis macro-parameters or waves never ends and the ocean is always churning.

With this ocean metaphor, we can keenly appreciate the innovative nature of Huang's account of historical changes in the syntax and morphology of Chinese. As Huang has shown (Huang 2006, slide 5), Chinese syntax has undergone historical changes from Old Chinese through Modern Chinese, propelled by these two opposite macro-parameters as two counter-waves. According to Huang, Archaic Chinese, or rather Old Chinese (OC), a relatively synthetic language, has acquired high analyticity when it evolved into Middle Chinese (MC), with the analyticity degree peaked during late MC (Tang-Song dynasties), and later 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 suggested, we have a sequence of macro-parametric alternates in Chinese syntactic changes: OC-synthesis → MC-analysis → MnC- analysis (with minor 'dialectical' synthesis).

3. The interaction of macro-parameters

Clearly, the two macro-parameters have interacted to gain alternate predominance in the history of Chinese. In this case as in others, a syntactic *form* expressing a fixed semantic *content* can switch from analysis to synthesis and from synthesis to analysis, following a general procedure. In this procedure, if an existent syntactic form disappears, its corresponding semantic content will also vanish, and if a new syntactic form is created, its matching semantic content will also emerge. The appearance or disappearance of a semantic content, being a separate issue, need not concern us here. What we would like to ask is the crucial question of how, with the semantic content largely fixed, an analysis may change to a synthesis, and a synthesis may change to an analysis. We are searching for a general solution. We wish to find out which particular synthetic form among the available many will the grammar pick to replace an analysis, and conversely which

specific analytical form among the usable multitude will the grammar choose to substitute for a synthesis.

To our pleasant surprise, that sought-for general solution emerges from the theory of economic change recently proposed by the famous financial investor George Soros (2008). Soros' theory assumes that there is reciprocity, or in his own term, 'reflexivity', affecting a participant in any economic change. A participant uses two reciprocal strategies or 'functions' to achieve the goal of maximizing his profit, gain, or benefit. He uses his 'cognitive function' to gain knowledge about an emergent situation and applies his 'manipulative function' to modify the gained knowledge in order to achieve a maximal benefit. Soros emphasized that, contrary to the conventional view, 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 in hopes of achieving the desired maximal benefit. In other words, 'perceived reality' gained through the cognitive function and 're-interpreted reality' obtained through the manipulative function are constantly in a tug of war. This contest creates an uncertainty regarding what response or action a participant should take, and that uncertainty gives rise to a wide range of variation in the participant's action. The economic man is making a smart choice from this broad range of variation. But what determines his eventual choice? It could be his fear of sovereign debts, national deficits, pension fund shortages, high unemployment rates, aging workforces, etc., or any combination of them. While an economic man is mainly interested in his desired profit, a grammatical man, or a speaker of a language, we suggest, is primarily concerned with achieving a perfect combination of semantic transparency and syntactic concision. To achieve that perfect combination, the speaker has to try to balance two conflicting objectives: synthesis directed at syntactic concision, and analysis aiming for semantic transparency. By adapting Soros' theory of economic change, which focuses on the exclusive need for profit, we derive a theory of the speaker's effort to balance syntactic concision and semantic transparency in a historical change or in a contemporary state. If this balance is to some degree realized, the grammar would have reached a stage or state of relative 'grammatical equilibrium'. If we look at the grammatical equilibrium affecting a particular part or subpart of a grammar as a macro-principle in the grammar of a language, then the strategies of synthesis and analysis which Huang has first called our attention to would be its two macro-parameters.

Let us elaborate a bit. The speaker of a language, language viewed as a structure undergoing a historical change or as a structure caught in a frozen state, may seek synthesis to obtain syntactic concision, or analysis to gain semantic transparency. In such a change or state, a speaker may face a situation in which a synthetic form is changing to an analytical form, or an analytical form is shifting to a synthetic form. In either situation, he wants to maximize his benefit by striking a fine balance between synthesis and analysis. If a synthetic form is switching to an analytical form, he wants to retain some

degree of the original syntheticity, or synthetic quality, and conversely if an analytical form is shifting to a synthetic form, he desires to preserve some degree of the original analyticity. Therefore, his best choice or maximal benefit is a form which keeps as much as possible the original syntheticity or analyticity. This means that, faced with an analytical form, he wants to replace it with the 'best compromised' synthetic form, or the synthetic form that keeps the optimal amount of the original analyticity. Conversely, confronted with a synthetic form, he desires to substitute it with the best compromised analytical form, or the analytical form that holds the optimal amount of the original syntheticity. Therefore, for the linguist, the crucial question is: how does a speaker find his best compromised synthetic or analytical form? We have not yet found a way to rigorously measure the amount or degree of syntheticity or analyticity, and therefore we are unable to provide a method for finding the 'best compromise'. However, the compromise, best or non-best, is most likely determined or constrained by (morpho-) syntactic, semantic, and (socio-) pragmatic factors. And we proceed to explain these tree types of constraints.

4. The way macro-parameters interact

To understand these three types of constraints, we need first to establish a framework for describing the interaction between the synthesis macro-parameter and the analysis macro-parameter. In particular, we need to set up a procedure, which we will call Soros' Procedure, or the *Sorosian Procedure* (SP), for mapping a synthesis onto an analysis, or an analysis onto a synthesis. Let *e* stand for an entity. Then *e* has a form F(e) and a meaning M(e). The F(e) has two alternate shapes: the synthesis shape F-Syn(e) and the analysis shape F-Ana(e). The M(e) likewise has two alternate values: the synthesis value M-Syn(e), and the analysis value M-Ana(e). F(e) and M(e) are not fixed, but have a range of variation in various contexts C_k's. Specifically, F-Syn(e) = {F-Syn(e)@C_1, F-Syn(e)@C_2,…,F-Syn(e)@C_k,…,F-Syn(e)@C_n}; F-Ana(e) = {F-Ana(e)@C_1, F-Ana(e)@C_2,…,F-Ana(e)@C_k,....,F-Ana(e)@C_n}; M-Syn(e) = {M-Syn(e)@C_1, M-Syn(e)@C_2,…,M-Syn(e)@C_k,…,M-Syn(e)@C_n}; and M-Ana(e) = {M-Ana(e)@C_1, M-Ana(e)@C_2,…,M-Ana(e)@C_k,…, M-Ana(e)@C_n}.

The Sorosian Procedure, or SP, is a set of rules, which apply to a given input macro-parametric form to obtain an output alternate macro-parametric form. The input can be an analysis or a synthesis in a context C_k. Two contexts C_i and C_j may be different, with $i \neq j$, or they may be the same, with i=j. Assume that SP, for example, starts with an analysis F-Ana(e)@C_i, which is *A calls B on the phone,* with the C_i being an official communication. First, the Cognitive Function applies, and it reads F-Ana(e)@C_i as M-Ana(e)@C_i, which is 'A calls B on the phone.' This is step (i). Next, the Manipulative Function applies in four subsequent steps, (ii) through (v). In step (ii) it set C_j as the desired (syntactic, semantic, or pragmatic) context, where C_j = a personal communication. This means it begins to seek an M-Syn(e)@Cj. Next, in step (iii), it finds M-Syn(e)@C_j, 'A rings B', in M-Syn(e). Next, in step (iv), it picks this M-Syn(e)@C_j, 'A rings B.'

Finally in step (v), it maps M-Syn(e)@Cj, 'A rings B', onto F-Syn(e)@C_j, *A rings B*. This whole process is laid out in (3) (see next page). Assuming that the set F-Ana(e) and the set F-Syn(e) have an equal number of elements *m*, and that we had instead started out with F-Syn(e)@C_j, *A rings B*, we would have reached F-Ana(e)@C_i, *A calls B on the phone*. In general, SP works on an F-Ana(e)@C_i to derive an F-Syn(e)@C_j, through the mediation of M-Ana@C_i and M-Syn(e)@Cj, and vice versa.

Although our Sorosian Procedure is inspired by Soros' idea of reciprocity, yet in an important way, it is different from Soros' original theory. In Soros' view, the Manipulative Function continuously feeds on Cognitive Function to come up with an 'altered' cognition, on which the economic man acts. The interplay of these two functions is a 'feeding' relation (Her 1997). In contrast, in our perspective, the analysis macro-parameter and the synthesis macro-parameter continuously feeds on each other to obtain a 'compromised' analysis or synthesis. The interplay of these two macro-parameters is a 'conflict' relation (Hsieh 1991).

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

Operations	Products
0. Start with	F-Ana(e)@C_i; C_i = an official communication. *A calls B on the phone*.
1.Apply the Cognitive Function:	(i) Read F-Ana(e)@C_i as M-Ana(e)@C_i. 'A calls B on the phone.'

2.Apply the Manipulative Function:	(ii) Set C_j as the desired (syntactic, semantic, or pragmatic) context, C_j=a personal communication; seek M-Syn(e)@Cj. (iii) Find M-Syn(e)@C_j in M-Syn(e). 'A rings B' (iv) Pick M-Syn(e)@C_j. 'A rings B.' (v) Map M-Syn(e)@C_j onto F-Syn(e)@C_j. *A rings B.*
3. To gain	F-Syn(e)@ C_j. *A rings B.*

We now proceed to look at examples illustrating the three types of grammatical constraints. First, we look at a bunch of examples involving pragmatic constraints. Huang (2006, slide 40) gave this amusing example:

(4) Wu2wang2 dian4 Yue2wang2.
King wu- electrify-King Yue
吳王電越王
'King Wu telephoned King Yue.'

Huang's sentence is teasingly cute, because Huang pretends that there was electrical phone call in Archaic China. The entity at issue is e = //dian4//, the concept that A does something to B with electricity. For this e, F-Syn(e) = { (A) affects (B) with electricity, (A) calls (B) on the phone, (A) sends (B) a telegram,…,(A) asks God to strike (B) with electricity, (A) erotically attracts (B), (A) delivers (B) an e-mail message,…., (A) faxes (B) a message}. If this sentence had appeared in a recently discovered Archaic Chinese volume, since we know that there was only natural electricity in a storm and no machine-generated electricity, we would pick *A asks God to strike B with electricity* and not *A calls B on the phone*. So we can see that this switch from the F-Syn(e) to the F-Ana(e) is pragmatically constrained. It is constricted by our world knowledge that in Archaic China, there was no machine-generated electricity. But now consider another possible Archaic Chinese sentence (5):

(5) Liang2shan1bo2 dian4 zhu4ying1tai2.
Mr. Liang- electrify-Ms. Zhu
梁山泊電祝英台.
'Mr. Liang erotically attracts Ms. Zhu.'

Our choice of a variant in the F-Ana(e) would now be different. We would choose *A erotically attracts B*, because as speakers of Chinese, we all know the beautiful love story of Liang and Zhu. Again, the choice is pragmatically constrained. We would never have chosen *A asks God to strike B with electricity*, because there was only love and no hatred between the two persons in the love story. Now suppose that in the above example, we reverse the switch, and focus on the variant *A calls B on the phone* in F-Ana(e). What variant in F-Syn(e) would we pick ? If we want to focus on electricity as the source of energy for transmission, we would pick *electrically calls* 電 but not *calls* 叫, *sends* 送, *asks* 求, *erotically attracts* 迷,…,*delivers an e-mail* 伊眉兒. And our choice would likewise be constrained by pragmatics.

Next, we consider additional sentences involving pragmatic constraints:

(6) a. Zhang1san1 hui4 bu2 hui4 ying1wen2?
Zhangsan- can/will do-not-can/will do-English
張三會不會英文?
'Can Zhangsan hear/speak/read/write English?'
b. Zhang1san hui4 bu2 hui4 dian4nao3?
Zhangsan-can do-not-can do- computer
張三會不會電腦?
'Can Zhangsan use a computer ?'
c. *Zhang1san hui4 bu2 hui4 tai2bei3?
Zhangsan- can/will do-not-can/will do-Taipei?
張三會不會台北?
'Will Zhangsan go to Taipei ?' (intended meaning)

Sentences (6a) and (6b) are grammatical, but (6c) is not. To render (6c) grammatical, we can insert a *qu4* 'go to'去 after *hui4* 'can/will do' 會. So the *hui4* in (6c) is an auxiliary, not a full verb. But the word *hui4* in (6a) and (6b) is a full verb in its synthetic form. It denotes the entity *e* = // can/will do something that requires skills //. F-Syn(e) = {can_1 (*hear*), can_2 (*speak*), can_3 (*read*), can_4 (*write*), can_5 (*use*), can_6 (*dance*), can_7 (*cook*),…, can_m (*drive*)}. And F-Ana(e) ={ *can hear, can speak, can read, can write, can use, can dance, can cook,…, can drive*}. To the question posed in (6b), the answer

could be just 'yes' or 'no', but to the question posed in (6a), there are often several possible answers, of which (6a') is one:

(6) a'. Hui4 shuo1 bu2 hui4 kan4.
can- speak- not- can-read
會說不會看。
'He can speak (English) but cannot read (English).'

So picking the F-Ana(e) variant *can hear, can speak, can read,* or *can write* as the substitute for the F-Syn(e) variant *can* is determined by the pragmatics in the discourse context or by world knowledge.

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

(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 F-Syn(e) ={*begin*}. The corresponding analysis is F-Ana(e) = { *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 F-Ana(e) is the right choice for the single element *begin* in F-Syn(e). In a slightly different way, the word *want* in (7b), (7c), (7d), and (7e) is also a synthesis. F-Syn(e) = {*want*}, and its correspondence is F-Ana(e) = {*want to drink*, *want to read*, *want to smoke,…,want to drive*}. However, the choice of the element from the F-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 choice, and so on.

Let us now look at some more examples of syntactic, semantic, or lexical constraints. We start with the preposition *into* in English. It is an analysis, which depicts a journey in two parts. To understand this journey, we invoke Talmy's (2000) idea that a physical object may be construed as a point, a line, a plane, or a space, in various circumstances. In the *into something* phrase, the person first moves toward an object, viewed initially as a point which requires *to*, then the person moves inside the object, now shifted in view from being a point to being a space, which requires *in*. The word *into* is an analysis, that is, F-Ana(into)={*into*}. Its corresponding syntheses are *in* and *to*, that is, F-Syn(into) = {*in, to*}. As we see in (8) and (9), when *into* is preceded by a verb like *change, move, drop,* or *put,* only one but not the other of the two variants 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 (intended as 'dropped into').
c. The flower dropped in the pond.
(11) a. John put the books into the box.
b. *John put the books to the box.
c. John put the books 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*.

In the above examples, both the syntax and the lexicon constrain the switch from *into* to *to* or *in*. This can be confirmed by other examples involving another syntactic pattern , in which the lexicon works differently. Thus, consider (12):

(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.

Money does not move by itself; John made it move into his wealth by racking it. A car does not move by itself; John made it move into the garage by driving it. Sentence (12) and (13) employ a causative syntactic structure, which is different from the transitive syntactic structure employed in (8) through (11). And the lexical item *rack* demands an *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 to his wealth, viewed as a point. Similarly, the lexical item *drive* demands an *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.

Likewise, if someone steps into a crisis to prevent the situation from getting worse, he wants to be *in* the crisis, and not just *to* the crisis, in order to be effectively in control. Consider:

(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 choice of different syntheses, *in* and *to*, for the same analysis, *into*, in the examples in (14) is apparently constrained by world knowledge: to be effective one must step into or in the mess, and not just close to the mess as a mere by-stander.

The choice of different synthetic forms to substitute for the same analytical form can become more complicated as the sentential pattern gets more complex. The complexity is witnessed when we compare a pair of translation-equivalent sentences in English and Chinese. Consider (15):

(15) (Easy money has turned into heavy debt. Baby boomers have postponed retirements.) College graduates are *moving back in with* their parents.

This sentence is quite synthetic. One way to convey the same idea in a more analytical form is (15'), which has five parts centering on the Italicized words but six parts if we separate *in* and *to*:

(15') College graduates are *moving back into* their parents' house to *live with* them.

The translation- equivalent of (15) in Chinese is (16):

(16) Da4xue2 bi4ye4sheng1 zheng4zai4 ban1 hui2 fu4mu3de0 fang2zi0 qu4 gen1 ta1men0 zhu4 zai4 yi4qi3.
college-graduate-ing-*move-back*-parent's house-go-*with*-them-*live-in*-together.
大學畢業生正在搬回父母的房子去跟他們住在一起。
'College graduates are moving back in with their parents.'

The Chinese sentence (16), as indicated by the italicized cores in the gloss, has five parts just as the English sentence (15'). So (16) and (15') are equally analytical. The Chinese sentence (16) has one more part than its equivalent English sentence (15), and in this sense it is more analytical than (15). Furthermore, we also notice that (15) and (16), as two translation-equivalent sentences, achieve their syntheses in slightly different ways. In (15) *into* is shortened into *in*, and *live with* is shortened into *with*. In (16) the equivalent to the English phrase *back into* is shortened into *back, hui2* 回, but the equivalent to the English word *live* is expanded into the phrase *live in, zhu4 zai4* 住在.

5. Conclusion

Huang has suggested that synthesis and analysis are two macro-parameters deploying a macro-principle, which we interpret as the principle of grammatical equilibrium. These two macro-parameters are in a continuous competition (Wang 1969) for their dominance in the history and the contemporary state of a language. To explicate Huang's theory, we reviewed Huang's data for support from the history of Chinese, and we offered our own confirming observations in English and Chinese. Synthesis is working for the need of syntactic concision, while analysis is working for the need of semantic transparency. These two needs are in conflict and therefore the speaker is constantly trying to balance them to achieve the cognitive effect of grammatical equilibrium. We borrow George Soros' theory of reflexivity or reciprocity in economic change for our linguistic description. We suggest that when the speaker aims to achieve semantic transparency, he must also leave room for syntactic concision, and when he seeks to obtain syntactic concision, he must also leave room for semantic transparency. Grammatical equilibrium is achieved through this compromise. Huang's theory of macro-principle and macro-parameters possess a strong explanatory power, in that it can formally explain the cognitive effect of grammatical equilibrium. Generative Grammar can begin to look beyond autonomous syntax to explore supra-syntactic features such as the grammatical equilibrium resulting from a balance between syntactic concision and semantic transparency. If globalization has as its goal an increase in the speed of transmission of materials and information, and an enlargement of the volume and scope of what is transmitted, then Huang's macro-parameters fit the enlargement demand. It expands Generative Grammar from an autonomous syntax into a syntax that can address supra-syntactic features such as the cognitive effect of grammatical equilibrium.

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