The Cognitive Function of Synesthetic Metaphor

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Abstract — This paper aims to introduce the cognitive fuction of synesthetic metaphor under the framework of Conceptual Metaphor Theory. By studying this, more information about the nature of synesthetic metaphor can be learnt.

Index Terms —synesthetic metaphor, conceptual metaphor theory, cognitive function

I. THE PHENOMENON OF SYNESTHESIA

"Etymologically speaking, the word 'synesthesia' or 'synaesthesia' comes directly from the Greek words 'syn', which means 'together', and 'aesthesis', which means 'perception' or 'sensation' " (Yu Xiu, 2012, p.1284).

Synesthesia is a fascinating psychological phenomenon. It is used to describe the experience of a cross-modal association. That is, the stimulation of one sensory modality causes a perception in one or more different sensory modalities (Cytowic, 1997).

Synesthesia is also a linguistic phenomenon. In linguistics, it is called "synesthetic metaphor", which involves a transfer between different sensory domains. According to Leech (1969), synesthetic metaphor is one of the most frequent types of metaphor and thus it is pervasive in language across different cultures. On the one hand, it appears frequently in people's ordinary language, like "sweet smell" (which involves a transfer of gustatory sensation to the smell domain) in English. On the other hand, it prevails in literary works as in Alfred, Lord Tennyson's "cold gray stones".

As a psychological phenomenon, synesthesia enjoyed a flurry of scientific study, while as a type of metaphor, synesthesia is frequently discussed in literary works from the perspective of rhetoric. Though known for its novelty and originality, synesthetic metaphor, traditionally, is no more than an ornamental device used in rhetorical style.

II. AN ANALYSIS OF SYNESTHESIA FROM A LINGUISTIC PERSPECTIVE

"Different from the phenomenon of real co-sensation, synesthetic metaphor involves the transfer of attributes of one sensory domain to another sensory domain. For example, in the phrase "a cold light", people talk about a visual concept (light) in terms of the word (cold) that belongs to the touch domain" (Yu Xiu, 2012, p.1285).

"Everyday language is rife with synesthetic metaphors. In English, people have expressions like 'noisy colour', 'cold words', 'sweet face', 'soft green'" (Yu Xiu, 2012, p.1285).

"Synesthetic metaphors are ubiquitous in literary works as well" (Yu Xiu, 2012, p.1285):

And like music on the waters

Is thy sweet voice to me.

(George Gordon Byron There Be None of Beauty's Daughters, cited in Tang, 2005)

"In the above example, such phrase as "sweet voice" make the whole sentences vivid and creative. What is special about them is that words for taste (sweet) is used to describe hearing (voice). In other words, it is the usage of synesthetic metaphor that gives the sentences a sense of originality" (Yu Xiu, 2012, p.1285).

"Due to the novelty and creativity of synesthetic metaphor, many researchers tend to analyze the phenomenon. As a type of metaphor, synesthetic metaphor can be approached from the perspective of conventional metaphor theory or conceptual metaphor theory" (Yu Xiu, 2012, p.1286).

A. Perspective of Conventional Metaphor Theory

Conventional metaphor theory regards metaphors as "figures of speech, i.e. as more or less ornamental devices used in rhetorical style" (Ungerer and Schmid, 1996, p. 114). "Metaphorical language, according to its claim, is a matter of deviation from the norm instead of a part of ordinary conventional language" (Yu Xiu, 2012, p.1286).

"Influenced by the theory, some Chinese scholars such as Wang Yan, Zhang Zhihong (1998) and Du Hongying (2000) are devoted to the discussion of synesthetic metaphor from the rhetoric point of view. They believe that synesthetic metaphor has an important ornamental function in literary works. What's more, synesthetic metaphor can also be combined with other figures of speech such as simile, oxymoron, transferred epithet to evoke multiple experiences" (Yu Xiu, 2012, p.1286).

B. Problems with Conventional Metaphor Theory

"The traditional metaphor theory puts its emphasis on the ornamental function of synesthetic transfer. However, when it is applied to account for the structure of synesthetic metaphor, it doesn't work" (Yu Xiu, 2012, p.1286).

"In his *Synaesthesia and Synaesthetic Metaphors*, Day (1996) states that synesthetic metaphor can not be accounted by traditional semantic metaphor theories due to its novelty of cross-modal associations. To clarify his viewpoint, he takes the comparison theory for example" (Yu Xiu, 2012, p.1286).

"The comparison theory tends to regard metaphor as a form of elliptical simile (Goatly, 1997). In other words, metaphor interpretation is usually accomplished by turning each expression into a complex simile-like form. For instance, to say 'King Richard was a lion' is really to say 'King Richard was like a lion' "(Yu Xiu, 2012, p.1286).

"The comparison theory works quite well with current syntactic theories (Day, 1996). However, when it is applied to explain synesthetic metaphor, it does not hold water. The problem of the comparison model is its claim that the underlying simile form with the 'like' is always retrievable and that it always has the same semantic or pragmatic meaning as the form with the suppression or deletion. The claim, in fact, is workable in interpreting sentence such as 'King Richard was (like or similar to) a lion'. Nevertheless, when the model is used to account for a sentence containing synesthetic metaphor, it poses too much of a problem. For example, if the sentence 'The violin gave a sour sound' ('sour sound' is a synesthetic metaphor) is expanded, it will change into 'The violin gave a sound like or similar to the sourness of 'something'. Relevant to 'a sour sound', though Webster gives some definition to be interpreted as metaphorical such as 'hostile', 'unpleasant', 'sullen', readers are at a loss as to retrieving the underlying form, and thus, the metaphor is still unresolved' (Yu Xiu, 2012, p.1286).

C. Perspective of Conceptual Metaphor Theory

"Since traditional semantic metaphor theory is inefficient in interpreting synesthetic metaphor owing to its own limitation, the study of synesthetic metaphor should be carried out in a broader background" (Yu Xiu, 2012, p.1286).

"With the rising of the second trend of the cognitive science in the early 1970s, the study of metaphor has extended its scope to cognitive linguistics. Along this movement, a new paradigm in metaphor research was introduced by Lakoff and Johnson in their epoch-making book *Metaphors We Live By* (Lakoff and Johnson, 1980). Their main viewpoint, which is later known as "conceptual metaphor theory", holds that metaphor is ubiquitous in everyday language and thought. Rather than mere poetic or rhetorical embellishment, metaphor is a major and fundamental part of people's ordinary way of conceptualizing the world" (Yu Xiu, 2012, p.1286). The essence of metaphor, according to them, is "understanding and experiencing one kind of thing in terms of another" (Lakoff and Johnson, 1980, p.5).

"Compared with the traditional perspective, the conceptual metaphor theory is revolutionary. In fact, the conceptual metaphor theory is a very good candidate to fully interpret the synesthetic metaphor because it can provide wider context than other metaphor theories as described in the following table (Table 1) proposed by Leezenberg (2001)" (Yu Xiu, 2012, p.1286).

A CLASSIFICATION SCHEME OF METAPHOR THEORIES (LEEZENBERG 2001, P.11) Basis of Referentialist Descriptivist Conceptualist interpretation ('comparison') ('interaction') Level (Syntax) Chomsky Bickerton Reinhartse Black I; Beardsley; Lakoff & Johnson Semantics Mooij; Henle Stern: Goodman Pragmatics Grice Black II; Searle; Levinson; Sperber & Martinich Wilson Outside linguistics proper Davidson Lakoff & Johnson

TABLE 1: A CLASSIFICATION SCHEME OF METAPHOR THEORIES (LEEZENBERG 2001, P.11)

"This table, in fact, is a classification of metaphor theories made by Leezenberg (2001). Compared with previous classifications (e.g., Black, 1962; Mooij, 1976), Leezenberg puts metaphor theories in a relatively wider context. Hence, it can give people a clearer picture to see metaphor theories. More importantly, this classification scheme includes most (if not all) of the major metaphor theories. Leezenberg classifies metaphor theories from two perspectives (Li, 2004): (1) at what level is a metaphor accounted for? Is the metaphorical interpretation within linguistics or just outside linguistic theory? If a metaphor is accounted for within linguistic theory, then the levels are syntax, semantics, and pragmatics. If not, it is then outside linguistic proper; (2) through what means does a hearer determine the metaphorical interpretation, for instance, in virtue of the descriptive information associated with the expressions used, or in virtue of the concepts or mental representation that are expressed by the words. Thus, a hearer can understand a metaphor in virtue of the properties that the referents of the metaphor have in common; this is called 'comparison view'. Leezenberg believes that such views are generally 'referentialist', because they crucially involve the referents of the expressions used. From another perspective, the hearer can understand metaphor via the meaning of linguistic expressions, that is, the descriptive information. This comes to "interaction views", which Leezenberg classifies as 'descriptivist' since these

approaches take metaphorical interpretation to be guided by the descriptive information. And finally, quite different from the above two perspectives, one may hold that metaphorical meaning arises neither from resemblances between objects nor from descriptive information, but rather from cognitive mechanism such as the ability to see one thing as another, or as reasoning in analogies. Such approaches Leezenberg refers to as 'conceptualist views' because they assign an important role to the interpreter's mental or conceptual capacities" (Yu Xiu, 2012, p.1286-1287).

The above statements suggest that the conceptual metaphor theory proposed by Lakoff and Johnson (1980) differs from previous accounts of metaphor. On the one hand, it claims that the locus of metaphor is not language, but thought, that is, the human conceptual system is metaphorically structured and defined. On the other hand, it argues that metaphor is the representation of one thing in terms of another. Metaphor not only acts as a linguistic figure of speech, but also is used for cognitive understanding of people's experience and the objective world.

III. THE COGNITIVE FUNCTION OF SYNESTHETIC METAPHOR

According to the conceptual metaphor theory, the nature of metaphor is conceptual, not linguistic (Lakoff and Johnson, 1980). As a way of cognition, metaphor plays an important role in how individuals make sense of the world. In fact, metaphor is so much a part of people's thinking process that many of human beings' everyday expressions reflect their metaphorical understanding of experience. For example, emotions are often described in terms of kinaesthetics and the body as a container in "I feel stressed inside" or "I burst out laughing". Similarly, by saying "I don't seem to grasp this idea" or "This way is over my head", bodily experience is used to express other thoughts and feelings. As a matter of fact, words and phrases that have sensory bases are shown to be universals occurring in almost all languages.

That is to say, many aspects of language are closely related to the physiological functioning of the body, i.e. sensory experiences. Among them, synesthetic metaphor is especially noticeable.

As a type of metaphor based on human sensory experience, synesthetic metaphor is a fundamental and indispensable part of mankind's ordinary way to conceptualize the world. To illustrate the cognitive function of synesthetic metaphor, the paper divides this chapter into two parts. The first section mainly dwells on the important role that synesthetic metaphor plays in everyday language. The second section chiefly accounts for the conceptual nature of synesthetic metaphor in literary works.

A. Synesthetic Metaphor in Everyday Language

As a type of metaphor based on people's sensory modalities, synesthetic metaphor becomes a universal phenomenon of different languages. Actually, so many words and expressions in people's daily language are made up of synesthetic metaphors that they are hardly aware of them.

To elucidate the important role that synesthetic metaphor plays in daily language, the author cites several frequently used English language data and tabulates them in the following tables (Table 2, Table 3, Table 4).

1. Synesthetic transfers from touch domain to other domains

TABLE 2: SYNESTHETIC TRANSFERS FROM TOUCH DOMAIN TO OTHER DOMAINS

Word	Source domain	Target domain	Examples
		SIGHT	soft light, soft color, soft green
soft	TOUCH	SOUND	soft voice, soft nonsense, soft words, soft sound
cold	TOUCH	SIGHT	cold eye, cold color
		SOUND	cold words, cold voice
warm	TOUCH	SIGHT	warm color
		SOUND	warm voice
icy	TOUCH	SIGHT	icy look
		SOUND	icy voice
hot	TOUCH	SOUND	hot debate, hot words
		SMELL/TASTE	Pepper makes food hot
		SIGHT	light color, light green
light	TOUCH	SOUND	light music, light voice, light breathing
		SMELL/TASTE	light soup
		SIGHT	piercing look
piercing	TOUCH	SOUND	piercing cry
		SMELL/TASTE	piercing smell
		SIGHT	sharp eye, sharp sight
		SOUND	sharp cry, sharp voice, sharp words, sharp silence, sharp
sharp	TOUCH		scolding
		SMELL/TASTE	sharp smell

The words such as "soft" or "cold" are listed vertically in the left-hand column; the second and the third vertical columns are the source and target domains of the synesthetic metaphors respectively; the examples, or the concrete linguistic expressions of different synesthetic metaphors are placed in the last vertical column. For example, the word "soft", which belongs to touch domain, can be mapped to sight domain as in the phrase "soft light" (TOUCH—SIGHT) or to sound domain like "soft voice" (TOUCH—SOUND). Furthermore, it should be noted that the author puts "smell"

and "taste" together in the table because the two senses always mix with each other and sometimes it's difficult to separate them.

2. Synesthetic transfers from smell/taste domain to sight and sound domains

The following table (3) includes synesthetic metaphors from smell/taste domain to sight and sound domains.

TABLE 3: SYNESTHETIC TRANSFERS FROM SMELL/TASTE DOMAIN TO SIGHT AND SOUND DOMAINS

Word	Source domain	Target domain	Examples
		SIGHT	sweet smile, sweet face
sweet	SMELL/TASTE	SOUND	sweet voice, sweet silence, sweet music, sweet
			melody
		SIGHT	sour look
sour	SMELL/TASTE	SOUND	sour joke, sour remark, sour expression
bitter	SMELL/TASTE	SIGHT	bitter tear, bitter smile, bitter dispute
acid	SMELL/TASTE	SIGHT	acid look

3. Synesthetic transfers between sight domain and sound domain

Table 4 contains examples that denote synesthetic mapping between sight and sound domain.

TABLE 4: Synesthetic transfers between sound domain and sight domain

	BINESTIETE INTERESTED BETWEEN GOOD DOMAIN THE BIGHT DOMAIN				
Word	Source domain	Target domain	Examples		
dark	SIGHT	SOUND	dark sound		
bright	SIGHT	SOUND	bright laughter		
white	SIGHT	SOUND	white noise		
noisy	SOUND	SIGHT	noisy color		
quiet	SOUND	SIGHT	quiet color		
loud	SOUND	SIGHT	loud shirt, loud tie		

Through the metaphorical transfer, synesthetic metaphor plays an important role in everyday language. It enriches people's vocabulary and is very helpful to explain the multiple meanings of words and their sense transfers. What's more, it offers people an efficient way to describe many things and phenomena. Thus, the semantic function of synesthetic metaphor reflects the relationship between language and the objective world. Consequently, synesthetic metaphor becomes an important device for people to conceptualize the world.

B. Synesthetic Metaphor in Literary Works

Synesthetic metaphor, as a subtype of metaphor, is frequently discussed in literary works from the perspective of rhetoric. Though known for its novelty and originality, synesthetic metaphor, traditionally, is no more than a figure of speech used to modify text or discourse. However, taking the approach of conceptual metaphor theory, synesthetic metaphor should not be regarded as the device of poetic imagination alone. Instead, it reflects the writers' conceptual universe and their ways of thinking about the world.

Writers usually have keen visual awareness and rich imagination, and they are good at breaking the limitation of common experience. By making use of bold, novel, and even striking synesthetic image, writers usually can hammer out vivid and exquisite literary expressions. Through them, readers can learn more about the writers' extraordinary feelings and experiences, and thus they can gain further insight into the writers' cognitive background and cognitive ability.

To illustrate the function of synesthetic metaphor in literary works, the paper puts forward several examples in English that contain different sensory transfers.

1. Synesthetic transfers from touch domain to other domains

Examples (1) and (2) contain synesthetic transfer from touch to sight, namely, TOUCH→SIGHT

(1) Break, break, break,

On thy cold gray stones, O sea!

And I would that my tongue could utter

The thoughts that arise in me.

(Alfred, Lord Tennyson *Break*, *Break*, *Break*, cited in Li, 2000)

By using the synesthetic mtaphor TOUCH—SIGHT (i.e. the cold gray stones), the poet expresses his feeling of sadness in memory of his best friend. The poet first catches the visual image of "gray stones", then the painful feeling of his friend's death consequently makes the stones become "cold". Through the synesthetic mapping, the visual image and the tactile feeling are closely connected. In this way, the poet's subjective sentiment and the objective world are unified in complete harmony.

(2) Music, when soft voices die,

Vibrates in the memory---

(Percy Bysshe Shelley Music, When Soft Voices Die, cited in Wang, 2004)

In (2), the word of sound "voices" is modified by word of touch "soft", resulting in a synesthetic metaphor TOUCH—SOUND. Through employing the sensory transfer, Shelley skilfully conveys his feeling about the music to his readers.

Further cases of TOUCH→SOUND metaphor can also be found in Henry Wadsworth Longfellow's "Cool the sound of the brook...". (cited in Li, 1996)

(3) The cold smell of potato mould, the squelch and slap

Of soggy peat, the curt cuts of an edge

Through living roots awaken in my head.

(Seamus Heaney *Digging*, cited in Bretones-Callejas, 2001)

- In (3) the "smell" of potato mould, which appeals to the sense of smell, is said to be "cold", thus evoking one's sensation of touch. Through the synesthetic metaphor (TOUCH→TASTE), readers, therefore, can fully experience the specialties of the smell.
 - 2. Synesthetic transfers from smell/taste domain to sight and sound domains

Example (4), (5) involve synesthetic mappings from the taste/smell domain to the sound domain.

(4) And the verse of sweet old song

It flutters and murmurs still...

(Henry Wadsworth Longfellow My Lost Youth, cited in Wu, 1990)

The mapping of TASTE SOUND metaphor in (4) is illustrated in detail in the following table.

TABLE 5: THE SYNESTHETIC MAPPING OF EXAMPLE (4)

Source Domain	Target Domain
TASTE	SOUND
Receptor of gustatory feeling: human mouth	Receptor of auditory feeling: human ears
Sweetness	Harmonious song
Sweet feeling of the poet's mouth	Harmonious song heard by the poet's ears
The gustatory feeling of sweetness makes people pleasant	The harmonious song makes people delighted

By reading the synesthetic metaphor (i.e. sweet old song), readers can infer that Longfellow's feeling about the old song is pleasant and pleasing. Although there is no direct auditory description about the song, the word "sweet" can give readers the above suggestion.

(5) His *voice* was a *censer* that scattered strange perfumes.

(Oscar Wilde Salome, cited in Li, 1996)

Example (5) contains metaphor SMELL—SOUND. Oscar Wilde depicts the specialties of "his voice" (sound) by describing it as fragrance sent out from the "censer" (smell). Through the synesthetic mapping, he vividly conveys his feeling about "his voice" to readers, that is, pleasant and joyful.

(6) I cannot see what flowers are at my feet,

Nor what soft incense hangs upon the boughs,

But, in embalmed darkness, guess each sweet

Wherewith the seasonable month endows

(John Keats *Ode to a Nightingale*, cited in Li, 2000)

- In (6), the sensory mapping from the taste domain (embalmed) to the sight domain (darkness) gives rise to a synesthetic metaphor TASTE—SIGHT. The distinctive image formed by the metaphor makes readers fully understand Keats' love of nature and his feeling of life.
 - 3. Synesthetic transfers between sight domain and sound domain

Example (7) and (8) consist of synesthetic transfer SIGHT→SOUND.

(7) April, April,

Laugh thy golden laughter

(William Watson Song, cited in Wang, 2004)

TABLE 6: THE SYNESTHETIC MAPPING OF EXAMPLE (7)

THE STREETH MILITING OF EMPLIE ED (7)				
Source Domain	Target Domain			
SIGHT	SOUND			
Receptor of visual feeling: human eyes	Receptor of auditory feeling: human ears			
Color of gold	Bright laughter			
Color of gold observed by the poet's eyes	Bright laughter heard by the poet's ears			
The visual feeling of that color makes the poet cheerful	The auditory feeling of bright laughter makes the poet joyful			

Normally, people use eyes to see color, and they use ears to hear laughter. However, in "golden laughter", the poet uses the word "golden" to describe laughter, that is, he experiences the sense of hearing through his vision to represent the passion felt by him. Thanks to the synesthetic metaphor SIGHT—SOUND, readers can also feel the laughter via the visual stimulation.

(8) In the air, always, was a mighty swell of sound that it seemed could sway the earth. With the courageous words of

the artillery and the spiteful sentences of the musketry mingled red cheers.

(Stephen Crane *The Red-Badge of Courage*, cited in Tang, 2005)

Crane describes the scene of war through the synesthetic metaphor "red cheers", that is, the author uses "red" (which belongs to sight domain) to describe his auditory feeling about the battle. In this way, the chaos of the war is described vividly.

(9) I heard *flowers* that *sounded*.

(Saint-Martin, cited in Li, 1996)

The sight domain and the sound domain are frequently interlinked. In (9), the Western flower can make a "sound". Undoubtedly, it is the use of synesthetic metaphor that gives readers a graphic and clear-cut image.

4. Composite synesthetic transfers

Example (10) includes composite sensory transfers brought by Arthur Symons.

(10) Soft music like a perfume and sweet light,

Golden with audible odours exquisite,

Swathe me with cerements for eternity.

(Arthur Symons The Opium Smoker, cited in Wang, 2004)

In this example, the writer expresses his special feeling about hearing the music of Chopin by using words of different domains such as soft (touch domain), perfume (smell domain), light (vision domain), and sweet (taste domain). That is, what is unique in this example is that multiple cross-modal transfers are combined and compressed into one composite synesthetic metaphor TOUCH + SMELL + SIGHT + TASTE—SOUND. Through employing the metaphor, the writer breaks the limitation of auditory experience. At the same time, the attention-catching and powerful image brought by the accurate language makes readers feel that he/she is also personally on the scene.

To sum up, synesthetic metaphor, as illustrated above, plays an important role in daily language and in literary works. On the one hand, It enriches people's vocabulary. On the other hand, it facilitates the reading of literary language. Instead of just a figure of speech, the synesthetic metaphor is an important way of cognition and thought. By the mapping from one sensory domain to another, synesthetic metaphor has become an efficient cognitive device for people to learn about the objective world.

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