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Enabling students' knowledge building in English classrooms in China: The role of teacher monologue

Abstract: Teacher monologue has received scant attention in English as a foreign language (EFL) classrooms which emphasise the teacher-and-student exchange. This study assumes that a key index of interaction would be the construction of knowledge, in which teacher monologue has a due role to play. The research is set in the context of EFL teaching at the tertiary level in China and examines teacher monologue with reference to the concept of making semantic waves in Legitimation Code Theory, which has been proved to be an important means of cumulative knowledge building in classroom practice. Systemic Functional Linguistics is used to analyse how semantic waves are generated on the ideational base of context dependency, i.e. the extent to which the reality construed in teacher monologue is dependent on its context. The transdisciplinary perspective attempts to provide one possible way to model linguistic choices in making semantic waves in EFL classrooms. The findings are the primary and secondary categories of semantic patterns representing a scale of context dependency. Semantic waves trace recurrent movements between relatively decontextualised and context-dependent meanings in the progression of semantic patterns. The shifts might scaffold students in the construction of knowledge essential for developing academic English proficiency.

Keywords: teacher monologue, EFL classrooms, semantic waves, semantic patterns, Legitimation Code Theory, Systemic Functional Linguistics

1 Introduction

Teacher monologue refers to talk by a teacher without students' verbal involvement in classroom teaching. It is in contrast with the dialogic mode of question-and-answer between the teacher and the students. In English as a second or foreign

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language (ESL or EFL) classrooms where interaction is valued (Long 1996), studies focus on how the teacher negotiates meaning with the students through questioning and feedback (e.g. Brown 2016; Pei 2015). However, the dialogic mode of question-and-answer is the surface form of interaction. A key index of interaction in education should be the function of constructing meaning and knowledge, regardless of monologic or dialogic form (Boyd and Markarian 2011, 2015). Teacher monologue can be seen as a type of interaction as long as knowledge building occurs, even if students do not adopt active speech roles. Thus, teacher monologue needs to receive due attention of language teachers and researchers.

This study takes an initiative to examine teacher monologue in Chinese EFL classrooms at the tertiary level. College English teaching in China serves as a transition to English for specific purposes (Wang 2016). Teachers prepare students for academic success through the medium of English. In Cummins' (1984) dichotomy of basic interpersonal communicative skills and cognitive/academic language proficiency, the latter could be a focus of teaching. The present study investigates the role of teacher monologue in enabling students' construction of knowledge essential for academic success. The research is organised around the concept of making "semantic waves", which has been proved in the transdisciplinary studies of Systemic Functional Linguistics (SFL) and Legitimation Code Theory (LCT) to be an important means of cumulative knowledge building in classroom practice (e.g. Hood 2017; Matruglio et al. 2013). In particular, this study draws on the shared interest of SFL and LCT in context dependency to look at how semantic waves can be generated by the progression of semantic patterns. The aim is to explore knowledge structure of teacher monologue and how this might function to scaffold students to develop academic knowledge through English. The aim will be achieved by addressing the following research questions: (1) What semantic patterns emerge in teacher monologue in Chinese EFL classrooms?; (2) How do teachers unfold the semantic patterns over time and make semantic waves?; and (3) what roles do semantic waves play in enabling students' knowledge building?

The paper is organized as follows. In Section 2, I review relevant literature and in section 3, I outline the data and methodology, including analytical framework and coding procedure. Section 4 presents the findings and Section 5 offers the conclusion.

2 Literature review

2.1 SFL and context dependency

SFL is a linguistic framework viewing language as meaning-making resources. It has been applied in the analysis of various text types, including classroom

discourse (e.g. Blackwell and White 2018; Christie 2002). From an SFL perspective, a text is viewed as a product of three metafunctions or meanings: ideational (language as reality), interpersonal (language as exchange) and textual (language as text organisation) (for details, see Halliday 2014). All the three metafunctions can shape context dependency (Martin and Matruglio 2013). This study focuses on the ideational meaning, which is a key parameter to generalise domains of meanings (Matthiessen 2006) and a useful tool to identify semantic patterns in classroom discourse (Yang 2010).

The ideational meaning construes the reality that goes on around and inside us (Halliday 2014). The grammatical system whereby the ideational meaning is achieved is Transitivity, which construes the experience into a set of Process Types: "doing", "sensing", "saying" and "being" (Halliday and Matthiessen 1999). Inherent in the process are participants: human or things involved in the process. Processes are realised by verbal groups whereas participants by nominal groups. The configuration of the two elements constitutes the centre of a clause and represents a range of context dependency.

Martin (1992, 1999) classifies participants along the cline of specific to generic references. Their configuration with tenses and different process types, especially those in contrast between "present and past", "doing and being", forms a scale of context-dependency with the two poles of "language in action" and "language as reflection". Cloran (2000) develops a binary system of participant types with the major oppositions of interactant vs. others, non-generalised vs. generalised, co-present vs. absent. She finds that these semantic parameters are constantly combined with the tense choice of the process in a stretch of discourse. Semantic patterns located on the basis of various combinations indicate different degrees of context dependency and are labelled as rhetorical units, such as action, report, reflection, generalisation, etc. In the Chinese EFL context, Yang (2010) classifies participants in terms of whether the participants are in the immediate classroom setting or relocated by teachers into the classroom. The semantic contrast between "immediate" and "relocated" implies a dichotomy of context dependency. Yang (2010) identifies semantic patterns, which she calls logogenetic patterns, by observing the conjunction of the core participant type and the process type. These studies demonstrate that the combination of participant types with process types or tenses can identify semantic patterns in terms of context dependency.

2.2 LCT and context-dependency

LCT is a sociological framework concerning knowledge practice. It is developed by Maton (2014) on the basis of Basil Bernstein's (1971) code theory. In LCT, context

dependency is conceptualised in the dimension of Semantics as the principle of semantic gravity. In Maton's (2014: 129) words,

> "Semantic gravity (SG) refers to the degree to which meaning relates to its context. Semantic gravity may be relatively stronger (+) or weaker (–) along a continuum of strengths. The stronger the semantic gravity (SG+), the more meaning is dependent on its context; the weaker the semantic gravity (SG–), the less dependent meaning is on its context."

Meanings involved may include "formal definitions, empirical descriptions or feelings, political sensibilities, taste, values, morals, affiliations, and so forth" depending on what is researched (Maton 2013: 11). A complementary principle to semantic gravity is semantic density (SD), concerning the complexity of meaning (for details, see Maton 2014: Ch. 7), which is not the concern of the present research but is equally important for knowledge building.

Semantic gravity can be traced over time along a semantic scale of strengths, marked by SG↓/↑. The dynamic movement over time as SG↓/↑ (and/or SD ↓/↑) can be mapped as a semantic profile, which provides a useful tool to visualise how knowledge practices function in knowledge building. As we will see, the analyses of classroom practice will reveal several semantic profiles that demonstrate how the practices change in terms of context dependency. Among the profiles, wave profiles or semantic waves, which involve recurrent movements between SG– (decontextualised meaning) and SG+ (context-dependent meaning), enable knowledge to be generalised beyond any specific context and thus have been considered of great significance for cumulative knowledge building (Maton 2013, 2014).

2.3 Semantic waves and teacher monologue studies

The shared interest of SFL and LCT in context dependency enables the employment of the two frameworks to conduct a complementary analysis of the same data. SFL provides a detailed annotation system to reveal linguistic features of discourse, whereas LCT evokes rethinking of the SFL analysis in the service of knowledge building (Maton and Doran 2017). "Semantic waves" have been modelled in conjunction with a variety of concepts in SFL to study how teachers can enable students' knowledge building in classrooms. Matruglio et al. (2013) highlight school history teachers' temporal shifting between the archaic and contemporary language across semantic patterns as a driving force of making semantic waves. Macnaught et al. (2013) report a pedagogic intervention in which linguistic resources that reside in high-stakes writing were explicitly taught to school biology teachers, so that they could jointly make semantic waves with students in a collaborative writing task. Hood (2017) conducts a multifunctional analysis of the

semantic phases of describing, explaining and reporting in a lecture of health science at the tertiary level. The phases differ in terms of their strengths of semantic gravity and form semantic waves as they unfold over time.

The existing studies are discipline-specific and explore the disciplinary knowledge of history or biology. Knowledge in EFL teaching at the tertiary level in China can be a complex mixture, consisting of knowledge about language and culture as well as extensive knowledge in various domains, such as science, technology and society, depending on the topics of the lessons (Wen 2014). Modelling semantic waves under this circumstance can reveal how the various types of knowledge interact so as to enable students' knowledge building in EFL classrooms.

3 Data and method

3.1 Data collection

EFL teaching in China is a top-down activity: there are national curricula and uniform textbooks for teachers to follow. The authorities also organise activities to demonstrate how the textbooks can be taught in classrooms; two influential ones in tertiary institutions are quality courses and teaching contests. The project of quality courses was initiated by the Chinese Ministry of Education in 2003. Following the national steps, most provinces launched the same projects. Teaching contests refer to the annual National College English Teaching Contest organised by Shanghai Foreign Language Education Press since 2010. The present study collected data from demo classes involving the two activities. Classes in daily teaching were chosen for comparison. All the classes selected are text-based, that is, teaching is built upon a model text in each unit of the textbook. Text-based teaching paves the way for subsequent oral and written tasks and is a major focus of demo classes. Here is an introduction to the three data sets, i.e. quality courses, teaching contests and daily teaching.

(1) Quality courses. In China, universities have webpages to introduce their quality courses in terms of teaching team, materials, methods and demos. This study selected the first 30 min of four demos at four universities. Two demos belonged to quality courses at the national level, and the other two at the provincial level. The four teachers were professors or associate professors and had taught EFL over 20 years. Two of them were males; two were females.

(2) Teaching contests. This study collected the demos given by the winners (the first 10) in the finals of the National College English Teaching Contests held in Shanghai from 2010 to 2013. Altogether there were 41 teachers, with 14 male

teachers and 27 female teachers. Each demo lasts 20 min. These can be seen as a miniature of a lesson, consisting of an introduction to background knowledge, extensive reading, intensive reading, explanation of language points and assignment. Six demos were selected under the following procedure. First, the number of turn taking in the demos were counted while watching the videos. Second, the median in each final was calculated. Next, those demos with the number of turn taking equal to or fewer than the medians were selected. Fourth, the selected demos were sorted according to the competitors' places from high to low in the finals. The first one in the years of 2010 and 2012 and the first two in the years of 2011 and 2013 were selected. Three of them were provided by male teachers; three by female teachers.

(3) Daily teaching. Classes in daily teaching were chosen from a small-scale corpus of EFL classroom discourse established by the research group. The data collection and processing adhered to university guidelines of research ethics. The lessons were audiotaped with the consent of the teachers under the condition that they were informed about and understood what the research would be about. There were 11 classes in the corpus, each lasting about 50 min, taught by 11 different teachers from eight well-known universities in Beijing. Four of them were males; seven were females. The 11 classes were first divided into two groups according to the gender of the teachers. Next, the classes were sorted in an ascending order according to the number of turn taking. Those ranking the first two in each group were chosen. The first 30 min of the four chosen classes were selected as the data of this study.

So altogether 14 excerpts were collected. Each data set consisted of audio or video clips of 120 min. For quality courses and daily teaching, each possessed four clips of 30 min. The data set of teaching contests was composed of six clips of 20 min. The excerpts of quality courses and teaching contests were then transcribed. The number of words in the three data sets were 5376, 4956 and 4620 respectively. The choice of the relatively small data sets is due to the detailed analysis at the text level. The focus in this study is the delicate linguistic features and how these co-articulate across the text in constructing meaning and knowledge. Therefore, the orientation is to an in-depth qualitative analysis that will enable me to model the complexity of the texture of teacher monologue.

3.2 Identification of teacher monologue

Teacher monologue in this study is concerned with knowledge instruction, not classroom regulations (for details concerning this distinction, see instructional

and regulative registers in Christie 2002). Monologue here is equivalent to Halliday's (2014) notion of "statement"; its function is to give information. In the data, teacher monologue is identified as an uninterrupted stretch of teacher talk excluding teacher questions or question-like elicitation and feedback, as illustrated by an example in Table 1. Discourse markers were considered in the identification if they did exist.

Move 1 is feedback, a follow-up to a student's answer to the question *what is the meaning of "came upon"?* in the previous move. The discourse marker "OK" in Move 4 indicates a new round of questioning. Excluding Moves 1 and 4, Moves 2 and 3 were identified as monologue, beginning with the discourse marker "Now". After giving the feedback, the teacher explained the next language point in the text. Actually, the stretch of monologue here consists of the minimum number of moves (two moves) in the data; the maximum is 42 moves in a segment of monologue.

3.3 Analytical framework

Data analysis was conducted on the ideational base of context-dependency within the SFL framework. The LCT part of the research involved the reinterpretation of the findings revealed through SFL analysis. The findings from a pilot study showed that context dependency of teacher monologue in EFL classrooms was mainly shaped by process types and participant types. It also turned out that the successive combinations of the first participant with the process type, rather than the second or the third, played a decisive role in the formation of semantic patterns. This might be due to the closer relation of the first participant with the subject

Table 1: An example of identification of teacher monologue.

Move	Text	
1	Yes, "to find someone or something by change', so he happened to find a man standing by the roadside.	feedback
2	**Now,** "he had his thumb out". This means if you want to get a ride – I think we talked about this – if you want to get a ride, then you stretch your arm, and wave your thumb like this.	**monologue**
3	This means that you want to get a ride.	
4	**OK,** so this person, ern, "had his thumb out and held a gas can in his other hand", now, why does he hold a gas can – what does that mean?	question
	…	

matter or topic area of a clause. Tenses, which were found to be an important parameter of ideational context dependency in the previous studies (e.g. Cloran 2000; Matruglio et al. 2013), however, did not stand out in the present data. Thus, the analytical framework was developed around two systems, i.e. the Process Type system and the Participant Type system (the first participant).

The Process Type system adopted the pre-determined categories in SFL and distinguished four primary types, i.e. "doing", "sensing", "saying" and "being" (Halliday and Matthiessen 1999). The taxonomy of participants concerning domains of experience, however, highly relies on the object of study (Martin 1992). The development of the Participant Type system was based on the data while enlightened by a number of studies, including Halliday and Matthiessen's (1999) categorisation of material and semiotic participants, Martin's (1992, 1999) distinction between specific and generic participants, Cloran's (2000) binary contrasts between interactant and others, non-generalised and generalised, co-present and absent, and Yang's (2010) classification of present and relocated participants in EFL classrooms. See Figure 1 for the two systems.

The Participant Type system adopts a series of binary divisions following Cloran (2000) in order to better demonstrate the semantic contrasts of context dependency. The primary contrast in the system is whether the participant is "concrete" or "semiotic". Table 2 illustrates meanings construed by the participant types in the two main categories.

In the category of "concrete", the participants "human" and "thing" are further classified according to how close they are to the immediate context of you-and-me. The closest to the immediate context is "human: on-spot", referring to teachers and/or students present in the classroom setting. In contrast, "human: relocated" and "thing" are non-present and remote from the immediate context in
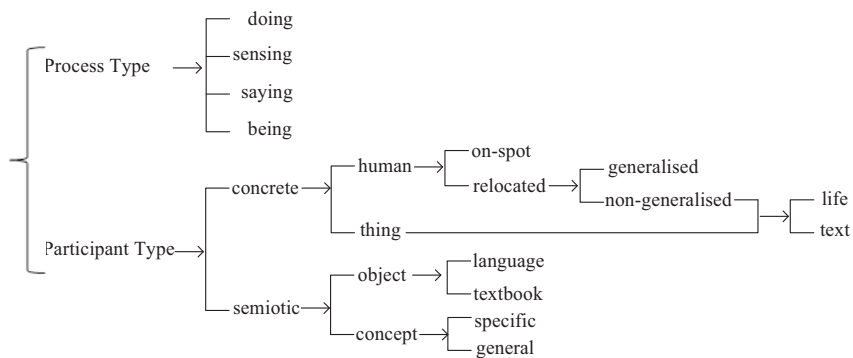

Figure 1: The analytical framework.

Table 2: Participant types in teacher monologue.

Participant type			Meaning	Example
concrete	human	human: on-spot	the teacher and/or students in class	I, you, we
		human: relocated: generalised	generalised human groups	we, you, people
		human: relocated: non-generalised: text	people relocated into the classroom from student life	Zengzi, Zhang Xueliang (famous people in the Chinese history)
		human: relocated: non-generalised: life	the characters in the text	the lady, her daughter
	thing	thing: life	a non-human concrete entity relocated into the classroom from student life	Treasury Bill, Linxia (a place name in China)
		thing: text	a non-human concrete entity that is mentioned in the text	jazz, American eagle
semiotic	object	object: language	linguistic items	words, phrases, sentences, rhetorical devices
		object: textbook:	the whole or a part of the text	the text, the story, the paragraph
	concept	concept: specific	the packaging of the information mentioned previously	the problem, the incident, the idea
		concept: general	a general concept concerning the theme of the text	life, death, present (meaning "now")

different degrees. "Human: relocated: generalised" is realised by a generalised personal pronoun such as *we*, *you* or simply *people*. For example, *we also called it the bald eagle*. The choice of *we* can actually represent all the people, including the students, and is thus relatively close to the immediate context. "Human: relocated: non-generalised" and "thing" are introduced by teachers into the classroom either from "life" or from "text". The distinction between "life" and "text" is whether people or things are located from life experience that students are relatively familiar with or from the text content that students are relatively unfamiliar with.

The category of "semiotic" is further classified according to abstractness and generalisation. The primary distinction is whether the participant is concerned with a semiotic "object" or a "concept". A semiotic "object" can be "language" referring to a particular item of the text, or "textbook" concerning a paragraph, a part or even the whole text. The participant "concept" generalises information into

ideas. It can be a "specific" concept packaging the information mentioned in the teacher's previous speech or a "general" concept pertinent to the theme of the text.

3.4 Data coding

The coding was conducted at the clause level and the text level. At the clause level, teacher monologue was coded in terms of the choices of process types and participant types. At the text level, semantic patterns were identified by observing the successive conjunctions of process types and participant types in the progression of a text. The coding was done twice by different coders. The author first coded all the data. To conduct the second coding, she trained three coders who had an SFL background. The coding rules were presented to them, including definitions of each element in the coding system and numerous examples for illustration. The coding rules were modified according to the feedback provided by the coders till all the rules were workable. After the training was completed, each coder was assigned four or five excerpts of teacher monologue. The inter-coder reliability was measured by Cohen's kappa. The inter-coder reliability was 0.974 for process types and 0.958 for participant types. Discussions were carried out to resolve the discrepancies. The improved inter-coder agreement reached 0.998 for process types and 0.999 for participant types.

4 Findings

4.1 Semantic patterns in teacher monologue

The SFL analysis reveals three primary categories of semantic patterns in teacher monologue, i.e. Within-Text, Text-Related, Above-Text, in addition to seven secondary categories. Table 3 illustrates with examples how these patterns are generated by the combinations of participant types and process types and what ideational meanings they construe.

4.1.1 Within-Text

Within-Text construes meaning directly expressed in the text. The choices of participants are mainly made in the subsystem of "concrete", concerning those persons or things in the text. Their various combinations with process types distinguish three subcategories, i.e. Restating, Background Knowledge and Linguistic Item.

Table 3: Semantic patterns in teacher monologue.

	Participant type	Process type	Ideational meaning	Example
Within-Text				
Restating	human: relocated: non-generalised: text thing: text human: relocated: generalised	doing sensing being	construe activities presented in the text	At the very beginning, in the introduction the author tells us that **he was bored** by everything, including writing an essay. [human: relocated: non-generalised: text] + [sensing] By and by, perhaps **he changed his mind**, [human: relocated: non-generalised: text] + [sensing] especially when **he got** the topic—writing for what—The art of eating Spaghetti. [human: relocated: non-generalised: text] + [doing] **The title The Art of Eating Spaghetti attracted** him. [thing: text] + [sensing] **He was interested** in it, [human: relocated: non-generalised: text] + [sensing] and then **he loved** to write about it. [human: relocated: non-generalised: text] + [sensing] … (from Text 8, quality courses)
Background Knowledge	human: relocated: non-generalised: text thing: text human: relocated: generalised	being	construe cultural background to the text	**It [American eagle] is** a white one. [thing: text] + [being] **We** also **called** it the bald eagle, 秃鹰 (the Chinese translation of the bald eagle), right, the bald eagle. **[**human: relocated:

Table 3: (continued)

	Participant type	Process type	Ideational meaning	Example
				generalised] + [being] **It is** a very large bird with a white head. [thing: text] + [being] **It** doesn't **seem to have** hair, which is the national bird of the US, 美国的国鸟 (the Chinese translation of the national bird of the US), the eagle. [thing: text] + [being] (from Text 5, quality courses)
Linguistic Item	object: language human: relocated: generalised	being saying	construe defining features of a linguistic item	… So **"not only" followed** by the reversed order, inversion, right? [object: language] + [being] **That means** "do we want it now", instead of "not only we want it now", right? [object: language] + [being] **This is** for emphasis. [object: language] + [being] … (from text 4, daily teaching)
Text-Related				
Personalising	human: on-spot	doing sensing being	construe teachers' or students' own life experience related to the subject matter of the text	For example, now **we are** on the campus, [human: on-spot] + [being] what **do** you **think of** life here? "To live or endure as you choose to look at it". [human: on-spot] + [sensing] … Today **I have** a free lunch, [human: on-spot] + [doing]

Table 3: (continued)

	Participant type	Process type	Ideational meaning	Example
				I **am** **happy**. [human: on-spot] + [sensing] Tomorrow, maybe I **have to pay double** for, [human: on-spot] + [doing] **I'm not very happy**. [human: on-spot] + [sensing] (from text 8, quality courses)
Connecting	human: relocated: non-generalised: life thing: life	doing sensing being	construe others' life experience or a fact related to the text.	So **Zengzi was** one of the students of Confucius. [human: relocated: non-generalised: life] + [being] Once **his wife went out** for a shopping. [human: relocated: non-generalised: life] + [doing] **Their son wanted** to follow her. [human: relocated: non-generalised: life] + [sensing] Then **she told** the boy, "If you stay at home, when I returned, I would kill a pig and cook the delicious pork for you." [human: relocated: non-generalised: life] + [saying] But when **she returned**, [human: relocated: non-generalised: life] + [doing] **she** didn't **do so**. [human: relocated: non-generalised: life] + [doing] **The promise was** simply a lie. [concept: specific] + [being] **Zengzi got very angry**.

Table 3: (continued)

	Participant type	Process type	Ideational meaning	Example
				[human: relocated: non-generalised: life] + [sensing] **He killed** a pig at once. [human: relocated: non-generalised: life] + [doing] In this story, **what Zengzi killed was** not simply a pig, but also dishonesty. [concept: specific] + [being] (from Text 12, teaching contests)
Above-Text				
Interpreting	object: textbook concept: specific	being saying	construe implied meaning expressed in the text	So, **the first paragraph tells** us an incident that actually made the writer decide to take this long, cross-country journey. [object: text-book] + [saying] Well, what is it, what **is the incident** that's talked about? [concept: specific] + [being] OK, [**the incident is** that] he did not stop for a hitchhiker. (concept: specific) + [being] (from Text 2, daily teaching)
Evaluating	concept: general	being	construes teach-ers' points of view	… **Today is** gold, ladies and gentlemen. [concept: general] + [being] In English, **now is** present; **present is** a present. [concept: general] + [being] So **what we have now today,** this moment, **is** already the best. [concept: general] + [being] (from Text 9, teaching contests)

The pattern of Restating construes activities presented in the text. It is identified through the combinations of the participant type "human: relocated: non-generalised: text", "thing: text" or sometimes "human: relocated: generalised" with the process type of "doing", "sensing" or "being". In the example in Table 3, the teacher chose the participant type "human: relocated: non-generalised: text" to refer to the main character of the story in the text. The process type was dominantly "sensing". By using Restating, the teacher was retelling the story of how the main character changed his attitude towards writing in a way that was easier for students to access.

The pattern of Background Knowledge construes cultural background to the text. The choice of participant types is the same as Restating. Process types, however, are predominantly "being". In the example in Table 3, the choice of "thing: text" in combination with "being" indicated that the teacher was characterising the American eagle – a thing mentioned in the text. Teaching cultural background knowledge has been written into the national curriculum as an objective of cross-cultural communication (Wang 2016).

The pattern of Linguistic Item construes various defining features of a linguistic item. It is identified through the combination of "object: language" or "human: relocated: generalised" as the participant type with "being" or "saying" as the process type. This combination makes the pattern semantically similar to Above-Text (see Section 4.3). It is categorised as Within-Text for the reason that the pattern focuses on a particular item in the text rather than generalisation of information above the text. In the example in Table 3, "object: language" was combined constantly with "being". The teacher was raising students' awareness of the emphatic structure indicated by "not only" at the beginning of the sentence. Teaching basic language knowledge remains a major concern of a great number of EFL teachers in China (Rao and Lei 2014).

4.1.2 Text-Related

Text-Related construes experience in the outside world but related to the text content. Like Within-Text, Text-Related features "concrete" participants and their combinations with a variety of process types. However, the persons or things are those outside rather than inside the text. Whether the participant is on-spot or not distinguishes the two subcategories of Personalizing and Connecting.

The pattern of Personalising construes teachers' or students' own life experiences related to the subject matter of the text. It is identified through the choice of "human: on-spot" in combination with "doing", "sensing" or "being". As is illustrated in the example in Table 3, "human: on-spot" was selected consistently, whereas process types varied. The somewhat philosophical and abstract

proposition "to live or endure as you choose to look at it" was analogised to students' everyday experience of paying for meals. The involvement of students' personal experiences might help them understand the text and arouse their interest in the text content as well.

The pattern of Connecting construes others' life experiences or a fact related to the text content. It is identified through "human: relocated: non-generalised: life" or "thing: life" in combination with various process types. In the example in Table 3, the participant type "human: relocated: non-generalised: life" was predominant, combined with a mixture of process types. The text being taught was about the decline of honesty in America. The teacher told a story about Zengzi, a well-known ancient in China, to explain that honesty used to be a virtue in both countries. The teacher was relating students' relatively unfamiliar foreign setting with their relatively familiar local setting, with an aim to extend students' knowledge of western culture and deepen their understanding of local culture as well.

4.1.3 Above-Text

Above-Text construes implicit meaning expressed in the text or the teacher's opinions. The participants are "semiotic" entities. The process types include "being" and "saying". Their different combinations identify the two subcategories of Interpreting and Evaluating.

The pattern of Interpreting construes what is meant beyond the actual details in the text. The pattern is identified by the choice of "object: textbook" or "concept: specific" as the participant type, configured with "saying" or "being" as the process type. The example in Table 3 demonstrates the conjunction of "object: textbook" with "saying", and "concept: specific" with "being". After using Within-Text in the previous moves to reconstruct the details and explain the linguistic items, the teacher resorted to Interpreting to summarise the main idea. The pattern of Interpreting rises above the text and involves deeper processing of the text content.

The pattern of Evaluating construes teachers' points of view on the text, either to provoke students' thinking or call for students' actions. It is identified through the combination of the participant type "concept: general" with the process type "being". The stretch of monologue presented in Table 3 was at the end of the lesson. The participant "concept: general" was chosen consistently in conjunction with the process of "being". The teacher went beyond the text and appealed to students for cherishing what we had at present. Cultivation of students' positive attitudes towards life could be a byproduct of EFL teaching.

4.2 Making semantic waves in teacher monologue

4.2.1 Semantic gravity of semantic patterns

The combinations of participant types and process types distinguish the semantic patterns in terms of context dependency, which can be translated into a scale of semantic gravity. Figure 2 positions the semantic patterns along a cline.

In Text-Related, the pattern of Personalising construes teachers' or students' life experiences by the constant choice of "human: on-spot" that represents the interactants in classrooms. The pattern of Connecting construes others' experiences or a fact that students are familiar with by the successive selection of "human: relocated: non-generalised: life" or "thing: life" that represents persons or things in students' lives. The participant types construe domains of experience relatively close to the immediate context of you-and-me. Thus, Text-Related on the whole has the strongest semantic gravity (SG+) among the patterns, with Personalising a little stronger than Connecting.

In Within-Text, Restating reconstructs activities in the text by employing the participants that represent things or persons inside the text, i.e. "human: relocated: non-generalised: text" or "thing: text", or sometimes a generalised human group, i.e. "human: relocated: generalised". Activities in the text are relatively remote from students' lives. Background Knowledge construes cultural background to the text. The pattern shares the participant types with Restating. However, the "being" process indicates that the pattern characterises or defines a person or a thing in the text. Along Martin's (1992, 1999) cline of "language in activity" to "language as reflection", Background Knowledge moves a step towards the reflection end, and thus has weaker semantic gravity than Restating. Linguistic Item construes defining features of a language point. The pattern also defines something, as indicated by the "being" process. The participant "object: language", however, belongs to the semiotic category. The abstractness of the participant locates Linguistic Item above Background Knowledge along the cline. To sum up, compared with Text-Related, Within-Text is relatively remote from the immediate context and have weaker semantic gravity (SGθ).

In Above-Text, Interpreting is concerned with the hidden meaning in the text, whereas Evaluating is about teachers' comments on the text content. Both patterns, having a semiotic participant combined with the "being" or "saying" process, construct knowledge not merely new but also intangible to students. Evaluating is positioned above Interpreting because the participant "concept: general" suggests a higher-level generalisation. Interpreting and Evaluating
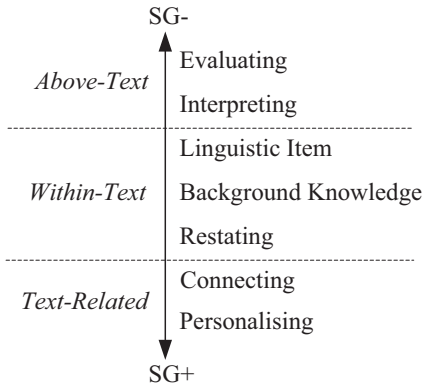
SG-

	Evaluating
Above-Text	Interpreting
Within-Text	Linguistic Item
	Background Knowledge
	Restating
Text-Related	Connecting
	Personalising

SG+

Figure 2: Semantic patterns along the cline of semantic gravity.

are towards the end of "language as reflection" in Martin's (1992, 1999) cline. Compared with categories in Text-Related and Within-Text, these are the remotest from the immediate context and have the weakest semantic gravity (SG−).

4.2.2 Variation of semantic patterns and semantic waves

In the data, Within-Text is usually where teacher monologue begins. In Figure 2, the downward shift to Text-Related unpackages the text content into students' everyday familiar experiences. The upward shift to Above-Text repackages the text content into generalised and abstract ideas. The movements back and forth along the cline of semantic gravity generate a semantic wave.

The example in Table 4 shows how semantic patterns unfold around the theme of the text "to live or endure just as you choose to look at it". The segment of Personalising has been presented in Table 3. The teacher started with Restating to unpackage the meaning of the sentence "a decade you lived or endured just as you choose to look at it", followed by Interpreting to repackage the meaning of the sentence into an attitude towards life. Next, Personalising further unpackaged the meaning of the sentence by relating it to students' personal experiences of paying for meals. The teacher ended with Evaluating to comment on what life is like. The progression of the patterns is mapped as a semantic wave in Figure 3.

Personalizing extends the semantic range maximally towards stronger semantic gravity (SG+), whereas Interpreting and Evaluating towards weaker semantic gravity (SG−). Restating stands in between. The extension to SG+, i.e. from Interpreting to Personalizing, may create a friendly ambience in classrooms and arouse students' interest in the text content. The extension to SG−, i.e. from Restating to Interpreting and from Personalizing to Evaluating, may open a space

Table 4: Progression of semantic patterns in teacher monologue.

Move	Text	Participant type	Process type	Semantic pattern	SG
1	So "a decade you lived or endured", what does **it <u>mean</u>**? "a decade you lived or endured just as you choose to look at it".	object: language	being	Within-Text: Restating	SGθ
2	**It [a decade you lived or endured] <u>was</u>** special because of 10 years' time.	thing: text	being		
3	So **I'm not expecting** to live another decade,	human: relo-cated: non-generalised: text	sensing		
	so **this birthday should be <u>celebrated</u>**.	thing: text	doing		
4	But here we would say, here why do **we <u>say</u>** to live or endure?	human: relo-cated: generalised	saying	Above-Text: Interpreting	SG−
5	**To endure <u>means</u>** to suffer.	object: language	being		
6	**That'<u>s</u>** the attitude to-wards life.	concept: specific	being		
7	**That kind of attitude just <u>shows</u>** life just like the coin has two sides: one maybe is happi-ness; the other is the [confusion] or sadness.	concept: specific	being		
8	As then maybe some-times say as **you <u>choose to look at</u>** it	human: relo-cated: generalised	sensing		
	a happy time can <u>turn out</u> to be a sad time and vice versa.	concept: specific	being		
9	What does **it <u>mean</u>, vice versa**?	object: language	being		
10	**[It <u>means</u> that] a sad time can also turn out** to be a happy time.	object: language	being		
11	So **that kind of stuff <u>is</u>** a kind of attitude to-wards life.	concept: specific	being		

Table 4: (continued)

Move	Text	Participant type	Process type	Semantic pattern	SG
12	For example, now **we are** on the campus,	human: on-spot	being	Text-Related: Personalising	SG+
	what do **you think of** life here? "To live or endure as you choose to look at it"	human: on-spot	being		
13	**Everyone has his or her opinions**, so how to express this kind of concept, attitudes towards the campus life here	human: on-spot	sensing		
	as **you choose to look at** it.	human: on-spot	sensing		
14	Today **I have** a free lunch,	human: on-spot	doing		
	I am happy (all laugh).	human: on-spot	sensing		
15	Tomorrow, maybe **I have to pay** double for…	human: on-spot	doing		
	I'm not very happy.	human: on-spot	sensing		
16	So, **it's** just as you choose to look at it.	concept: specific	being	Above-Text: Evaluating	SG−
17	So **that shows** the attitude towards life.	concept: specific	being		
18	I think **the life is** as it is here.	concept: general	being		
19	You think **it's** a good time or bad time,	concept: general	being		
	it's up to you to say.	concept: general	being		

for helping students generalise the text content. The movement from SG+ to SG− reflects the metaphor of "scaffolding" in sociocultural theory, linking to Vygotsky's (1978:86) concept of "zone of proximal development". A key point of the metaphor is that the interaction with expert knowers allows students to achieve outcomes that they cannot achieve independently. Above-Text is relevant to the deeper-level cognitive processing of "analysis", "synthesis" and "evaluation" in the taxonomy of educational objectives by Bloom (1956). These abilities, according to Cummins (1984), are context-reduced and highly rely on linguistic cues to meaning; they are therefore important in decontextualised academic situations.
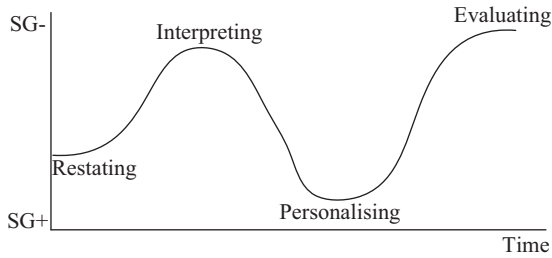
Figure 3: A semantic wave in teacher monologue.

The expansion of the semantic range to SG– may scaffold students to construct knowledge essential for developing academic English proficiency.

4.3 Comparison of the three groups of teachers

All the semantic patterns presented in Section 4 were found in the three groups of teachers, i.e. quality courses, teaching contests and daily teaching; although the absence of Evaluating in daily teaching is to be noted. However, differences exist among the three groups in the frequencies of the patterns and the ranges of semantic gravity.

The frequencies of semantic patterns in the three groups are shown in Table 5. The percentages, indicated in the parentheses, show that the proportion of Text-Related is similar among the three groups of teachers, i.e. 23.0% for quality courses, 20.0% for teaching contests and 23.1% for daily teaching. In contrast, the percentages of Within-Text and Above-Text differ. For Within-Text, from the largest to the smallest proportion, the order is daily teaching (66.2%), quality courses (44.8%) and teaching contests (31.4%). For Above-Text, the order is reversed (48.6% for teaching contests, 32.2% for quality courses and 10.8% for daily teaching).

A series of Chi-square tests were run to compare the choice of semantic patterns in the three data sets (see Table 6). The result points to significant differences among the three groups of teachers ($p = 0.000$). With regard to the comparison between any two data sets, whereas daily teaching is significantly different from quality courses ($p = 0.005$) and teaching contests ($p = 0.000$), quality courses and teaching contests do not show significant differences ($p = 0.101$).

Daily teaching takes the largest proportion of Within-Text (66.2%) and the smallest proportion of Above-Text (10.8%). A glimpse at the percentage of the subcategories of Within-Text in daily teaching displays that the teachers were inclined to use Restating (36.9%) and Linguistic Item (20%). This finding is consistent with Rao and Lei's (2014) description of Chinese EFL classrooms which

Table 5: Frequencies of semantic patterns in the three groups of teachers.

	Quality courses	Teaching contests	Daily teaching
Within-Text			
Restating	23 (26.4%)	8 (11.4%)	24 (36.9%)
Cultural background	7 (8.0%)	1 (1.4%)	6 (9.2%)
Linguistic item	9 (10.3%)	13 (18.6%)	13 (20.0%)
Total	39 (44.8%)	22 (31.4%)	43 (66.2%)
Text-Related			
Personalizing	13 (14.9%)	5 (7.1%)	8 (12.3%)
Connecting	7 (8.0%)	9 (12.9%)	7 (10.8%)
Total	20 (23.0%)	14 (20.0%)	15 (23.1%)
Above-Text			
Interpreting	27 (31.0%)	26 (37.1%)	7 (10.8%)
Evaluating	1 (1.1%)	8 (11.4%)	0 (0%)
Total	28 (32.2%)	34 (48.6%)	7 (10.8%)
Total (all the patterns)	87 (100%)	70 (100%)	65 (100%)

Table 6: Comparison of the three groups of teachers.

	Chi-square test
Quality courses	$p = 0.000$
Teaching contests	
Daily teaching	
Quality courses	$p = 0.005$
Daily teaching	
Teaching contests	$p = 0.000$
Daily teaching	
Quality courses	$p = 0.101$
Teaching contests	

give priority to the elimination of linguistic difficulties in text comprehension. Students might accomplish the surface understanding of the text by consulting a dictionary outside the classroom. The classroom might need to be devoted to higher-level processing of the text.

Daily teaching also differs from quality courses and teaching contests in the range of semantic gravity. In daily teaching, the teachers tended to shuttle between Within-Text and Text-Related. Whereas students' personal experiences contribute to their motivation to learn (Dörnyei and Csizér 1998), the absence of Above-Text (SG−) might trap them to the present tense of learning. In quality courses and teaching contests, the teachers were more inclined to make semantic waves. In

addition to movements towards stronger semantic gravity (SG↑), semantic waves involve an opposite shift (SG↓). The extension of the semantic range to weaker semantic gravity (SG−) might scaffold students from the surface level of understanding the basic meanings to the deeper level of processing decontextualized information required in academic settings.

Quality courses and teaching contests are organised by the Chinese authorities to set examples for EFL teachers to follow in their daily teaching. At least in teacher monologue, the two activities show more inclination for making semantic waves. Even if the teachers had not received any relevant training, more efforts that were devoted to the demos might result in a wider range of semantic gravity. This might imply that semantic waves are valued by teachers and can be practised in EFL classrooms to address problems about knowledge building.

5 Conclusion

This study makes a contribution to how meaning and knowledge are constructed in teacher monologue in EFL classrooms. The semantic patterns of teacher monologue are first identified by coding the choices of participant types and process types. Next, these patterns are located along a cline of semantic gravity (SG) on their ideational base of context-dependency. The progression of semantic patterns that involves the recurrent movements between SG+ and SG− generates a semantic wave. The shifts might scaffold students to construct knowledge essential for developing academic language proficiency. The comparison of the three groups of teachers suggests that semantic waves are more likely to occur in quality courses and teaching contests that might involve more preparations for teacher monologue.

This study has some limitations, which future research should consider. First, semantic gravity in relation to ideational context dependency is only one way to jointly model semantic waves. Semantic gravity can also be associated with interpersonal and textual resources to map the wave profile. Future studies can decide according to the research purpose and the data which metafunction(s) is (are) more relevant. Second, the data set is relatively small in order to carry out a detailed qualitative analysis. A quantitative analysis of a larger data set, e.g. a corpus-based study, can be conducted to locate the semantic patterns on the basis of their linguistic choices revealed in this study so as to generalise the findings. Third, this study is based on textual analysis. Other tools, for example surveys or interviews with teachers and students, can be used as triangulation to increase the validity and reliability of the findings.

Despite the limitations, the study calls for equal attention to monologue studies in EFL classrooms. It is assumed that the essence of interaction lies in the construction of meaning and knowledge rather than the dialogic form of question-and-answer. Starting from this point, the study demonstrates one possible way how SFL and LCT can be jointly employed to model semantic waves in teacher monologue in EFL classrooms. The findings provide a tool for researchers to explore EFL classroom discourse. The tool can also be used by EFL teachers as a set of metalanguage to talk about, analyse and reflect on their monologue in their teaching practice.

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