Mediation of Cohesive Clues in Simultaneous Interpreting： A Perspective of Interactive Embodiment and Mental Coherence

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Abstract

Based on interactive embodiment and mental coherence of cognitive linguistics (CL) (Lakoff1987, 1999; Langacker 2000, Zwaan2000, Wang Yin 2006) and also Relevance Theory (RT) (Sperber and Wilson 1986, 1995), this paper aims to reveal how simultaneous interpreters mediate in cohesive clues to keep interpreting discourse hanging together via two dimensions: (1) mental contacts for content coherence, (2) lexical, grammatical and logical connectors for form cohesion, ultimately building up a cohesive clues model.

A pilot study of preliminary experiment involves three students of Heriot-Watt, who have Chinese as their A language and English as their B language. The data is collected from English to Chinese. The experiment engages subjects in the embodiment based CL Immersed Experiencer Frame (Zwaan2000) through three basic stages: activation, construal and integration. The outcomes are taped and recorded. Quantifying analysis is undertaken in terms of both content and form cohesive clues. It proves that interactive embodiment and mental coherence are felt in discourse coherence and cohesion of simultaneous interpreting (SI) via cognitive models, including iconicity, mental space, frame, schema, facilitating interpreters' performance and it suggests that bodily based coherence in mental text is more fundamental and primary than intextual cohesive devices, the former is the cognitive prerequisite for the latter (Wang Yin .2006).

Key words: interactive embodiment; mental coherence; simultaneous interpreting; cohesive

clues; mediation;

1. Introduction

With a view to the trends of research on interpreting since the mid-twenties century Pöchhacker (2004:203) claims that 'one example of new and promising paths is situated cognition, also known as situated action' or 'embodied cognition" However, how does the embodied cognition play its role in simultaneous interpreting (SI) coherence and cohesion? How simultaneous interpreters, navigated by embodied cognition, mediate in cohesive clues either in content or form to keep interpreting discourse hanging together? Wang Yin (2003; 2005; 2006) points out that discourse coherence primarily and initially are determined by mental coherence, and secondly and naturally reflected in cohesive devices/cohesion, but how is this theoretical hypothesis proved to provide a scenario in simultaneous interpreting? What underlines simultaneous interpretation to achieve the mental coherence? None of the SI researchers have yet delved into these basic questions. This paper attempts to use the findings of CL to find out the truth of the issues. This research claims that interactive embodiment and mental coherence are principles in coherence and cohesion (Wang Yin 2006), and that iconicity links external world and mental internals, and that cognitive models, such as Cognitive Reference Point (CRP) (Langacker, 1991, 1999, 2000), Mental Spaces (Fauconnier &Turner 1998, Fauconnier1985), Frame (Fillmore 1982, 1985), Schema (Lackoff,1987) and Relevance (Sperber and Wilson 1986, 1995), all of which are combined to achieve coherence and cohesion in SI. A pilot study designed to the bodily based Immersed Experiencer Frame (IEF) (Zwaan2004, 2005) was experimented to test the hypotheses.

2. Basic hypotheses

1. The principle of interactive embodiment and mental coherence underlies simultaneous interpreting, keeping the simultaneous interpreters in the cohesive flow of interpreting discourse.

"Though is embodied, that is, the structure used to put together our conceptual systems grow out of bodily experience and makes sense in terms of it; moreover, the core of our conceptual systems is directly grounded in perception, body movement, and experience of physical and social character" (Lakoff,1987).

Between objective externals represented by a chunk of discourse or a group of sentences and mental internals is achieved a kind of mapping iconicity, where the discourse coherence will emerge automatically (Wang Yin, 2006).

In the ostensive–inferential process simultaneous interpreters keep tracking mental path or contacts to the relevance to achieve the maximum contextual effects with least mental effort. Otherwise 'the greater the processing effort, the lower the relevance' (Sperber and Wilson1986:124). The break-ups of mental path due to loss of embodied cognitive environments will reduce simultaneous interpreters to get stuck in interpreting.

2. Mental coherence determines cohesive devices; it is not enough solely to rely on the cohesion among words in discourse, instead, to mediate dynamically and interactively among mind, embodiment based cognitive world, encyclopedic knowledge, semantic frame and discourse to pragmatically analyze the cohesive devices. Simultaneous interpreters use types and density of the cohesive clues as constraints to achieve cognitive and pragmatic effect (Blackmor, 1992, Wang Yin: 2003; 2005; 2006; Ran Yongping, 2006).

3. The corpus and experiment

The corpus is a sample of English to Chinese interpretation from simulated conference session with transcripts for reference. The English discourse lasts 10 minutes with the transcript divided into 44 segments and 21 sentences.

The local context is the occasion where Mr Craig, sales manger from Hömedics in Guangzhou International Fair. He first greets the audience and introduces himself (S1-S3), and then establishes the objective, promoting the product, Shiatsu Massage Cushion (S4), and explains the meaning of Shiatsu (S5) and its purposes (S6). In order to achieve the interactive response from the audience, he asks the potential customers for their idea of the product (S7). He then centers on his three points, structure (S8), fix procedures (S9-15) and warnings of storage (S16-19), finally ends with his promotion by another strategy, favorable price (S20). The speaker, an English native speaker, plays the role of Mr. Craig, rehearsed before the interpreting.

S1: Good morning, ladies and gentlemen.

S2: Welcome to our product promotion fair of Hömedics. I am Craig, sales manager

S3: I would like to recommend a good product to you.

S4: Now look at **this**. This is a **Shiatsu Massage Cushion**.

S5: As you know, Shi in Japanese means finger - and Shiatsu means pressure, put **them** together and you've got Shiatsu; meaning 'finger pressure'

S6: In this day and age of bad backs **due to** much office work, labour and sitting too long for your studies, Shiatsu Massager is the perfect relaxation gadget for every occasion.

S7: Just now all of you have sat on it and have had a positive personal experience. How do you feel about it**?**

Comfortable? Yes, - I think you will agree.

S8: The **structure** of Shiatsu Massager is simple. **Two kneading heads, rotating, travel up** and **down**, along the PVC guides, relieving pain and fatigue on your back.

S9: I would like to talk about how to use this Shiatsu Massager. Briefly there are **six steps** you should remember:

S10: **One**. **Attach** the **massage seat** to almost any chair, using the integrated **strap** at the back of the seat, Ensure it is held firmly in place by adjusting the strap as necessary.

S11: **Two**. **Connect** the **power supply lead** from the adapter with the corresponding lead in the side of the seat.

S12: **Three**. **Plug** the **adaptor** into a 230V AC mains outlet T3 -and switch on. By the way, remember to finish steps 1 to 3 before switching the appliance on at the mains.

S13: **Four**. Once seated, use the **remote control** to **operate** the appliance. Press the "Power" button once and select the desired massage zone- to start the massage.

S14: **Five**. **For** an intense massage, **remove** the **flap** from the back of the cushion. **For** a gentler massage, **keep** the **flap** on and you can **soften** the **massage** further by placing a towel between your back and seat.

S15: **Six**. **Press** the **"Power "button** for a second time to stop the massage.

S16: Always remember to store it properly. Place the appliance in its box or in a safe, dry, cool place.

S17: Water or any liquids that come into contact with the appliance are dangerous.

S18: Avoid contact with sharp edges or pointed objects **which** might cut or puncture the fabric surface.

S19: To avoid breakage, DO NOT wrap the power cord around the appliance. DO NOT hang the unit by the cord.

S20: Ladies and gentlemen, **you could have it now at 30 pounds, in John Lewis, Edinburgh, it costs 69 pounds**

S21: If you are interested, feel free to try the Shiatsu massager again before you buy it.

S22: Thanks.

Notes: for content cohesive clues bold 12 font sizes, and for form cohesive clues bold 10 font size are marked.

There are three Chinese subjects of conference interpreting, one PhD student and the other two postgraduates for MsC. Subjects' equipment was a standard laboratory used for teaching simultaneous interpreting in Languages and Intercultural Studies, Henry Prais Building, Heriot-Watt University. The subjects have interpreting lectures and slots in the lab, familiar with the environment without any negative effect imposed on them. Subjects' outputs were recorded on MP3, played back and timed on PC.

Interpreting discourse transcriptions, as one of relevant sources of data, are used to describe and explain the facets of the cohesive clues in simultaneous interpreting. Transcripts are annotated

with empty and filled pauses (e.g. er, erm glossed @); []: lost information. **Mental cohesive clues of content in the parts of structure and fix procedures of shiatsu with trajector and landmark, cognitive reference point and cohesive clues of form, such as listing, processing, ellipse, cause and effect, repletion; cognitive models (CM: SK, DK and FK: situation, discourse +frame semantics, S: schema)**. Source discourse appears in Times New Roman bold face in the original language, plain face for literal back translation. The Chinese corpus is divided heuristically into discourse units to the sense groups.

4. Methodology

Theory grounded in data organized by theories ((Pöchhacker 2004:204) is adopted as methodology of this paper. This methodology is the outcome of revolutionary changes in the world of research methodology, shaped by embodied cognitive linguistics and "is the hallmark of qualitative research, rules out both an empiricist of view relying fundamentally on 'factual evidence' and a rationalist position which disregards data-based evidence in favors of theorizing" (Pöchhacker 2004:204).

Pöchhacker (2004:204) refers to **theory grounded in data organized by theories** as epistemological middle ground between the dualism: empiricism and rationalism. The gravity of theory grounded in data organized by theories is of interactive embodied cognitive linguistics: the middle ground is primarily based on embodied experience. Navigated by embodied cognition, Pöchhacker (2004:204) predicts a qualitative turn in research on interpreting, "moving away from an empiricist belief in apparently unproblematic factual explanations toward a greater readiness to engage with various types of qualitative data which force the researcher to become aware of the theories needed to impose a personal interpretation. At the same time, a greater readiness to accept

that there is no objective reality to be captured, and to engage with various theoretical interpretations, highlights the need for methodological triangulation- that is, the use of multi-method focus". This paper, structured by embodied cognitive linguistics, experiments with this preliminary pilot study hereafter, and in data ultimately is grounded the theory.

The data was collected from subjects, who proceeded to the Immersed Experiencer Frame (IEF) (Zwaan: 2004, 2005) via activation, construal and integration. IEF, based on embodied CL, aiming at understanding of discourse construction, reduces the forming, renewing and retrieving of the situation to a cycling process model. This paper sets out to find out how interpreter, following the trace of embodied experience, starts comprehension with language input as indexing clues on the basis of iconicity, mental space, schema, cognitive reference point (CRP), via integration and process in the immersed experiencer frame to reach out the coherence and cohesion. For interpreter, as an immersed experiencer, a chunk of speech is a set of indexing clues, making her construe and simulate an embodied experience of the situations described. The three elements of activation, construal and integration, in terms of processing language unit, respond respectively to word/phoneme, clause/intonation and coherent discourse; of representation unit, respectively to functional web, meshing web and systematic integration; of reference unit, respectively to events, actions and events series. The three elements function in a way of multiply processing.

The first activity, activation, is to examine how subjects, retrieving the experiential iconicity after interactive embodiment activity, activate the functional web by input words, serving as mental coherence clues. Interpreter, dependent of reconstruction of experience and iconicity, uses words/mental cohesive clues input to simulate initially the flow of speaker's thinking architecture; please refer to figure 2 and figure 3.The mental cohesive clues/ contacts here are referred to as Cognitive Reference Points (CRP) by Langacker (1991, 1999, 2000), who maintains that CRP is

used as mental reference /contact/path to reach out to the target(s) and ready to activates any concepts in the domain. In the figure 2 and 3 the 'structure' and 'fix steps' act as cognitive reference points (CPR) respectively and capital T_s and small t_s are derived from CPR. (Langacker (1991:46). In the targets, the trajectors and landmarks are marked as mental cohesive clues, constructing coherence in mental text.

The second activity, construal, defined as a sight-on and compounding process, is to help interpreter to access the representations of events with functional web initially activated and meshed. This activity tests how interpreter, from the perspective of protagonist and via mental structured mind with mental clues as signs, construes focal entity, relations and background entity on the basis of cognitive reference point, and trajector-landmark (Langacker 2000).

According to Mental Space (Fauconnier1994, Fauconnier and Turner 1998), the discourse construction and understanding comes from cognitive domain and mental spaces could construe functional web, in which contexts, background, pragmatic elements, such as roles, motivation, purpose, attitudes, relations, communication strategy of participants are involved to generate sentences and utterances with proper meanings. It also implies that the discourse meaning is not only of coding meaning of representations but of cognitive inference for compensation and completion.

Before interpreting, interpreter could rely on the capacity of mental simulation to facilitate her on–line elaboration of speaker's blended spaces, even the more specific ones. On this theoretic basis it implies that it feasible to compare the matching and unmatched parts of speaker's and interpreter's flow of though and the mental realizations in blended space: representations of the internal and external worlds.

The third activity, integration, examines interpreter in the operation of interpreting, examines how

interpreter, with mental structures and cohesive clues as projections in mind, maintains the consistence between language and embodied experience, how much amount of construal between the source speech and target outputs is matched in terms of iconicity, how skills, such as anticipation, coordination and inference, are mediated by the prospective and retrospective construal in the semantic frame.

Fillmore defines frame as any system of linguistic choice linking with typical situations (Fillmore 1975) and regards it (frame) as a kind of cognitive structure mode, knowledge and concepts emerging with *r*epetitive relevant situations and occasions, a stereotype of a certain object and event (Fillmore 1982), and an interface between language knowledge and concepts (Fillmore 1982 , 1992,2000) . Fillmore thinks that his semantic frame is of cognitive theory on research of lexical meaning and syntax structure meaning and pays a special attention to lexeme, especially verbs in cognitive processing of language, which (verbs), related with the whole situation, could make some aspects more prominent and salient.

This research focuses its analysis on content cohesive clues via structure (S8) and fix process (S10-S15) (also see figure 2 and 3) making comparisons between the subjects' outcomes before and after interpretations in sections 5.2 and 5.3 respectively. In addition, the parts (S16-S19) are not subjects bodily experienced, nor prepared beforehand, designed to examine its effects of how schema, the background knowledge, plays its role without bodily experience. Schema refers to storage unit of existing knowledge, the total of schema forms, and one's complete knowledge on a given subject matter. Interpreting is an interactive and dynamic process mediated between input messages and background knowledge stored in one's mind.

This paper extends its analysis from content coherence to form cohesion by a further extension of methodology by Shlesinger (1995:196) to English to Chinese simultaneous interpreting, who

analyzes the cohesive devices /clues in a way ‘not every cohesive device (clue) in the outputs was analyzed, rather, several items from each category were chosen at random form different segments of the texts so as to capture, with reasonable certainty, a cross-section of the different types of cohesive devices in the corpus’. The selection was confined to optional clues, i.e. those attributable to cognitive and pragmatic preferences. The term clue is adopted once a cohesive clue emerging in the source text is omitted or substituted by one from a different category due to language-specific preferences, (for instance, a certain language ‘s preference for repeating a word rather than using a pronoun), language–specific norms (such as cohesive clues, which do not function in the same way in the target language) and inherence in every act of translation and interpreting (for example, the hypothesized universal tendency for a translated text to be more explicit than its source, Blum-Kulka 1986 cited by Schlesinger (1995). However this research, different from starting view point from Schlesinger, draws different conclusions on cohesive clues because she conducted her research on the basis of textual functional analysis by Halliday and Hasane (1976).

In this research cohesive devices or form cohesive clues in simultaneous interpreting are analyzed from cognitive and pragmatic/relevance theory. The cohesive form clues include reference and repetition (5.4.1, 5.4.3), ellipsis and substation (5.4.2) for one part and logical connectors/clues (5.5) tor the other. Cognitive reference point is used to find out how reference and repletion, ellipsis and substation work in the coherence in mental text. As for logical cohesive clues, Relevance Theory by Sperber and Wilson (1986, 1995) points out that the logical linking marks/ clues play the role of constraints for listeners’ comprehension. In order to guide listeners for the expected cognitive effect to facilitate utterance comprehension, speakers will use some ostensive language marks/clues to show the direction for utterance understanding, making listeners access

the relevance of utterance in the desired direction. These linking marks /cohesive form clues contain procedural information to process concept information; in other words, include the message on how to explain the utterance propositions, ultimately enabling listeners to pay attention to the special relations among utterances. The linking marks/cohesive form clues do not have any effect on the propositions contents, instead, facilitate understanding process of utterances. On one hand, the linking marks/cohesive form clues are used to reduce the effort for listeners' comprehension, and remove misunderstanding on the other. In this research, the logical cues are respectively cause and effect (5.5.1), contrast (5.5.2), conditional (5.5.3) and process (5.5.4).

4.1Methodology process

The experiment is designed to the embodiment based Immersed Experiencer Frame with three stages, or elements: activation, construal and integration.

4.1.1 Activation: The product of shiatsu was brought to the Lab. The subjects fixed the shiatsu according to the instructions given by the experimenter, and then sat on it and used the remote control, enjoying the massage. Meanwhile the subjects are guided to find out its structure, components and working principle. See the figure 1, 2 and 3 below.

Figure.1

Next, the blank diagrams (figure 2 &3) (but now filled as reference only) are distributed to subjects for them to fill in with some props given to them, the subjects are asked to keep the track of the mental path/clues by the Spatialization of Form Hypothesis (Lakoff 1987:283), for

instance in ffigure 2, the hierarchical structure is understood in terms of up-down schemas and part-whole schemas. In figure 3 **l**linear quantity scales are understood in terms of up-down schemas and linear order schemas. And both involve the relational structure, which is understood in terms of link schemas. Trajectors and landmarks (Langacker, 2000) are used to trace the mental cohesive clues. The subjects could create more extension frames to their own structured experience to excite any more cohesive clues appropriate in the given context.

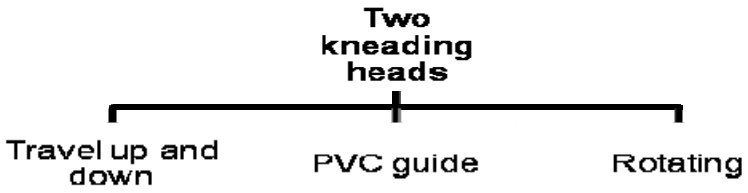


Figure 2 **Structure of shiatsu**

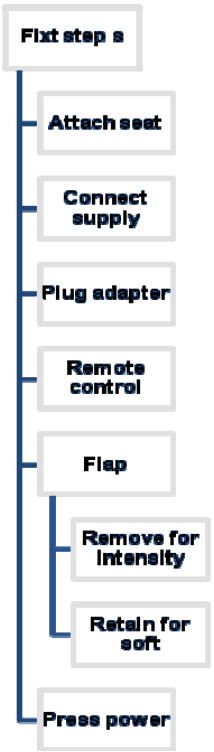


Figure 3 Fix steps of shiatsu

4.1.2 Construal: Now with the diagrams finished, the subjects will construct a passage and deliver a speech by role play. The constructed passage is only limited to the **fix procedures**. The outcome is recorded.

4.1.3 Integration: Interpreting .When subjects make it sure that the recording is in good shape, an English native speaker will start the speech with 120 words per minute. When the subjects finish, their recordings are collected.

5. Results

5.1 Activation. It is an objective observation and calculation. Any words, belonging to the category of the structure and fix steps, is considered to be acceptable, with one point for one frame, and then points are converted into percentage (score ÷ n x 100). In marking the scores of subjects, two top frames are not calculated due to the fact that the two clues are given to subjects. There are **eleven frames**. The results of the three subjects are recorded as below:

IA	10	90%	IB	9	81%	IC	7	63%

Figure 4

5.2 The match rate of cohesive clues in the given parts of structure (S8) and fix procedures (S10-S15) between the original speech (OS) and subjects(S) among IA and IC in the construal. The structure has four fames and the fix steps has seven frames, (the sub-frames of flap) is not taken into account, but the six steps are doubled because every frame has a trajectory and landmark. The two top frames are not counted, so there are fifteen points.

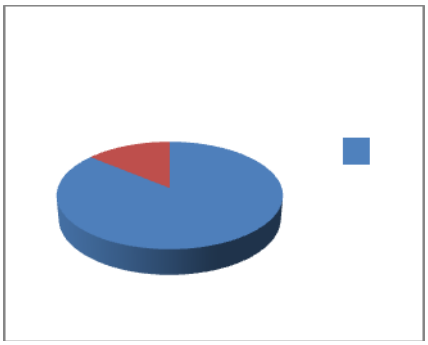
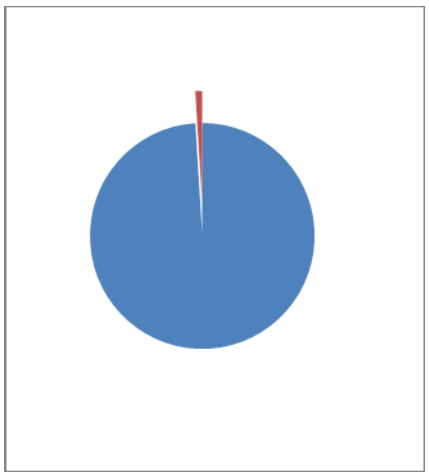


Figure 5

Figure 8 IA and IC: Matched 86% and unmatched 14% between Construal and source

5.3 Content cohesive clues in the matching parts and unmatched parts of structure (S8) and fix steps (S10-S15) and the unprepared session of the warnings (S16-S18)



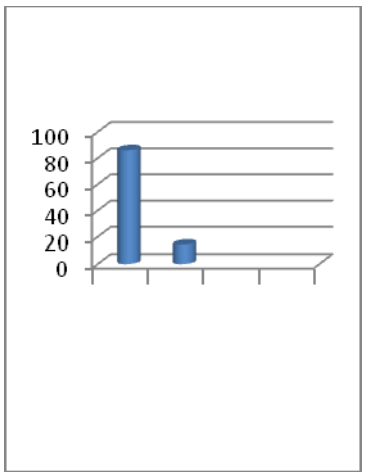


Figure 6 A **Figure6 B**

Figure 6 A: matching 99% ratio in the structure fix procedures; Figure 6B unmatched 84%.

5.4 Typical results for form cohesive clues

5.4.1 Reference

N	Eng. input	IA	IB	*IC*
5	S4:+ Now look at **this**	授衔大家来看一下 First lei's look (at this)	大家可以看到 Let's look (at this)	来看一下这个**产品** Look at this product
6	**This** is a Shiatsu Massage Cushion	**这是**我们的Shiatsu按摩器 This is our Shiatsu massager	**这是**一个功能性按摩垫 This is a functional massage cushion	**这是**一个Shiatsu按摩器 This is a Shiatsu massager
8	put **them** together and you've got Shiatsu;- meaning 'finger pressure'	所以，你把"手指"和"压放在一起，就是指压的意思 so you put **finger** and **pressure** together, (it) means finger pressure	所以，放在一起就是指压按摩So, put (them) together, (it)means finger pressure massage	所以加在一起就是压力手指的意思So putt(them)together, (it) means pressure and finger
25	Ensure **it** held firmly in place by adjusting the strap as necessary.	确保这个**按摩器**的位置是正确的，你可以调正固定带-把它固定好 To make sure, **this massager's position** is correct, you could adjust the fixing straps to fasten it	然后，+你可以通过适当的调整子母松紧带达到适当的松紧度 Then, you could achieve the desired attachment by adjusting integrated straps	将你的固定带固定在椅子的背后@ Attach your fixing straps at the back of your chair

5.4.2 Ellipsis and addition clues

13	**Comfortable?**	**舒服吗？** Comfortable?	**是不是很舒服呢**？(Is it)comfortable?	++
14	**Yes,-** I think you will **agree**	**我相信你们一定感觉是很舒服的** I believe that you surely feel comfortable	**我想答案是肯定的。** I think the answer is positive	**你们刚才的个人体验是否非常的好**？ Was your personal experience really good?

5.4.3 Logical clues: Cause and effect

37	S18: Avoid contact with sharp edges or pointed	要记住千万不要接触到尖锐的东西，或者是这类东西，**因为**它们会把按摩器割破	[ ]+	为了避免各样危险的使用，不要让锐尖的利器接触到按摩器 In order to avoid all

	objects **which** might cut or puncture the fabric surface.	Remember never to (make the massager) contact any sharp objects, or this kind of thing, **because** they will cut the massager		kinds of dangerous uses, never let sharp objects contact this massager

5.4.4 Contrast

42	In John Lewis, Edinburgh, it costs- 69 pounds	+**但是**，现在，只需要30镑 But now you could have one at only 30 pounds	**但是**，在这儿，这里三十英镑的价格就可以购买 But here you could get it at 30 pounds	**然而，** 在爱丁堡的John Lewis商店， 69镑才可以买到 But you will have to spend 69 pounds at John Lewis

5.4.5 Condition

31	S14: five. **For** an intense massage, remove the flap from the back of the cushion	第五步是+**如果**说你想要按摩的压力大一些，你就把这个帘子移开 The fifth step, if you want more massage intensity, you remove the flap.	第五，**如果**你需要更强度按摩的话，可以通过，+可以通过，移除背部的靠垫； Fifth, if you need more intense massage, you could remove the flap	第五，**如果**你需要集中按摩功效,你可以椅子背部的帘子拿去， Fifth, if you need more massage effect, you could remove the flap at the back

6. Discussion

This experiment aims to explore how simultaneous interpreters mediate in cohesive clues to keep interpreting discourse hanging together via two dimensions: (1) embodiment based mental clues for content coherence, (2) lexical, grammatical and logical clues for form cohesion. The experiment proves the assumptions proposed.

The result of this experiment shows that the interactive embodiment has substantial effect on

simultaneous interpreting. This paper argues that interactive embodiment and mental coherence, or coherence in mental text, could explain how simultaneous interpreters maintain her speech coherence and cohesion. In this research, the three subjects are guided through embodiment experience, building up the structured mind and forming the schema of the shiatsu structure, fix steps and purposes. In the course of interpreting, the embodied experience turned out to be the base for mental coherence, with schema activated, facilitating the simultaneous interpreting.

1. **On content cohesive clues:** In the activation activity, the three subjects, after bodily experience with shiatsu, filled in the frames with the cohesive clues to 10 (90% IA), 9 (81% IB) and 7 (63% IC) respectively. It means that they have the structure and fix procedures mapped into their minds, activating the Functional Web. This also implies that the three subjects share similar level of cognitive competence.

In the construal activity, the two subjects (one of the three (IB) failed to turn in his recording of this section due to failure of his gadget), acting on the role of speaker, construe the fix procedures, following the trace of cohesive clues in the functional web, construe the whole procedures, covering the six steps. The construal activity is compared with the original speech, seeing to the matching rate; the results show that the subjects have an extremely high portion to 86 % percent match of both IA and IC. This result also shows that the iconicity of process is projected fully into interpreters mind and that subjects have fully entered into the speakers mental spaces.

In the interpreting section, with experiential structures projected into the minds via interactive embodiment, the semantic frames and schema in the subjects' minds, subjects have straight access to the discourse messages, characterized by appropriate coordination, generalization and match with speaker's input information, in particular, it is felt in subjects' distribution of attention since they could retrieve the relevant information from the memory storage. The cohesive clues

(trajecotors: verb/predicate and landmarks: noun /objects) are matched with the source speech with approximately 99% percent. In addition, this finding is fully proved in the experiment that Fillmore's idea on verbs, which are related with the whole situation, could make some aspects more prominent and salient. The study finds that it is the actions of fix procedures, which turn out to be the trajectors, the prominence and salience in the whole installation process.

On the other hand, one of the apparent phenomena is S17, S18 and S19, in which the subjects lost the information due to lack of schema, or relevant information, less relevant, more effort is obvious in this section with long pauses, incomplete or unintelligible utterances.

2**. On form cohesive clues.** Due to the skimpy corpus, some of the findings of cohesive form clues point to clearer patterns than others. In terms of reference (5.4.1), (5.4.3)，only two repetitions are used among the three subjects for supposed nine times occurrences of pronouns ("this "in serial number 5 and 6, and "them" in serial number 8). From this it could be deduced that the meaning of utterances for coherence is bridged mainly by mental text based on context rather than repetition of antecedent pronouns since the cognitive reference point is there in the given context without the need of repetition of pronouns with nouns as references. Regarding ellipsis and addition (serial number 12, 13, and 14), the three subjects used additions to make context meaning complete, managing perfect coherence to achieve the communicative effective of more relevant and less effort. .

The cohesive logical form clues are used as signs for relevance, constraining the context and cognition. Subjects show competence to process the relations among the utterances. For instance, the six listing clues (one, two, three, four, five, and six) of the source speech are not retained as they are, but are used as "start with, next step, what we should do next is". It implies that interpreters are in the right tack to follow the speaker's flow of ideas rather than trapped in codes

switching meanwhile coordinating the speed. Subjects coped with the cohesive form clues cognitively and pragmatically based on the language norms, for instance, in S17, the three subjects interpreted the relative pronoun, 'which', into cause and effect relation in Chinese, making relations among the utterances logical. In S19, the relations between the clauses is contrast but without transitional clue/connector in source speech. To make listeners pay less effort, subjects use contrast conjunction ，"但是"（but）, another finding is as 5.4.5 in serial number 31, the proposition "for" was interpreted into conditional conjunction "如果" (if) to maintain the pragmatic meaning as Schlesinger (1995:195) points out 'failure to realize the pragmatic function of a cohesive tie, even while producing a semantically correct interpretation, may result in failure to produce functional equivalence' What is more, only when the coherence in mental text is achieved could the interpreting discourse be coherent to such extent point when the form cohesive clues / devices are determined, in other words, whether cohesive clues are used or not, and what, how cohesive devices /clues are used.

7. Conclusion

From the results, the conclusions could be drawn as follows:

(1). The interactive embodiment and mental coherence, directly proportional to the simultaneous interfering quality, are made felt in each section, including activation, construal and interpreting. The theory is (a) "our experience is preconceptuallly structured at basic-level categorization (Lakoff, 1987:269);" (b) "basic level concepts consist not only of objects but of actions and properties "(Lakoff, 1987:270-271); (c) meaning postulates themselves only make sense given schemas that are inherently meaningful because they structure our direct experience (Lakoff, 1987: 273);

(2). In the case of non-language factors, the interactive embodiment and mental coherence along with cognitive models, such as schema, semantic frames, mental spaces will determine substantially interpreting quality. The deficiency of language competence could be compensated by activation of bodily based schema. 'The greater the processing effort, the lower the relevance' (Sperber and Wilson1986:124). As Anderson 's conclusions on embodiment based schema (1984) it is contributive to (a) ideational scaffolding establishment to absorb discourse messages;(b) to optimal attention distribution;(c) to inferential elaboration; (d) to orderly retrieval of information in memory; (e) to edition and generalization; (f) to inferential reconstruction.

(3). Form cohesive clues are used pragmatically and cognitively, keeping the interpreting in the right coherent track, to achieve ostensive and inferential balance. In essence, discourse coherence primarily and initially are determined by mental coherence, and secondly and naturally reflected in cohesive devices (Wang Yin: 2003; 2005; 2006)

This research sheds light on teaching of interpreting and compiling of interpreting books. It is not adequate for teachers only to centre on interpreting sills, instead, to guide students to have interactive embodiment experience, particularly in terms of science and technology and business interpreting, which need more direct involvement in a verity forms of bodily experience, to build up more detailed schema, and ultimately to improve interfering performance. For the students of interpreting, they should be more active in bodily experience by integrating theoretic study with practice, enlarging ranges of knowledge, forming a complete and adequate schema of subject matters. The interpreting text books, except for introduction to the basic skills of interpretation, shall encourage students to be involved into their practical experience to their professional preference and form a functional-web system of knowledge.

This research has several deficiencies. First, the corpus is meager with only three subjects of

interpreting are involved. Next, it fails to draw in interpreting professionals in the sight-on circumstances. Thirdly, the experiment only deals with English to Chinese, but not Chinese to English, in other words, how could subjects perform in Chinese to English interpreting, with and without bodily experience, in terms of cohesive mental clues both in content and form? Fourthly, the testing activities designed to CL theories are objective to some extent, challenging the validity of this research. Last but not least, since this research focuses on iconicity of process, i.e the fix procedures and structure of shiatsu, the bodily experience is apparent in this experiment of simultaneous interpreting, but how does simultaneous interpreter cope with abstract ideas for coherence and cohesion? This research will carry on with its expeditions for the explorations.

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