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點亮咖啡香：從認知語言學理解風味的跨感官表達

Brighten Up Your Coffee! Crossmodal Expressions of Flavor in Taiwan Mandarin within a Cognitive Linguistic Framework

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本論文係張亦萱君（R03142002）在國立臺灣大學語言學研究所完成之碩士學位論文，於民國 106 年 1 月 16 日承下列考試委員審查通過及口試及格，特此證明

口試委員：

江文瑜 （簽名）

（指導教授）

[illegible]　　　呂佳蓉

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隨著論文終能付梓成冊，語言所的學習生涯也將告一段落。一路走來，每每在我遇到寫作亦或學習瓶頸時，總有師長、家人、親友開導與關懷，最後終得豐美碩果。如果沒有各方對我的照顧，絕不可能獲得今日成就。

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摘要

本篇研究從認知語言學的角度出發，探討中文母語人士對風味的感受中，如何以跨感官的方式呈現。風味是直接的嗅覺與味覺體驗，然也普遍認為過於主觀、空虛、抽象，難以具體形塑與表達的感官經驗。而在經由文獻回顧後，可察覺中文母語人士在表達風味體驗時，常藉由非味覺與嗅覺的修辭，作為風味的表徵。本論文以綜觀的角度探討 風味描述中以跨感官用詞描繪的隱喻結構與種類，也從語用的視角檢視跨感官隱喻修辭的目的，進而觀察評鑑者（即說話者）與傾聽者共同建構與共鳴的現象。

本研究以質化的方式分析及檢視語料。對於飲食的感官評析，不少飲食(如紅酒、橄欖油、巧克力、咖啡等等）在製造過程中，必須經由繁瑣的官能鑑定流程，依據統一的風味輪作為量表，始能具體評斷食品的風味優劣。其中，尤以咖啡的風味表達尚未有深入的探討與研究。而咖啡統一的制式化咖啡風味輪（由 Specialty Coffee Association of America 制定），並無法全然與中文對應，並讓中文使用者理解。因此，為了補足現有研究的不足，本論文從錄像搜集共十小時咖啡官能鑑定過程，並人工轉寫錄影中的風味描述與評析逾兩萬字，作為研究之語料基礎。並提出三個跨感官表達結構 (1) 跨感官隱喻（即共感隱喻 Synesthetic Metaphor）(2) 跨感官轉喻（即共感轉喻 Synesthetic Metonymy）(3) 跨感官明喻（即共感明喻 Synesthetic Simile），以進一步解析風味的表達，與不同知覺間跨感官的聯繫，或與情感、記憶、文化間的微妙關係。研究結果發現，評鑑者運用跨感官隱喻將視覺、聽覺與觸覺中的描繪詞轉而形容風味，跨感官轉喻則為概念式隱喻多是上、少是下(More is up, less is down)環環相扣，而跨感官明喻則藉由意象基模(Image schema)與原形理論(Prototype theory)以期在風味描述中達到說服、感性鋪陳、或感同身受等溝通目的。

再者，本文也提出不同於以往研究中跨感官表現的方向性，並提出可能的修改方向。最後，本論文旨在彰顯跨感官結構在知覺感受表達中所扮演的重要角色，並提倡在語言學中建立知覺與言談(Perception and Discourse)為一研究領域。藉由提出風味表達中的共感隱喻、共感轉喻、及共感明喻的結構，本論文探究嗅覺、味覺與其他知覺如何互動、整合。透過多模態隱喻詮釋，解析語言之於知覺與文化的關聯性，希望能跳脫單純的語言結構與詞彙的脈絡，從認知語言學的角度，進一步釐清人類認知與感受的歷程。

關鍵字: 跨感官表達、風味、共感隱喻、共感轉喻、共感明喻、多模態隱喻、言談分析、知覺感受與語言、咖啡杯測評鑑

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ABSTRACT

This study aims to explore how flavor is conceptualized crossmodally in perceptions from the perspective of cognitive linguistics by analyzing data collected from coffee cupping events in Taiwan. Although the instinctive senses of smell, taste, and flavor are shared by all, the instrumental convergence of language seems impracticable for conveying such subjective, elusive, and abstract sensation. However, it is through language that our experience of flavor can be reconstructed, evaluated, and expressed (Dyer 2011). The gap between the inexpressible nature of the so-called primitive sensations (i.e., of smell and taste) and language is bridged through figurative expressions like metaphors and similes. Notwithstanding, rarely can we identify the Chinese counterparts of English flavor descriptors, nor is the language of savoring experiences in Chinese well studied.

Although coffee cupping involves abundant crossmodal expressions, previous studies have scarcely addressed coffee cupping; instead, wine tasting is a more common topic. To bridge this research gap, the current study conducts a corpus-based investigation on cupping data involving 27,043 words from a 10-hour recording. Based on previous flavor researches (e.g., Paradis, 2013), this study places emphasis on the following three aspects to investigate the highly context-dependent synesthetic expressions (i.e., expressions of crossmodal mappings) found during coffee cupping: crossmodal metaphor (i.e., synesthetic metaphor), crossmodal metonymy (i.e., synesthetic metonymy), and crossmodal simile (i.e., synesthetic simile). However, different from the hypotheses of previous researches, we propose a novel directionality of perceptual transfers in crossmodal interactions. In fact, there is no particular rule that crossmodality in linguistic expressions must obey or violate a certain directionality in terms of the perceptual and conceptual mechanisms within sensory expressions.

According to our findings, the crossmodal metaphors featuring interactions across touch, sight, taste, and smell are regarded as synesthetic metaphors; the crossmodal metonymy is in fact transferred from the general conceptual metaphor of MORE IS UP, LESS IS DOWN, and is referred as *synesthetic metonymy*; the crossmodal associating (i.e. *synesthetic simile*), analyzed through Image schema and Prototype theory, constructs two pathways of both human cognition and emotion in order to perceptually comprehend and emotionally participate flavor experiences. In sum, three complicated crossmodal formations (i.e.,

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synesthetic metaphor, metonymy, and simile) have been established simply due to the human cognitive ability to demonstrate linguistic representation as a unity of senses (see Marks, 1978).

Further, by thoroughly analyzing synesthetic forms and functions, the present study aims to deepen an understanding of the emerging role of crossmodality in flavor expressions through the elaboration of the linguistic mechanisms of flavor expressions. By analyzing the flavor expressions that occur in coffee cupping, the study turns over a new leaf in research efforts on the relations among language, cognition, and perception.

Keywords: crossmodal expression, flavor, synesthetic metaphor, synesthetic metonymy, synesthetic simile, multimodal metaphor, discourse analysis, perception and language, coffee cupping

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Chapter 1 Introduction

1.0 Overview

This study aims to explore how flavor is crossmodally conceptualized and described in Taiwan Mandarin by analyzing the data collected from the professional practice of coffee evaluation. In particular, we explore crossmodal mappings in lexicons at a semantic-pragmatic level so as to understand how synesthetic metaphorical forms are used to capture the intrinsic expressiveness of the flavor percept. Based on the discourse data collected from 10-hour video recordings of coffee cupping practices, we propose three synesthetic metaphorical forms to represent and discuss the crossmodal patterns of perceptual expressions found in the context of coffee tasting and evaluating. We find that the three synesthetic metaphorical forms, that is, synesthetic metaphor, synesthetic metonymy, and synesthetic simile, are strategies utilized by the speakers (i.e., the coffee tasters) to describe the flavors more comprehensibly and to evoke emotional feelings from the audience. The purpose of the present research is to shed light on the importance of crossmodality in the discourse of perceptual descriptions and to pave the way for further studies to be conducted on the expression of flavor in linguistics research.

Our study also investigates the data from a more general perspective, using concepts such as the image schema and the prototype effect from the Idealized Cognitive Model (ICM), and further illustrates the communicative functions of the coffee cupping discourse. In particular, the cupping part of the coffee evaluation procedure is captured to gain a precise understanding of the flavor expressions given during the act of conducting the coffee into the mouth. By analyzing the consequent expressions, we endeavor to explain the perceptual

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comprehensibility of the linguistic crossmodal mappings of sensory modalities. In so doing, we will obtain a more comprehensive view of cognition and perception in relation to the conceptualization and metaphorization of flavor.

In sum, this research seeks to determine the prominence of crossmodality in the discourse of describing and expressing perceptual feelings. With data collected from actual coffee cupping practices, this study aims to investigate highly context-dependent synesthetic expressions (i.e., expressions of crossmodal mappings) by proposing three synesthetic metaphorical forms, that is, synesthetic metaphor, metonymy, and simile. By thoroughly analyzing these synesthetic forms and functions within the framework of cognitive linguistics, this research examines the emerging role of crossmodality in the context of flavor expressions stated during coffee cupping. Furthermore, this study seeks to contribute to linguistics and psychology research by clarifying the varied nature of synesthetic metaphorical expressions.

1.1 Motivation and Background Information

In the present section, we introduce the motivations behind studying crossmodality in flavor expressions and explain the choice of collecting Taiwan Mandarin-language data from coffee cupping practices occurring in Taiwan.

1.2.1 Why Crossmodal Expressions of Flavor?

A crossmodal expression entails an intersection of human senses in language (Marks, 1978, 2014). It was firstly derived from multimodal metaphors (Forceville & Urios-Aparisi, 2009), which are metaphors whose target and source domains are each represented mainly and particularly in different perceptual modalities ranging from the basic five categories: touch,

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smell, taste, hearing, and sight. To be more precise, crossmodality in language is a subtype of multimodality, and it captures modal convergences and similarities within the sensory perception modes (verbal, visual, taste, smell, etc.) simultaneously though a transformed conceptual structure (Binder and Desai, 2011). In the fields of psychology, communication, and pragmatics, many researches have been conducted to examine topics such as synesthesia (Cutsforth, 1924; Cytowic, 1989, 2002; Day, 1996; Heyrman, 2005; Simner & Hubbard, 2013), synesthesia and synesthetic metaphor (Day, 1996; Gibson, 1966; Lu, 2011; Mandler, 2005; Marks, 1987, 1995, 1996; Miller & Johnson-Laird, 1976; Rodríguez, 2001; Shen, 1997; Shen & Gadir, 2009; Werning, Fleischhauer, & Beseoglu, 2006; Williams, 1976; Yu, 2003; Zampini & Spence, 2010), and the influence of crossmodality on flavor expressions (Auvray & Spence, 2008; Cytowic, 2003; Kontukoski et al., 2015; McBurney, 1986; Mozell, Smith, Smith, Sullivan, & Swender, 1969; Murphy & Cain, 1980; Smith & Margolskee, 2001, March 1; Spence, Levitan, Shankar, & Zampini, 2010; Verhagen, Kadohisa, & Rolls, 2004). Although examinations of the effects of crossmodal expressions on the communication of flavor are still lacking, previous studies have pinpointed the importance of crossmodality in gaining a richer comprehension of human perceptual feelings.

Past researches of multimodality such as those on multimodal metaphors (Forceville & Urios-Aparisi, 2009) have also supported the view that crossmodality in language is crucial in communication concerning interactions between different perceptual formations such as in classics literature (Hamilton, 2011; Yu, 2003). This possible achievement of depicting two distinctive perceptions to convey the same perception without any hesitation renders the study of crossmodal expressions crucial to understanding the discourse of perceptual experiences. Moreover, though the consequent metaphorical forms of crossmodality cannot

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be cognitively comprehended, the audience can still catch the perceptually indicative meaning and the emotional implication from the discourse.

However, studies of crossmodal expressions have mainly focused on the interactions between sight and hearing, rather than those of smell and taste. The study of other types of perceptual depictions, such as flavor expressions, is thus urgently required. Despite the fact that Taiwanese culture is embedded in food to the extent that the pragmatic daily greeting of the people is "have you eaten?" rather than "hi, how's it going?" linguistic studies of Taiwan Mandarin flavor expressions are scarce. Furthermore, mappings across distinctive perceptual modalities are comparably rare in daily linguistic expressions. Studies of the linguistic percept of flavor are even scarcer in Taiwan Mandarin. To bridge this research gap, the study examines the crossmodal expressions of flavor as an interactive process of perceptual and emotional communication between the tasters and the audience.

1.2.2 Why Coffee Cupping?

Among professional food critics in Taiwan, coffee cupping is a relatively standard practice of evaluating the flavors of drinks, and has burgeoned in Taiwan in the recent decade. Started in the United States, coffee cupping, owing to its use in standard industry practice, became prevalent in the late nineteenth century (Allen, 2010). Compared with the preparations for the evaluation of cuisine (involving a complicated procedure requiring culinary arts skills) and wine (involving a complex processing of fermentation), the preparations for coffee cupping are more explicit and direct. In a standard coffee evaluation, coffee tasters attempt to measure the important flavor attributes specifically by focusing on tactile qualities, such as the body (e.g., oiliness, slipperiness, smoothness, and roughness), astringency (feeling of

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constricting body tissues), aftertaste, acidity, balance, and sweetness, along with a series of standard procedures from roasting and brewing to cupping.

In Taiwan, following the growing trend of tasting and evaluating coffee in public, coffee cupping has shown a considerable prevalence in the recent decade. Coffee cupping was first introduced by the faculty of the Department of Agronomy at National Taiwan University in 2004. For the purpose of assisting the cultivation of specialty coffee beans in Taiwan, the standards of arabica coffee set forth by the Specialty Coffee Association of America (SCAA) were adhered to, instead of those used by major international merchandisers (Wang, 2010). Since the conducting of coffee cupping has become an annual routine, the world-wide reputation of Taiwan's specialty coffee beans has also improved (Wang & Lin, 2016).

Moreover, the expression of flavor by coffee tasters during coffee cupping, as evident in their records and notes, is distinct and difficult. The reason lies in the cupping procedure and the standard way of evaluation. During cupping, tasters are asked to comment on the coffee relatively objectively, by giving details in direct connection to an audience's life experience in order to offer a comprehensive overview. At the same time, cupping practices stipulate a time limit of eight minutes for the tasting of each cup. In other words, there is no extra time for tasters to have a second tasting of the same coffee; they have to offer comments instinctively along with their brief impression of the target coffee. Thus, flavor expressions made during coffee cupping reflect more instinctive human perceptual experiences than the refined food critiques given in publications.

However, linguistic researches on the flavor expressions made during cupping are scarce. Discussions on "winespeak" seem to be more prominent. In addition, as noted by Caballero (2007), metaphors play an important role in connecting perceptions with linguistic

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representations. Crossmodal interactions between taste, smell, touch, and sight can be present in both flavor experiences and expressions (Auvray & Spence, 2008; Caballero, 2007; Marks, 1978). On the other hand, researchers have further suggested that the gap between science and language results in similar but different aspects of the synesthetic phenomenon (Caballero & Suárez-Toste, 2010; Marks, 1996; Paradis & Eeg-Olofsson, 2013). Unfortunately, none of the researches concerning perceptual expressions mentioned above have been carried out using Taiwan Mandarin-language data. Therefore, this study aims to conduct a thorough examination of coffee critics' flavor descriptions in Taiwan Mandarin to unveil the mechanisms behind linguistic inventiveness and expressiveness.

1.2 Aims of the Study

The aim of this study is to gain insight into crossmodal expressions of flavor in Taiwan Mandarin through an examination of coffee cupping notes with a focus on bridging the research gap concerning crossmodality in the study of language. To understand the interpretive impact of human linguistic expressions, the present study investigates synesthetic forms (i.e., expressions involving interactions across different types of senses or perceptions), such as synesthetic metaphor (i.e., crossmodal metaphor), synesthetic metonymy (i.e., crossmodal metonymy), and synesthetic simile (i.e., crossmodal simile), adopted in the expressions of intramodal similarity (Marks, 1978: 191). The study is thus taking a deeper look into how these synesthetic strategies reveal the interactive process and perceptual-emotional communication between the coffee tasters and the audience, and how the expressions further contribute to perceptual description studies in the field of discourse analysis. Our research questions under investigation are as follows:

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1. How is flavor described crossmodally through language during coffee tasting?
2. How are the meanings of the crossmodal expressions representing the experiences of coffee tasting construed?
3. Why are the transitions from one perceptual modality to other modalities expressed in coffee tasting dialogues?

The first and the second questions analyze how the crossmodality within perceptual descriptions, evident in Taiwan Mandarin flavor expressions, shapes our understanding of flavor by using data drawn from the notes of coffee cupping. Strictly speaking, by adopting a bottom-up approach, we aim to clarify the conceptual and linguistic mechanisms behind the linguistic representation of flavor. Meanwhile, given that previous psychological studies and literatures analyzing crossmodal perceptual experiences have commonly focused on smell and taste, we consider the distinction of perceptions within flavor expressions as an original and essential contribution to crossmodal investigations.

In the last question, we presuppose a cognitive arrangement between language and perception in crossmodal expressions of flavor. This presupposition is motivated by the claim of Auvray and Spence (2008) that the *multisensory* perception of flavor may follow the unification of the qualities of taste and smell into one simple image or impression. We thus endeavor to reveal, through our data, the miscellaneous facets of flavor in terms of crossmodal interactions, and to discuss further the influence of acquired experiences on the conceptualization of flavor. In the meantime, we aim to examine the effect of culture on Taiwanese speakers' flavor experiences and expressions.

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1.3 Significance

This study examines the crossmodal expressions that engage one of the most primitive perceptions, that is, flavor. Through a reliable and in-depth examination of the data collected from 10 hours of recordings, this study aims to develop a comprehensive understanding of the crossmodality taking place in linguistic performances. At the semantic level, several meanings of perceptual modifiers within certain contexts are developed to reveal the crossmodality in words as well as the metaphorical effect based on the perceptual resemblances and primitive conceptual structures from the ICM. We employ concepts from similar discourse studies on wine reviews and suggest three forms of synesthetic expressions that represent the metaphorical and crossmodal strategies used by the tasters in our data. At the pragmatic level, we investigate the communicative functions of the three synesthetic metaphorical forms created by either the tasters or the audience when expressing their sensations of flavor in detail. A simplified version of the definitions of the three synesthetic metaphorical forms is presented below (for more details on the definition of each strategy, see Chapter 3).

> **Synesthetic Metaphors**: The crossmodal metaphors that involve the perceptual interactions of TOUCH, SIGHT, TASTE, and SMELL are regarded as *synesthetic metaphors.* Three regulations concerning directionality and tendencies are as follows: (1) the lower (i.e., primitive and lacking sufficient scientific investigation) senses serve the source domain, while the higher (i.e., advanced and well-developed in scientific researches) senses serve the target domain; (2) tactility is the predominant source in terms of the accessibility of crossmodal transfers; (3)

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and the transferring directionality is "touch → smell → taste → hearing → vision." A modified directionality of crossmodal mappings in flavor descriptions is thereafter proposed in the present study to gain a precise understanding of the linguistic crossmodal interactions of flavor.

Synesthetic Metonymy: Following the definition of *synesthetic metonymization* established by Paradis and Eeg-Olofsson (2013), the crossmodal metonymies included in the present study are in fact the results of *zone activation*. Paralleled with the figure-ground effect, two mechanisms are considered as the strategies of this metonymization: (1) **foregrounding**, meaning the elevation of a certain perceptual aspect from the property modifiers and (2) **backgrounding**, signifying the inhibition of other perceptual aspects contained in the knowledge of single modifiers. Lastly, the innate conceptual metaphors of MORE IS HEAVY, MORE IS DENSE, and MORE IS THICK are situated in synesthetic metonymies, allowing the accessibility of shifting aspects.

Synesthetic Simile: Synesthetic simile is a form extended from imagistic metaphor, which is also known as image metaphor (Lakoff, 1987b). This involves the application of mental images based on primitive cognitive theories such as the prototype effect (Lakoff, 1987a; Langacker, 1987) and the image schema (Clausner & Croft, 1999; Lakoff, 1987c). In our findings, synesthetic similes function by gathering and recalling many perceptions from conceptions (i.e., property, event, or subject) when smells and tastes are described.

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Using these three synesthetic metaphorical forms, we propose a revised version of crossmodal tendency and directionality, which enables us to find results that contribute to crossmodal expression research. In addition, the analysis provides us with more extensive knowledge of how human perception and cognition are reflected in linguistic descriptions. For instance, the synesthetic metaphor of ACIDITY IS LIGHT, which evokes a perceptual or emotional similarity between the taster and the audience while utilizing the two modalities of SIGHT and TASTE, is frequently used by tasters, according to the present data (for more details on other frequent crossmodal metaphors that evoke perceptual and emotional empathy between the speakers and the audience, see Chapter 4).

The sensations of smell, taste, and flavor shared by people have long been considered too instinctive, subjective, elusive, and abstract for the instrumental convergence of language to convey. Our study is one of the first to deal with the intricacy of "reconceptualizing perceptual feelings in functions from both cognitive and perceptual perspectives within the context of crossmodality." Our analyses of synesthetic metaphorical forms demonstrate that the flavor expressions given by all food critics play a crucial role in transforming primitive perceptions into language. In particular, the application of synesthetic metaphorical forms is a unique strategy used by speakers to strike a chord with an audience and achieve their communicative goals.

The identification of Taiwan Mandarin counterparts to English flavor descriptors is rarely possible, while the language of savoring experiences in Taiwan Mandarin is not well studied. Our study aims to examine flavor expressions in Taiwan Mandarin and to gain more perspectives to approach the conceptualization of flavor. Our methodology includes the collection of data from professional coffee tasting trainings (i.e., Coffee Cupping Lesson). In

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total, the verbal data of 45 Taiwanese coffee tasters' descriptions and explanations of the complex flavors of coffee were manually transcribed from the coffee cupping recordings.

In sum, compared with the crossmodal discourse analyses from previous researches, the present thesis advances a significant step in the study of crossmodal linguistic expressions by tackling flavor conceptualizations in Taiwan Mandarin. A thorough literature review reveals that only a few researches are concerned with the metaphorical mappings of flavor as the target domain, and that no linguistic studies comparing flavor and other perceptions in Taiwan Mandarin have been conducted. Besides analyzing metaphors, the present research analyzes synesthetic similes, highlighting their function as expressive and rooted mechanisms. They enable us to go beyond the boundary of time and space. Finally, we reveal the miscellaneous facets of synesthetic metaphorical expressions in terms of their linguistic and perceptual crossmodal transfers.

1.4 Organization of the Study

The overall structure of this study consists of seven chapters including this introductory chapter. The rest of the study is structured as follows: Chapter 2 begins by laying out the theoretical dimensions of the research, and examines how flavor evaluation, synesthetic metaphors, crossmodal and multimodal mapping are analyzed within the cognitive linguistics framework. In Chapter 3, we describe our methodology of data retrieval combined with discussions of the theoretical background. Further, the identification procedures of the crossmodal metaphors and metonymies are discussed.

The next three sections present the findings of the research, focusing on the three key forms of synesthetic metaphor, metonymy, and simile that have been identified in the analysis.

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Chapter 4 elucidates the metaphorical metaphors found in the current data of coffee cupping recordings according to the theoretical framework proposed in Chapter 3. Additionally, we re-evaluate the earlier hypothesis of the directionality of linguistically crossmodal mappings, and propose a revised version for understanding flavor expressions in Taiwan Mandarin. In Chapter 5, we will discuss the synesthetic metonymies employed in the expressions of flavor. In Chapter 6, we will detail the crossmodal interactions of imagistic similes (as defined in Chapter 3). Finally, Chapter 7 summarizes the present study, discusses the implications of the findings for future related research, and offers suggestions concerning issues worthy of further study.

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Chapter 2 Literature Review

The purpose of this study is to facilitate a thorough understanding of how crossmodal expressions, which are descriptions of a specific perceptual feeling through the adaptation of other perceptual modalities, illustrate flavor experiences conceptually and metaphorically. As noted in scientific studies, the crossmodality of smell and taste seems to be unavoidable in the perception of flavor (Auvray & Spence, 2008; Goldstein & Brockmole, 2010). As noted by Auvray and Spence (2008), flavor, meaning a typical perceptual experience consisting of at least taste and smell while eating and drinking, is often viewed as a unified human perceptual modality in perceptual psychology. However, there is a significant lack of focus on the crossmodality of flavor in studies of linguistic expressions. To investigate the connections between language and flavor perceptions, we begin by reviewing the previous researches examining the crossmodal intersections of flavor from the fields of perceptual psychology to cognitive linguistics.

By the same token, considering how flavor experiences are re-conceptualized in linguistics analysis, we reassess the former linguistic frameworks used in crossmodal studies on wine tasting. Wine tasting (or winespeak), which is a professional sensory evaluation of wine similar to coffee cupping, is the most common subject of crossmodal studies in linguistics (Caballero, 2007; Caballero & Suárez-Toste, 2010; Paradis & Eeg-Olofsson, 2013). Records of wine review allow researchers to take a closer look at perception and language not only because of the professionalism of their contents but also because of the richness of their flavor expressions (Caballero, 2007; Caballero & Suárez-Toste, 2010; Paradis, 2008; Paradis & Eeg-Olofsson, 2013). It is clear that metaphorical strategies are omnipresent within flavor descriptions but are varied in type (Paradis & Eeg-Olofsson, 2013).

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The present study finds coffee cupping to be another professional practice of evaluating drinks. Similar to those of wine tasting, the evaluation procedures of coffee cupping involve three stages, that is, fragrance, flavor, and aftertaste (Lingle, 2001). Unlike wine tasting, however, coffee cupping lacks adequate investigation in linguistic studies.

Further, we also review the similarities and distinctions among the terminologies describing crossmodal interactions in linguistics. The terms include *multimodal metaphor* (Forceville & Urios-Aparisi, 2009), *perceptual metaphor* (Marks, 1995, 1996), and *synesthetic metaphor* (Shen & Gadir, 2009; Williams, 1976; Yu, 2003). To clarify the distinctions, we raise the main concerns of the paper. As mentioned by Marks (1996) and Miller and Johnson-Laird (1976), although language and perception do not necessarily carve the world in precisely the same way, their connections are comparably substantial and inseparable. Therefore, the examination of how crossmodal interaction plays a role in discourses in the context of flavor expressions contributes to both perception and language studies.

2.1 Cognitive Mechanisms behind Gustatory Impressions

To unveil how perception and language are intertwined in terms of flavor expressions, we review the analysis of flavor and flavor expressions in science and linguistics, respectively. Firstly, we endeavor to understand to which perceptual level flavor is discussed in science, that is, whether it is a combination of multisensory feelings, or a single and unified perception. Secondly, we organize the common points about flavor in science and linguistics by examining how olfactory and gustatory imageries are constructed, building a bridge between psychological perception and linguistic expression.

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Last but not least, in order to determine a suitable analytical method for crossmodal expressions of flavor, we revisit certain cognitive linguistics theories of embodied and perceptual expressions, including conceptual metaphors (Lakoff & Johnson, 1980, 2003; Lakoff & Turner, 1989) and synesthetic metaphors (Marks, 1995; Paradis & Eeg-Olofsson, 2013; Yu, 2003) in crossmodal flavor expressions.

2.1.1 Simultaneously Combined Imagery from Two Perceptions

Flavor is an experience of food from a combination of the olfactory system, where we generate the sensation of smell, and the taste system, which obtains five basic taste sensations (saltiness, sweetness, acidity, bitterness, and umami) (Goldstein & Brockmole, 2010). In addition, it has been discovered that these intersensory interactions of flavor are not merely present in smell and taste. For instance, interactions among the senses stimulated by elements such as the texture and temperature of food (Verhagen et al., 2004), the colors (Spence et al., 2010), and the sounds (e.g., the "crunching" sound when eating potato chips) (Zampini & Spence, 2010) also matter when tasting flavor. Gibson (1966) proposed that flavor perception is enabled by savoring food at the level of perception, the instinctive sensory impression, rather than at the level of sensation, the feeling aroused by the senses. All of these interactions unveil the multimodal nature of our flavor experience (Auvray & Spence, 2008).

Thus, flavor requires numerous interactions between the senses of taste and smell in the act of tasting. In physiological definitions, taste is considered a minor sense as the channel of only a limited number of sensations: sweetness, acidity, bitterness, saltiness, and umami (Chandrashekar, Hoon, Ryba, & Zuker, 2006; Smith & Margolskee, 2001, March 1). Smell appears to constitute a "dual modality" through sniffing (orthonasal olfaction) via the nose

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and eating and drinking via the mouth (Auvray & Spence, 2008). However, the two senses of smell and taste are rather neglected and primitive, not because there is a lack of interest but because they are difficult to measure reliably. Although smell (olfactory sense) and taste (gustatory sense) are distinct in their receptors, as their first sensorium for information processing is identical, they are intimately entwined (Goldstein & Brockmole, 2010). As shown in Figure 2.1, chemicals in foods are detected by the taste buds, which are construed by the gustatory sensory cells. When stimulated, these cells will send signals to the thalamus and insula, which belong to the primary taste area, making us conscious of the perception of taste. Likewise, the olfactory mucosa of the nasal cavities, which contains specialized cells, will pick up the odor molecules in the air. Odor molecules stimulate the sensory cells on the receptor organ, and initiate a neural response. Ultimately, messages about taste and smell are converged in the caudal orbital cortex with the gustatory information (sent from the thalamus) and the olfactory information (received from the olfactory bulb), thereby allowing us to detect the flavors of food (Carey, 2005). Additionally, the orbitofrontal cortex (OFC), which is situated in the frontal lobes in the brain, is where taste and smell integrate their messages within the nervous system (Murphy & Cain, 1980).

According to the view outlined here, flavor should be defined as the *unification* of the senses of smell and taste when tasting food, rather than as a synesthetic experience of both senses (Auvray & Spence, 2008). Mozell et al. (1969) showed that it may be difficult for people holding their noses during tastings to identify the substance that they are drinking or eating. The reason is that food evokes volatile chemicals that reach the olfactory mucosa through the retronasal route, which is the passage that connects the oral and nasal cavities. If the nose is plugged, vapors cannot reach the olfactory receptors, thereby eliminating the

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olfactory component of flavor (Goldstein & Brockmole, 2010; Murphy & Cain, 1980).

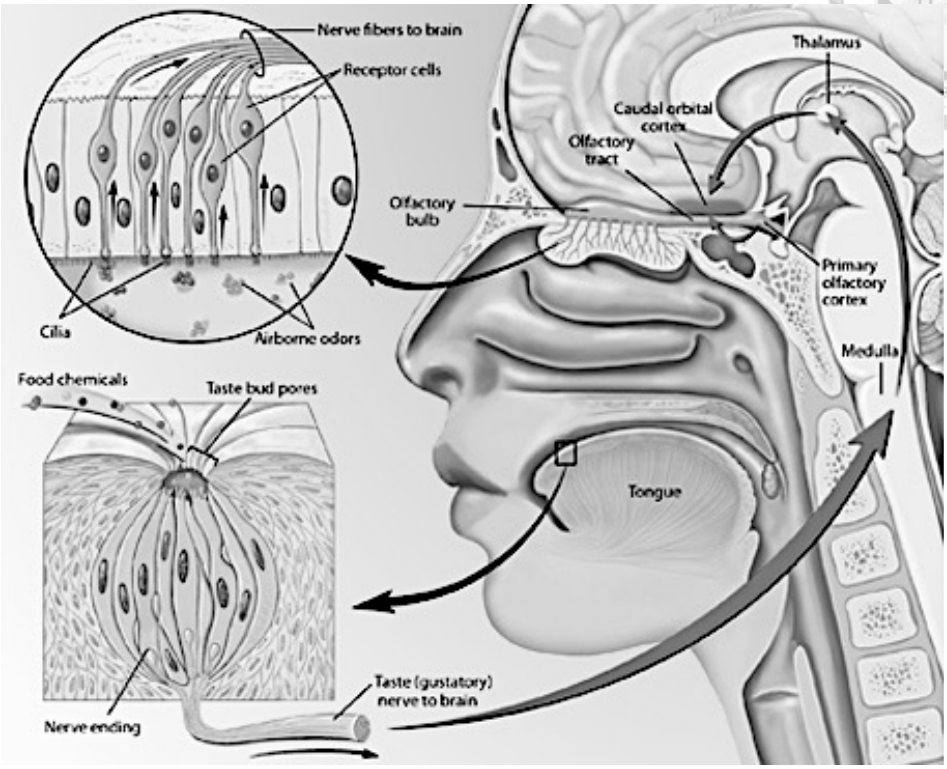

Figure 2.1 Pathways of Smell and Taste
Illustration by Lydia V. Kibiuk, Baltimore, MD; Devon Stuart, Harrisburg, PA

On the other hand, psychological studies have shown that while flavor is perceived as the unification of both taste and smell, it remains analyzable when people attend to each component separately as well. To clarify the complex interactions between taste and smell in flavor, McBurney (1986) suggested that there ought to be a distinction drawn between *synthetic* and *analytic* types of flavor perception. *Analytic* perception occurs when two stimuli mixed in a solution retain their separate identities and qualities. By comparison, *synthetic* perception is when two stimuli that have been mixed together in a solution lose their individual qualities and are replaced by a new and distinct (third) sensation. As it turns out, according to McBurney (1986), during the experience of smell and taste, components of

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a flavor do not lose their individual qualities of sensation to form a new sensation. Rather, they are combined in order to form a single percept that is an individual impression of both perceptions. It is therefore believed that the multisensory perception of flavor does not necessarily represent a synesthetic experience because the stimuli are not combined synthetically. However, this could simply reflect the unification of the qualities of taste and smell into one simple image evoked by the act of eating (Auvray & Spence, 2008).

Derived from our ability to construct gustatory imagery (i.e., thinking about the taste experience), the image construed by the unification of taste and smell can be regarded as the connecting factor between perception and language. Kobayashi et al. (2004) supposed that people's gustatory imagery elicits frontal gyri activation in the absence of actual taste stimuli, and that this imagery is related to the retrieval of gustatory information from our long-term memories. In other words, in spite of the fact that flavor contains the instinctive and abstract senses of smell and taste, the instrumental convergence of linguistic expression seems to be embedded in our subjective and elusive experiences and memories. Moreover, the images are not novel inventions but recollections of our past embodiments. Paradis and Eeg-Olofsson (2013) likewise called the transformation of sensory perceptions into language the "reconceptualization of perceptual feelings." We analyze and discuss such imagery expressions found in our target data of coffee cupping practices.

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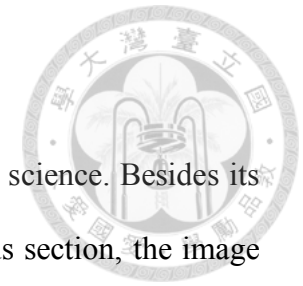

2.1.2 Conveying Flavor Images and Imagery

The investigation of flavor is as intricate a task in linguistics as it is in science. Besides its complicity in human linguistic expression, as illustrated in the previous section, the image driven by the gustatory imagery evoked by flavor experiences can be the bridge linking perception and language. As McBurney (1986) indicated that flavor is an individual impression (i.e., the smell and taste components are united in producing a flavor without losing their separate identities and qualities), from an *analytic* perspective, gustatory imagery thus allows linguistic expression to be both descriptive in conveying distinctive perceptions, and metaphoric in evoking associative images.

> *"If we want to determinate and name the quality of a smell, we often use terms derived from other sensory systems. Many words for smells belong as well to taste, to touch, to hearing or to sight. Adjectives directly connected to the perception of a smell are generally derived from the associated nouns (odor, stink, smell, whiff). There aren't very many such words: stuffy, overwhelming, stinking, rotting, penetrating, pungent, fragrant, perfumed, volatile…Does our limited verbal expressiveness in this area have a purely biological or neurophysiological background or is there more involved?"*
>
> — Vroon, Pieter Adrianus, Van Amerongen, Anton, and De Vries (1997)

First, linguistic expressions are viewed as either simplified (Auvray & Spence, 2008) or "deodorized" (Vroon et al., 1997) in psychology. Since there are no primary and sufficiently distinctive qualities from which the olfactory or gustatory experience can be classified into compounds or components (Gibson, 1966), odors are always the names of objects or classes of events, according to Auvray and Spence (2008). Furthermore, Vroon et al. (1997) noted the lack of richness in linguistic expressions of smell. This primitive perception was once

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regarded as "deodorized" because it tended to be intertwined with other perceptions.

On the contrary, the perceiver is able to access an impression associated with his or her experiences derived from a sensation or a pure percept during tasting. Instead of attending to the source object, one can attend to the subjective experience itself. Objects are not detected merely by sensations; subjective memory and object specification are operated by the joint extraction of stimulus information when smelling and tasting (Gibson, 1966). Likewise, the philosopher Henri Bergson stated the following in "Matter and Memory":

> *"[T]here is no perception which is not full of memories. With the immediate and present data of our senses, we mingle a thousand details out of our past experience."*
>
> — Henri Bergson (1913)

This notion is echoed in what scientists call the "Proust effect." The smell and taste of tea and madeleines provoked Proust's recollection of past events, which he recorded in one of his most famous stream-of-consciousness literary works. As noted in *The Oxford Handbook of Oral History* (2011), smell or scent, in this sense, has been considered as the memory sense, as it is most likely to stimulate reminiscence. Proust referred to the memories evoked as involuntary. In spite of all of the descriptions of Proust's smell memories, even if sensory experience is not considered as the domain of analysis and abstract thought, it would remain a traditionally physiological response shaped by partly psychology and partly personal history. It is believed nowadays that perceptions can serve as a mnemonic device or trigger a memory, neither of which is an uncommon experience (Willander & Larsson, 2007). Therefore, it is not only physiologically evidential, but socially meaningful when perceptions are communicated with people, especially in a linguistic form such as in discourse or

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literature. However, the connection of perception with cultures and the humanities, as stated by Howes below, was not viewed with importance until the end of the twentieth century, when the "sensory revolution" declared the study of perceptions to be relevant for the humanities.

> *"[The senses become] the most fundamental domain of cultural expression, the medium through which all the values and practices of society are enacted."*
>
> — Howes (2003)

In linguistics research, in accordance with the quote from Howes (2003), metaphorical strategies for interpreting sensory experiences are the instinctive devices for mediating human thoughts and primitive perceptions. Marks (1996) proposed that *perceptual metaphor* is a crucial metaphorical expression; it concerns how language plays a role in perception. As a metaphor mainly focused on perceptual experiences and expressions, *perceptual metaphor* involves the concepts of perception (from the senses such as sight, hearing, touch, smell, or taste) as the target concepts, and an asymmetrical relation of metaphoric expression (Marks, 1996).

Discussing the variations of metaphor, Kövecses (2010) asserted that human minds and cultures have major roles in generating metaphors and reconstructing the way people see the world. Extracting source domains from a large number of potential candidates, people select the ones that "make intuitive sense" (Kövecses, 2010), namely, those from human experiences, and match them with the target domains. In addition, in contrast to the traditional view of metaphor as simply a rhetoric strategy, the view provided by the Lakoffian-Johnsonian model (2003), that is, the ICM, holds conceptual metaphor to be a crucial conceptualization of human modes of thought, sensation, and experience.

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However, conceptual metaphors are not exempt from the identification, organization, and explanation of linguistic representations in contextual contents while providing heuristic information in flavor expressions (Caballero & Suárez-Toste, 2010). For instance, in wine discourse, metaphors such as WINES ARE HUMAN BEINGS and WINES ARE TEXTILES are used due to personal preferences or verbosity. Thus, an unclear identification is derived from "(i) the close relationship between the source domains in some metaphors (e.g. architecture and anatomy), (ii) the co-evocation of various metaphors by a single expression, and (iii) the fuzzy boundaries between conceptual and synesthetic metaphor (as these types have been defined in the cognitive literature)" (Caballero & Suárez-Toste, 2010). In other words, although a metaphor offers a solution to these difficulties by providing wine tasting notes with conceptual frames and corresponding lexicons, several problems arise such as a lack of systematic approaches in creatively expanding such entrenched schemas.

Last but not least, as human tasting systems are biologically obligated to be "gatekeepers" to identify harmful items from harmless ones for survival, flavor experiences are connected to emotional reactions and memories. In other words, to identify the good and bad things that may affect human bodies, the functions of smell and taste are aided by several components "associated with a past place or event which can trigger memories, and in turn may create emotional reactions" (Goldstein & Brockmole, 2010). Therefore, when it comes to conveying flavor experiences under a certain cultural context, a vivid image description is utilized not only for specifying the sensory feeling, but also for "demanding a great deal of knowledge and experience on behalf of the readers" (Paradis & Eeg-Olofsson, 2013). In addition, even if conceptual metaphors are utilized, the ineffability of linguistic codability in depicting flavor (Levinson & Majid, 2014) remains. Connecting crossmodal perception with linguistic

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imagery requires the use of precise explanations found within other cognitive linguistic theories.

Notably, as proven in previous literature, similes, which are capable of conveying an abundance of imaginative, dynamic, and vivid information using gustatory imagery, are in fact expressed the most during flavor experiences (Caballero & Suárez-Toste, 2010; Paradis & Eeg-Olofsson, 2013). Croijmans and Majid (2016) mentioned that source-based terms are recorded as being applied more frequently by flavor experts, whereas novices use more evaluative words (e.g., "nice"). Similes can be considered as ad hoc descriptions used because of a lack of direct linguistic indication. Unfortunately, similes have been seen as extending beyond the boundary of metaphorical expressions, rendering them too cryptic and intractable for analysis. In order to thoroughly comprehend the crossmodal expressions of flavor in Taiwan Mandarin, the present study endeavors to take on the crucial task of understanding similes in relation to crossmodality.

2.2 Crossmodal Interactions in Language

To understand the linguistic forms and functions of crossmodal metaphorical expressions, we first distinguish between the monomodality and multimodality of metaphors. According to Lakoff and Johnson (1980), a conceptual metaphor requires a target domain and a source domain within the same texts. Thus, we can understand the target concept through related concepts in other fields of thought. However, as recent studies on metaphor have indicated, the Lakoffian definition deliberately avoided mentioning the types of modality through which the metaphors are "transferred" (whether by writing, speaking, or other ways). Thus, Forceville and Urios-Aparisi (2009) proposed another typical type of metaphor, the

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multimodal metaphors, which "are metaphors whose target and source are each represented exclusively or predominantly in different modes." Accordingly, in the examples given by Lakoff and Johnson (1980), the metaphors whose target and source are each represented in the same modes are monomodal metaphors. By contrast, multimodal metaphors are *cued* in more than one mode (verbal, visual, taste, smell, etc.) simultaneously, referring to not only its semantics in linguistic expressions but also its implied cognitive concepts.

For instance, suggested by Forceville (2002), the simile, CAT IS ELEPHANT, may involve a monomodal metaphor by juxtaposing two animals in the same position, or by portraying a hybrid, contextual simile, and integrated subtype features in a single figure (Forceville, 2005). For instance, presenting an elephant with a "meow" sound, or having another animal ask "cat?" to the elephant (see Forceville and Urios-Aparisi (2009) for more examples of multimodal metaphors) allows the multimodal metaphor to give a verbal cue from the source domain juxtaposed with the target domain. Notably, this multimodal metaphor cues a separate verbal and visual mode. Further, a crossmodal interaction, which Marks (1978) described as an intersection of senses in linguistic expression, is formed.

> *"Metaphorical expressions of the unity of the senses evolved in part from fundamental synesthetic relationships, but owe their creative impulse to the mind's ability to transcend these intrinsic correspondences and forge new multisensory meanings. Intrinsic, synesthetic relations express the correspondences that are, extrinsic relations assert the correspondences that can be."*
>
> — Marks (1978)

In terms of morphology, synesthesia is a combination of "together" and "sensation" in Ancient Greek, σύν (syn) and αἴσθησις (aisthēsis). Accordingly, synesthetic metaphor is the

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general terminology referring to crossmodality in metaphors, and it is derived from the neuropsychological term "synesthesia" (Marks, 1978, 1987, 2014). In psychology, synesthesia is a neurological phenomenon in which stimulation (of a single sensory or cognitive pathway) leads to involuntary experiences in another sensory or cognitive pathway (Cytowic, 2002; Cytowic & Cole, 2003). According to Cutsforth (1924), "For synesthetes (people who reported to have synesthesia), the picture is the meaning … they visualize the meaning ... images behaved as if they constituted fully conscious meanings." In other words, because the synesthete's personal cognition and perception of sight are intimately related, they are able to "perceptually reason." Thus, cognitive activities such as "emotions, thoughts, and images" are experienced in sensual terms such as through sound, taste, or touch (Cytowic, 1989). Since a study has found that "the most experienced meditators report concept-based or categorical-sensory amalgamations," the experience of reasoning our way into synesthetic perception can be possible. Common types of synesthetic experiences are divided into two categories according to the number of domains involved, namely, two-sensory (the crossing of two senses) or multi-sensory (the crossing of three or more senses) (Heyrman, 2005).

However, in linguistics, "literary synesthesia" is not an exceptional perceptual experience of synesthetes but a rather common perceptual experience for most people. For example, in the visualization of sounds, higher tones are viewed as smaller than lower tones, low tones are both larger and darker than high ones, and louder tones appear brighter than mild ones (Cytowic, 2003). (Literary) synesthesia represents a perceptual phenomenon, upon which linguistic expression is positioned (Marks, 1996).

Attempting to examine crossmodality in flavor expressions, we review the following analytical mechanisms behind crossmodal interactions, construals of salience, that is,

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metonymization (Paradis, 2004, 2008; Paradis & Eeg-Olofsson, 2013), and the identification of synesthetic metaphors (Caballero & Suárez-Toste, 2010; Marks, 1987, 1995; Yu, 2003). We also examine the general rules and directionality pertaining to crossmodality noted in previous studies (Lu, 2011; Shen, 1997; Ullmann, 1959; Werning et al., 2006; Williams, 1976).

2.2.1 The Metaphor and Metonymy of Intersensory Similarities

In linguistics, *synesthetic metaphor* is a metaphor that exploits a similarity between experiences in different perceptual modalities (Heyrman, 2005). Both of the domains being linked together are required to involve perception; otherwise, the metaphor would be considered as only weakly synesthetic (Werning et al., 2006). Day (1996) also noted that, compared with synesthesia phenomena in psychology, synesthetic metaphors are much like other metaphors with cultural elements incorporated into the semantic processes, rather than being simply innate and hard-wired for human cognition. Further, Marks (1974) suggested that the intersection of synesthetic phenomena between pitch, loudness, brightness, and size is rooted in the fundamental similarities of physical experiences. Thus, from multimodal and perceptual metaphor to synesthetic metaphor, through metaphoric descriptors, perceptual similarities, and crossmodal equivalences, the abstract knowledge of human perceptual embodiment shown in language becomes more intelligible (Cytowic & Cole, 2003; Marks, 1978, 2014).

As formerly noted, *perceptual metaphor* reflects how people decode, assess, formulate, and remember figures of thought when perceiving senses in terms of language. In general, *perceptual metaphors* involve the concepts of perception (from the senses of sight, hearing,

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touch, smell, or taste) as the target concepts, and an asymmetrical relation of metaphoric expression mediates the inclusion of other types of perception in this perceptual stimulus. Thus, the source domain may not be semantically more concrete than the target domain, but is perceptually more comprehensible and representational of human experiences. *Synesthetic metaphors*, in this way, are a typical kind of perceptual metaphor with crossmodal equivalence in both domains (Marks, 1978, 2014).

However, the identification and classification of synesthetic metaphors still remain uncertain and vague. *Synesthetic metaphors* are thus usually regarded as having fuzzy boundaries, especially when applied in the discussion of cognitive poetics. The complicity of human figurative speech may be a crucial reason, for literary synesthesia "is the exploitation of verbal synesthesia for specific literary effects." Compared with the original concept of synesthesia in science, literary synesthesia "is typically concerned with verbal constructs and not with 'dual perceptions'" (Tsur, 2008).

Firstly, the vagueness of identification is evident in Yu (2003)'s work, which highlighted the similar and different regulations of synesthetic metaphors in different languages (English versus Chinese). Though previous researches have reached a consensus about the presence of synesthetic metaphors in both poetic and everyday language, Yu's studies of Chinese focused only on the synesthetic metaphors found in literature, mainly novels and poetry. Daily or non-literary discourse in Chinese did not appear to feature synesthetic metaphors. Therefore, the conclusion that Yu's findings are cross-cultural and reflect the general mechanisms between language and embodiment may be ad hoc. Next, compared to the identification of ACIDITY IS LIGHT as a synesthetic metaphor by Paradis and Eeg-Olofsson (2013), Yu's identification of synesthetic metaphors involved associative connections more

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than it did synesthetic mappings. For instance, in his example cited from the story "Dry River" by Mo Yan, "The *shadows* of the crows and magpies skimming over were *brushing* his face like *fine feathers*," which appeals to the sense of sight, the "shadows" of the birds flying over are depicted as "brushing" the person's face, thereby evoking the sense of touch. This depiction emphasizes the different viewpoints or subjectivity of the audience. In other words, because the audience associates the motion of being brushed by fine feathers with softness and tactility, the audience's sense of touch is evoked. In this way, the audience stands in the character's shoes and experiences the feeling of being brushed. If an outsider's view is considered, namely, by focusing on the appearance of moving fine feathers, the similarity in the shapes between flying birds and moving fine feathers may be foregrounded. As mentioned by Marks (2014), most synesthetic phenomena in language may simply be expressions creatively applying nonsynesthetic analogy rather than synesthetic metaphors.

According to Marks (1996), flavor is usually expressed through catachresis. The words that we express usually represent the objects that produce them metonymically. Compared to metaphor, metonymy is based on the relation of congruity rather than similarity, and the mapping between the source and target domains is within one ontological domain (Kövecses, 2010). Formed in extensions that cannot be classified like metaphors, metonymy relies on an actual and literal association between two components within a single domain. Geeraerts (2010) argued that Conceptual Metonymy indicates a referential likelihood between senses. Moreover, Kövecses (2010) explained the types of metonymy emerging from the relations of the inter-components of the ICM (Lakoff, 1987a), for example, whole-part metonymy and part-part metonymy.

In studying the synesthetic metonymies expressed by wine critics, Paradis and Eeg-

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Olofsson (2013) defined *synesthetic metonymization* to mean the "foregrounded" perceptual property of an object or event as a metonymy of shifting active zones. Along with Kövecses (2010), who proposed the notion of whole-and-part metonymy, Paradis and Eeg-Olofsson (2013) showed that the WHOLE-PART account is the main approach in the metonymic expression of sensory experiences.

Some cognitive linguists have viewed the components or features as the salient parts of word representation, and the remaining contextual parts as the background (Cruse, 2000; Langacker, 1987). According to Gestalt psychology, this phenomenon consists of separate degrees of foregrounding and backgrounding, and is named the *figure-ground effect* (Langacker, 1984, 1987, 1990). Langacker (1990) also asserted that the relationship between semantics and pragmatics is inseparable. Echoing the effect, he determined this metonymic relationship in terms of *profile* and *base*. Every word representation is shaped in a certain domain, which contains a concept (profile) highlighting the region or aspect of the domain, and renders the base to be less salient.

Nevertheless, whereas conceptual metaphors seem to have a certain semantic structure of components, the perceptual components of synesthetic metaphors appear to be semantically primitive and non-compositional (Löbner, 2002). The reason lies in the high productivity of the expressions featuring synesthetic metaphors, which requires the construal to be semantically marginally structured. Therefore, in terms of how the comprehension and explanation of synesthetic metaphors and metonymies are generated from human minds, the answers from the previous studies still remain obscure.

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2.2.2 Synesthetic Metaphor and General Regulations

Linguistics scholars have found that several directional rules of crossmodality in language contribute to the hierarchy of the senses. However, these regulations vary from study to study. In the early stage of synesthetic metaphor investigation, Ullmann (1959) proposed a certain hierarchy of lower and higher perceptions, developing the "panchronistic" tendency (see Figure 2.2). He claimed that despite such factors as individual differences in emotional approaches, cultural experiences, ways of reasoning, and literary expressions, there exist some intersections which people of the world have in common (Ullmann, 1959). Proposing that the five categories of human sense modalities are hierarchical from low to high, he determined that three of the five, that is, touch, taste, and smell, are lower, more primitive, and require the least amount of vocabulary in crossmodal mappings. Sound and sight, on the other hand, engage higher-level perceptions. This captures what is called the "panchronistic" tendency.

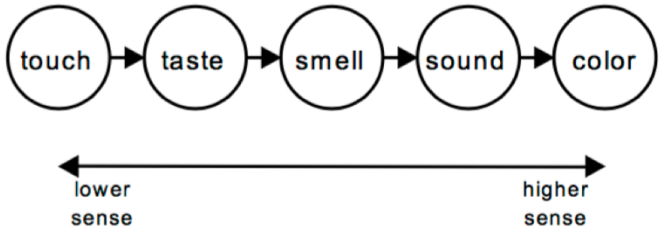

Figure 2.2 Hierarchy of the Senses Proposed by Ullmann (1959) (cf. Werning et al. (2006)

Following Ullmann, Shen (1997) claimed that synesthetic metaphors have a one-directional tendency. Analyzing modern Hebrew poetry, he found a perfect correspondence between the Hebrew data and Ullmann's (1959) observation of mappings in synesthetic metaphors. According to Shen, literary synesthesia tends to follow a uni-directional mapping through

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different perceptions, much like the mapping of linguistic metaphors within distinctive domains. Furthermore, the directionality obeys the hierarchical sensory relations; according to Shen, "poetic synesthesia systematically prefers to map terms of lower distinctiveness onto terms of higher distinctiveness, rather than vice versa" (Shen, 1997, p. 48). He argued that the distance of contact between the two perceptual domains increases the accessibility of crossmodal mappings. Accordingly, sight and hearing as opposed to smell and taste are of higher distinctiveness due to the wider distance between the perceiver and the perceived. He even conducted an experiment on subjects' judgments, discovering that the "low to high mapping" is more preferable and "more natural" than the reverse counterpart.

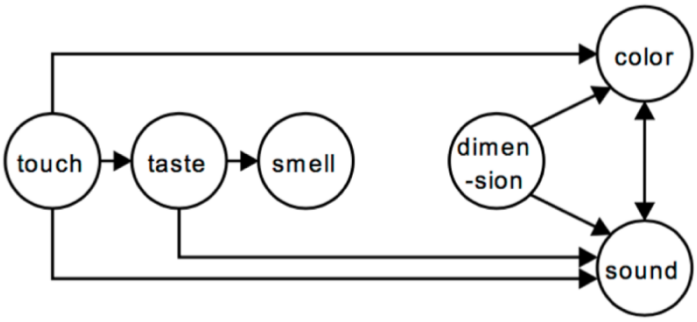

Figure 2.3 Directionality of the Senses Proposed by Williams (1976) (cf. Werning et al. (2006))

By dividing the sense of sight into two subcategories, namely, color and dimension, Williams (1976) developed a more differentiated claim of directionality. Based on Ullmann's ideas of directionality, Williams proposed a similar order of sense modalities, but without linearity. Instead, the senses have a more complex order (see Figure 2.3). Regarding diachronic semantic change, in his investigation of English sensory adjectives, Williams suggested that "sensory words in English have systematically transferred from the physiologically least differentiating, most evolutionary primitive sensory modalities to the most differentiating,

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most advanced, but not vice versa" (Williams, 1976, p. 464-465).

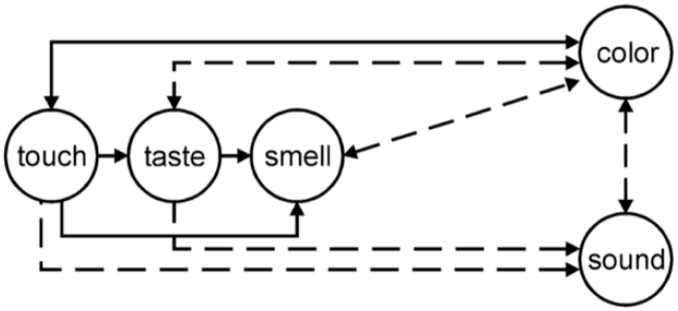

Figure 2.4 Modified Directionality of the Senses by Werning et al. (2006)

Modifying Williams' schema, Werning et al. (2006) further reported that all crossmodal mappings following the proposed directionality are not cognitively equally accessible. As shown in Figure 2.4, black arrows indicate significant enhancement, while dotted lines represent non-significantly impeded directions. Apart from the mappings developed by Williams, additional mappings are now allowed. The modality of TOUCH is the best source domain as suggested by both Williams and Ullmann. Werning et al. also found SOUND to be the only target domain without a significantly enhancing direction from TOUCH. Unlike Williams, Werning et al. found that both directions between COLOR and SOUND could not enhance accessibility. Moreover, SMELL and SOUND seem to be relatively poor source domains. Therefore, the order of sense modalities is not simply transitive as held by Williams, but appears to be more complex. However, since the discussion of modalities is restricted to German and other European languages, we cannot confirm whether this distribution of high and low modifier frequencies is language-specific or linguistically universal (Werning et al., 2006). It is certain that an understanding of the directionality of semantic changes requires a historical lexical analysis as well as an evaluation of the perceptual possibilities of the human sensorium.

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Thus far, there is no universal agreement on which crossmodal directionality is more suitable for both taste and smell in relation to flavor expressions. Paradis and Eeg-Olofsson (2013) argued that the conceptual preference hierarchy is non-existent and suggested that the integrated word form directly reflects how our sensorium works. On the other hand, Caballero and Suárez-Toste (2010) opined that the conceptual primacy of taste and smell existing in the realm of sensory perceptions is much closer, while the (associate) feeling or the (consequent) imagery triggered in similes of the crossmodal imagination is much further.

Moreover, current synesthetic regulations tend not to be cross-culturally and cross-linguistically universal. Lu (2011) argued that a more complicated process is required for Japanese onomatopoetic and mimetic words to be labeled appropriately as uni-directional in terms of the transfer of synesthetic expressions. Instead of simply following Williams' "bottom-up" hypothesis, consisting of low perceptions to high ones, Japanese onomatopoetic words such as *kongari nigami* (meaning "deliciously-browned bitter") require a violation of this rule, by which visual modality is used to describe taste modality in a top-down route (Lu, 2011). Based on Lu's findings of a possible multi-directional route, the present study aims to determine if and how flavor expressions in Taiwan Mandarin reflect this crossmodal tendency.

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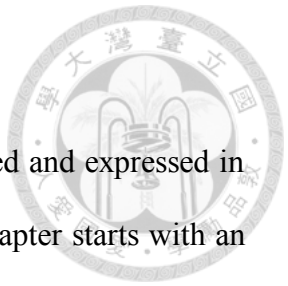

Chapter 3 Methodology

The present study concentrates on exploring how flavor is conceptualized and expressed in Taiwan Mandarin from the perspective of cognitive pragmatics. This chapter starts with an explanation of the definitions of flavor and "mouthfeel" given in current cognitive psychology. We then move on to the corpus of cupping notes and the methods for data retrieval. The theoretical framework of this study is subsequently described, followed by a three-stage analysis of the denoting properties, events, and scenarios. Finally, the study shows how the framework facilitates the detection of crossmodal metaphorical expressions within the data.

3.1 Data

Owing to its use in standard industry practice, *coffee cupping* became prevalent in the late nineteenth century since its first appearance in the United States (Allen, 2010). Compared with the critique of cuisine and wine, which involves complicated procedures requiring culinary arts skills and fermentation, respectively, coffee cupping involves a more explicit and direct preparation of the tested elements before professional evaluation can occur. In standard coffee evaluations, coffee tasters attempt to measure their mouthfeel using tactile qualities, specifically the body (e.g., oiliness, slipperiness, smoothness, and roughness) and astringency (feeling of constricting body tissues), along with a series of procedures from green and roasting to brewing and cupping.

Following the growing trend of tasting and evaluating coffee in public, coffee cupping has shown a considerable prevalence in the recent decade. In Taiwan, coffee cupping was first introduced by the faculty of the Department of Agronomy at National Taiwan University

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in 2004. For the purpose of assisting the cultivation of specialty coffee beans in Taiwan, the standards of arabica coffee set forth by the SCAA were adhered to, instead of those used by major international merchandisers (Wang, 2010). Since the conducting of coffee cupping has become an annual routine, the world-wide reputation of Taiwan's specialty coffee beans has also improved (Wang & Lin, 2016).

Notwithstanding, the expression of flavor by coffee tasters during coffee cupping, as evident in their records and notes, is distinct and difficult. The reason lies in the cupping procedure and the standard way of evaluation. During the evaluation, tasters are asked to comment on the flavor relatively objectively, by giving details that are closely related to an audience's life experience in order to offer a comprehensive overview. As cupping practices are limited to a maximum of eight minutes for the tasting of each cup, tasters are not granted any extra time to taste the same coffee for a second time. In other words, they have to state their instinctive opinions and brief impressions of the coffee. Thus, the flavor expressions made during coffee cupping reflect more instinctive human perceptual experiences than the refined food critiques accessible through public media.

To examine flavor expressions in Taiwan Mandarin and gain more insight into the conceptualization of flavor, we collected data from the professional coffee cupping trainings, that is, Coffee Cupping Lesson, given at National Taiwan University. The details of data collection are described first, followed by the contents of the cupping notes. Details on the data retrieval of flavor expressions featuring similes and metaphors will be illustrated in sections 3.1.2 and 3.1.3.

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3.1.1 Coffee Cupping and Notes

Generally speaking, the evaluating practice starts with the visual inspection of the coffee beans, including their size, color, and appearance. Next, odor examination is undergone focusing on the smell of green coffee (unroasted coffee beans), ground coffee (fragrance), and breaking coffee powder (aroma). The cupping or tasting part of the evaluation begins after the smell evaluation, and involves an investigation of the taste, smell, flavor, and mouthfeel, resulting in an emotional sensation of pleasure or displeasure. The cupping procedure is illustrated in Figure 3.1.

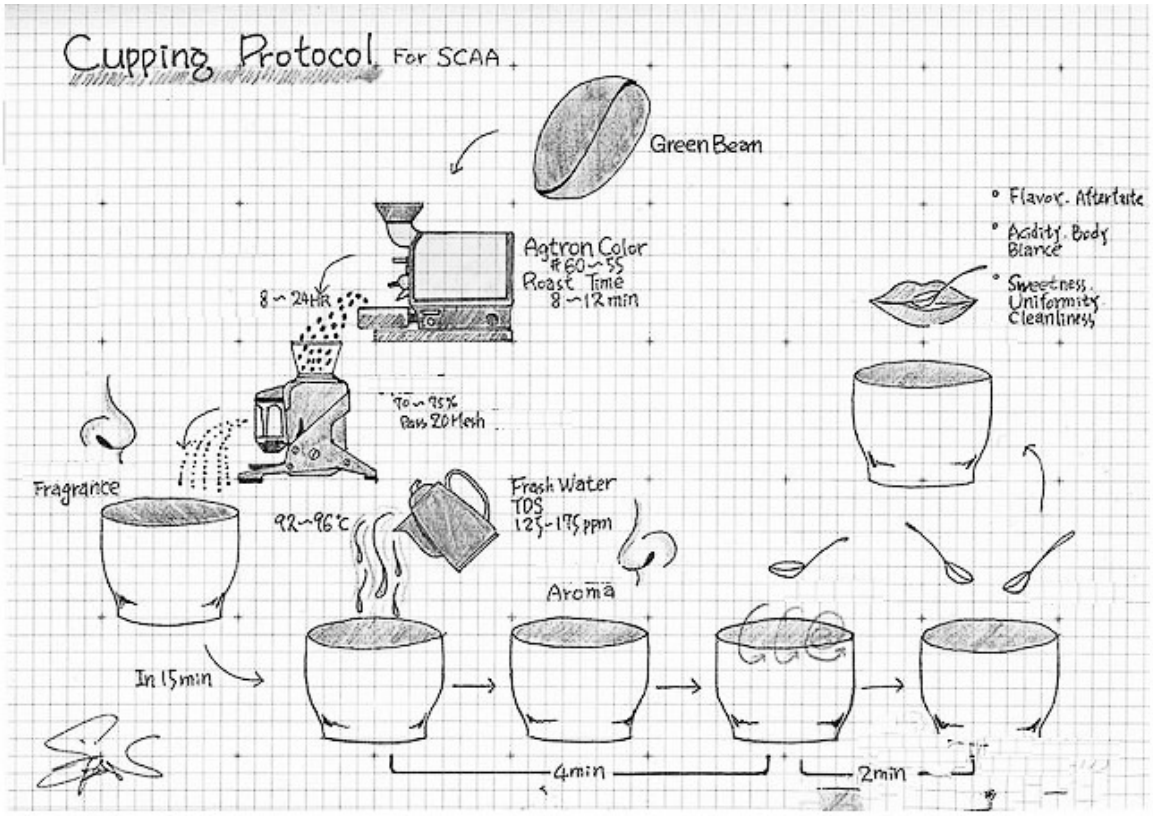

Figure 3.1 Coffee Cupping Protocol from the SCAA

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During coffee cupping, the tasters' direct experience of flavor depends significantly on the tasting procedure, that is, the drinking and tasting of the brewed coffee. Hence, the present study focuses on the *tasting* part (the upper right corner in Figure 3.1) of the cupping notes in the data under investigation, excluding notes on the visual and odor inspections. An analysis of the notes made during the tasting procedure allows us to comprehend thoroughly the conceptualization of flavor expressions in Taiwan Mandarin.

Further, the evaluating procedure is required to follow the SCAA's standards of water, roasting, brewing, and cupping in order to maintain a comparatively objective procedure of measuring the fragrance, aroma, and flavor. In flavor evaluations, a frequently used measuring scale is the Coffee Taster's Flavor Wheel (see Figure 3.2). According to this flavor wheel, the coffee tasters firstly choose the fundamental category of the inner circle in which the flavor is located, such as fruity, floral, vegetative, and nutty. Second, tasters can simply select a more specific type of flavor within the same category from the first or second external circle, such as *berry* from the fruity category or *chocolate* from *cocoa*. Regardless of what they choose, they capture the flavors that they experience using the Coffee Taster's Flavor Wheel.

The verbal data consist of recordings of 45 Taiwanese coffee tasters' descriptions of the flavors tasted in 45 samples of brewed coffee under evaluation. All of the tasters are students at National Taiwan University who participated in the Coffee Cupping Events held from March 1, 2016 to June 1, 2016. In total, 10 hours of cupping practices are recorded and manually transcribed into 2,7043 words.

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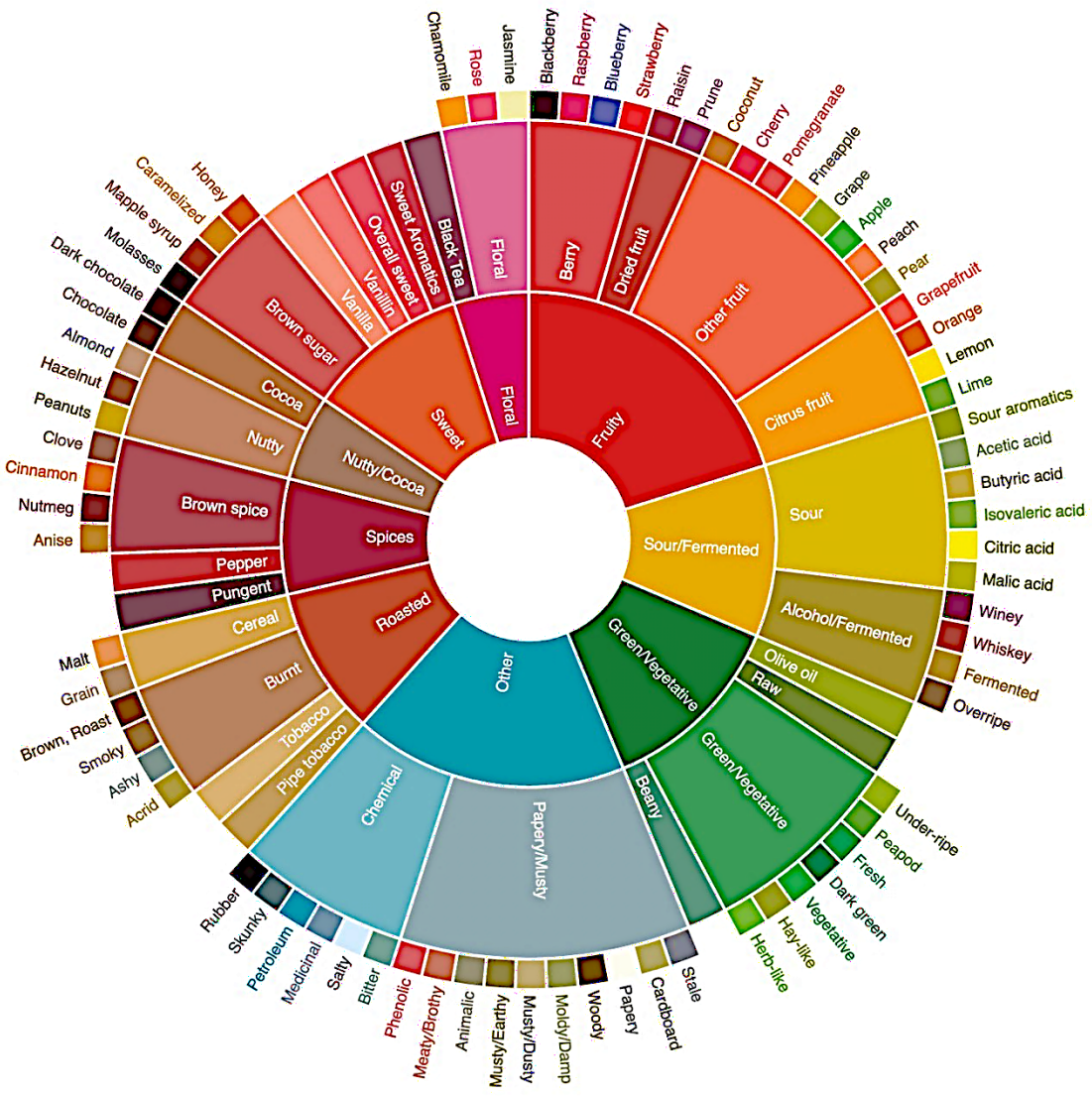

Figure 3.2 Coffee Taster's Flavor Wheel from the SCAA

To ascertain that the verbal data involve flavor experiences, lexicons denoting perceptions and sensations in relation to the act of tasting and experiencing flavor are selected. We consider Givón (2001)'s identification of so-called perception-cognition-utterance (PCU) verbs when selecting the Chinese lexicons that have the property of perception verbs. Semantically speaking, perception verbs categorized as PCU verbs should follow two rules:

(1) Coding a perceptive event by the Dative or Agent Subject.

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(2) The complement-clause state or event is the Object of the main-clause state or event.

On the other hand, syntactically speaking, perception verbs categorized as PCU verbs should obey the following rules:

(1) The complement is the Object of the main verb.
(2) The complement is more likely to have the finite structure of a main-clause (no *zero* subject; however, in Chinese, the null subject is acceptable as long as the subject is detectable contextually).

Accordingly, the Chinese lexicons possessing the property of the perception verbs of flavor according to the definition of PCU verbs were chosen: e.g., ***he*** 喝 "drink," ***chang*** 嚐 "taste," ***pin-chang*** 品嚐 "savor," ***jue-de*** 覺得 "feel," ***gan-shou dao*** 感受到 "feel," ***gan-jue*** 感覺 "feel," and ***you…de gan-jue*** 有…的感覺 "have the feeling of…" Moreover, with respect to tasting, the words that express various aspects of flavor and mouthfeel were also selected: e.g., smell lexicons: ***xiang*** 香 "good smell," ***chou*** 臭 "bad smell," ***qi-wei*** 氣味 "odor," ***xian-qi*** 香氣 "aroma," ***fong-wei*** 風味 "flavor"; taste lexicons: ***wei*** 味 "taste," ***wei-dao*** 味道 "taste," ***fong-wei*** 風味 "flavor," ***kou-gan*** 口感 "mouthfeel," ***suan*** 酸 "sour," ***tian*** 甜 "sweet," ***ku*** 苦 "bitter," ***xian*** 鹹 "salty," ***gan*** 甘 "sweet"; touch lexicons: **la** 辣 "spicy," ***se*** 澀 "astringent," ***tong*** 痛 "painful," ***liang*** 涼 "cool," ***kou-gan*** 口感 "mouthfeel"; lexicons of the oral and nasal capacity: ***bi*** 鼻 "nose," ***she*** 舌 "tongue," ***kou*** 口 "mouth," ***jue*** 嘴 "mouth," ***ya*** 牙 "teeth," ***ho*** 喉 "throat." In other words, as long as the keywords shown above are present in the data, we consider them to be the descriptions of flavor experiences.

After collecting the target descriptions for examination, we begin to analyze the

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crossmodal and metaphorical expressions applied to represent flavor. With regard to metaphor identification across different levels, descriptors and potential multimodal metaphors are further chosen on the basis of an *adapted* process of identifying crossmodal metaphors. A detailed explanation of our theoretical framework will be given in the next section. In total, 1,572 descriptions of flavor are selected in the present study.

3.1.2 Data Retrieval I: Identification of Crossmodal Metaphors and Metonymies (CMMIP)

We retrieve crossmodal metaphors and metonymies by undertaking an identification process of crossmodal mapping. Since **crossmodal mapping** involves the concepts of perception (from the senses of sight, hearing, touch, smell, or taste) as the target concepts, and an asymmetrical relation of metaphoric expression, we adopt the Crossmodal Metaphor Identification Procedure (CMMIP) adapted from Ullmann (1959), Williams (1976), Marks (1996), Group (2007), and Shen and Gadir (2009). With regards to the semantics of the target discourse, the Chinese WordNet (Huang & Hsieh, 2010 ; Huang et al., 2010) is employed to distinguish the perceptual modalities that are applied within the semantics network of certain lexicons.

Originated from a project sponsored by the National Science Council, Chinese WordNet (CWN) is a lexical knowledge base of detailed Chinese lexical-semantic analyses. Involving researches of lexical and cognitive semantics, CWN aims to serve as a fundamental reference for linguistic investigation and "an indispensable infrastructure in application to Chinese natural language processing and ontology engineering" (Huang & Hsieh, 2010; Huang et al., 2010). CWN is chosen for use due to its solid framework of lexical semantics and ontology. There has long been a lack of improvements to Since Corpus. The foremost authorized corpus

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of Modern Chinese, CWN offers a refreshed perspective on the construction of contemporary Chinese lexicons. Furthermore, CWN offers a network of words by visualizing the lexical-semantic relations in a net-like image (shown in Figure 3.3). Thus, the searched lexicons can be viewed as synchronic data representative of contemporary usage.

As we investigate the interactions of different perceptual modalities in terms of metonymies and metaphors using the data of coffee cupping practices, we identify the metonymies and metaphors based on the belief that crossmodal metaphors do not exist within conceptual metaphors only. They are not simply forms of multimodal metaphors, as Forceville suggested; they are a kind of creative metaphor based on cross-sensual interactions in language.

Unlike individual intuition, this method of identification offers a comparably strict and well-knit procedure for comprehending metaphorical expressions. Accordingly, the CMMIP requires the following steps:

1. Scan the complete text-discourse to gain a full understanding of its semantics.
2. Segment the whole text-discourse into lexical units.
3. Determine the contextual meaning of each lexical unit through Chinese WordNet (CWN), contemplate whether the text-discourse contains at least two lexical units possessing distinctive expressions or descriptions regarding the five basic perceptions (i.e., sight, hearing, touch, smell, and taste).
4. Determine whether the two (or more) lexical units refer to the same event or situation.

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5. Determine whether the entailed distinctive perceptions follow the directional mapping from one perception in the target domain to the other perception(s) (different from that in the target domain) in the source domain.
6. If these two (or more) lexical units denoting the same event or situation can be comprehended through mutual comparison, then the expression can be considered a crossmodal metaphor.

As for the actual application, we take the following example (3.1) to illustrate how CMMIP is applied to analyze the crossmodal metaphorical expressions made during coffee cupping.

(3.1)
(濃縮咖啡)雖然說它有一點點微酸微苦，但後面的餘韻蠻長的，那喝起來也有淡茶的口感，那它的酸則是有淡柑橘的酸，亮亮的酸這樣子，那也有一些焦糖的味道，整體的味道則是比較偏向慢慢地展開。

"Although it (this espresso) is a little bit sour and bitter, its aftertaste stays quite long, and it has the mouthfeel of weak tea. Its acidity is that of tangerine, and it is a bright acidity. There is also the flavor of caramel. The overall flavor tends to unfold slowly in the mouth."

The steps are as follows:

1. Reading the two lines, we understand that the overall meaning concerns a speaker describing the flavor emerging from tasting a first cup of espresso.
2. We segment the lines according to the units of lexicons by inserting slashes between each unit as follows:

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“（濃縮咖啡）雖然說/它/有/一點點/微/酸/微/苦/，/但/後面的/餘韻/蠻/長的/，/那/喝起來/也/有/淡茶的/口感/，/那/它的/酸/則/是/有/淡/柑橘的/酸/，/亮亮的/酸/這樣子/，/那/也/有/一些/焦糖的/味道/，/整體的/味道/則/是/比較/偏向/慢慢地/展開/。”

3. We examine the contextual meaning of each lexical unit using CWN’s visualization of word meanings. For instance, the network image of *liang* (亮) is shown in Figure 3.3. Based on CWN, we consider that the text-discourse contains two lexical units (i.e., *亮亮的* and *酸*), possessing distinctive expressions featuring the two basic perceptions of **sight** and **taste**.

4. We determine that these two lexical units, “bright” (*亮亮的*) and “acidity” (*酸*), refer to the same event of coffee tasting.

5. The directional mapping of the entailed distinctive perceptions from the semantics network of the two lexical units of “bright” (*亮亮的*) and “acidity” (*酸*) extends from **taste**, as the target domain, to **sight**, as the source domain.

6. We analyze two lexical/phrasal units containing crossmodally metaphorical similarities. In the lines, “…那它的酸則是有淡柑橘的酸，***亮亮的酸***這樣子，那也有一些焦糖的味道…” (…Its acidity is that of tangerine, and it is a ***bright acidity***. There is also the flavor of

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caramel…), the crossmodal metaphor of ACIDITY IS LIGHT can be identified.

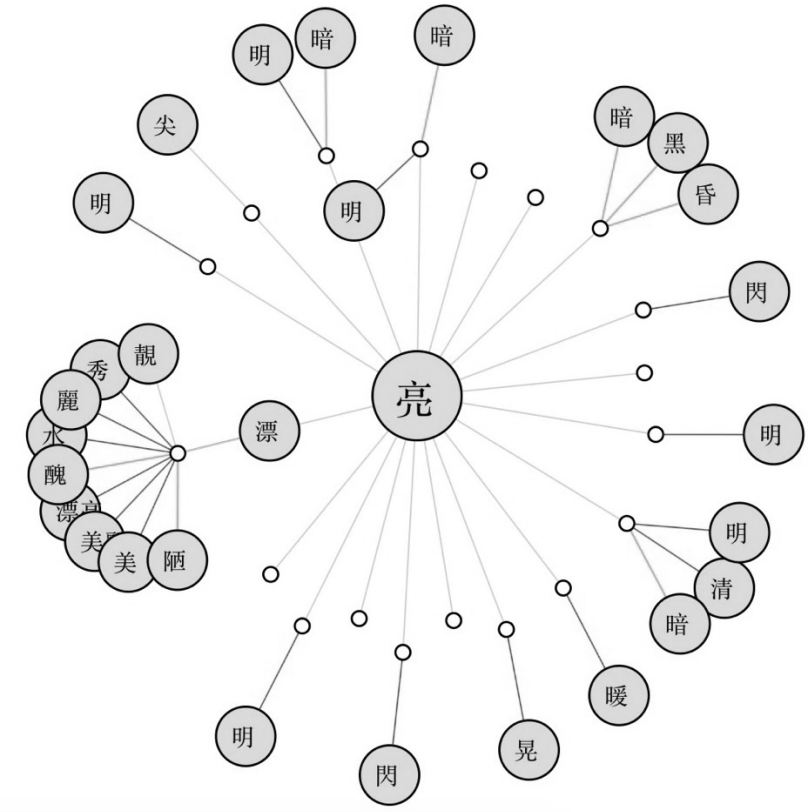

Figure 3.3 The Chinese WordNet of *Liang*

In the Chinese data, we underline the letters to indicate the presence of crossmodally metaphorical similarities, since the italics form does not seem clear in Chinese.

3.1.3 Data Retrieval II: Similes of Gustatory Imagery

Compared with metaphors, similes are intractable and novel in terms of their contents and cognitive structure. As mentioned before, similes provide a vivid picture derived from gustatory imagery (Caballero & Suárez-Toste, 2010; Paradis & Eeg-Olofsson, 2013) that

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engages perceptual embodied experiences. However, psychology and linguistics studies have paid little attention to similes. We therefore aim to offer a complete examination of how crossmodality functions in similes.

Similes involve an expressive landscape of human imagination and association (Paradis & Eeg-Olofsson, 2013). Similes refer to the descriptive expression of meaning extension, utilizing the form, X is like Y. However, exceptions occur in "metaphorical" similes and "restricted" similes: the former hide the word *like* in description, while the latter place certain features of Y onto X. (Cruse, 2000) Due to the amount of data, the present study focuses on "restricted" similes in Taiwan Mandarin, namely, the expressions that feature connecting words such as *like*, *as*, or *resemble*.

Our strategy adheres to that of Paradis and Eeg-Olofsson (2013) concerning similes in two situations. Words used to identify similes include ***xiang*** 像 "like," ***ru*** 如 "as though," and ***fang-fu*** 彷彿 "as if," etc. However, in the application of similes to describe flavor experiences, most of the similes include an object shown in the Coffee Taster's Flavor Wheel, as evident in example (3.2).

(3.2)
口感方面，它感覺比較像是黑巧克力，它的苦是比較像自然界的苦，是一種黑巧克力的苦。
"In terms of the mouthfeel, it feels much like dark chocolate. Its bitterness is like the bitterness found in nature. It is the kind of bitterness from dark chocolate."

In example (3.2), the modifier, *dark chocolate*, of bitterness is taken from the nutty/cocoa category in the Coffee Taster's Flavor Wheel (see Figure 3.2). As standard cupping practices refer to the Flavor Wheel during evaluation, for the sake of collecting contents that can reflect

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the Flavor Wheel, we extract this type of simile during data retrieval.

Connecting words	No.	Example sentences
像 LIKE	139	[鐵腥味]就是**像**那種你就覺得，可能是牙齒碰到湯匙那種鐵腥的感覺。 [The metallic odor] is just **like** that, kind of how you would feel like, if your teeth touched an iron spoon, that kind of metallic feeling.
(猶)如 AS THOUGH	7	整個酸味是很激烈但是是有個性的，**猶如**舌頭打架的感覺。 The acidity is very aggressive, but it has a unique personality, **as though** the tongue is fighting with it.
彷彿 AS IF	1	…有一個辛辣的味道，**彷彿**你的嘴巴…在被一個森巴女郎在那邊跳舞，在那邊刺你的舌頭 …. Afterwards, it has a pungent flavor, as if your mouth…**as if** *a Brazilian lady is dancing on it*, and stinging your tongue.

Table 3.1 Connecting Words of Similes in the Cupping Data

As it turns out, in the total number of 1,572 flavor descriptions selected from the cupping data in the present study, approximately 10 percent contain the connecting words of similes (see Table 3.1).

3.2 Method

To understand how cognitive linguistics approaches crossmodality in language, in this section we revisit theories concerning synesthetic metaphor, metonymy, and perceptual imagery. Besides discussing the regulation and directionality of crossmodality, we review the contents of the ICM (Lakoff, 1987a, 1987c; Lakoff & Johnson, 1980, 2003) and the

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conceptual domain (Clausner & Croft, 1999; Cruse, 2000; Langacker, 1984, 1987), including the figure-ground effect, active zone, prototype effect, and image schema.

3.2.1 Synesthetic Metaphor: Regulation and Directionality

The present study addresses what the crossmodal regulations and directional tendencies are in Chinese flavor expressions. Thus, related insight from previous researches (Shen, 1997; Ullmann, 1959; Williams, 1976) will be taken into consideration during the analysis of synesthetic metaphors.

Overall, three tendencies of crossmodal transfers are displayed. First, as shown in Figure 2.2, the properties possessed by the lower senses, which are located on the left of the hierarchy, tend to serve the source domain. Meanwhile, the properties of the higher senses, which are placed on the right of the hierarchy, tend to serve the target domain.

The second tendency involves the lowest sensation, tactility, as the predominant source in terms of accessibility in crossmodal transfers. The directionality of linguistic expressions is written specifically as "touch → smell/taste" and "touch → hearing/vision," which mean that smell/taste will be expressed in terms of touch, and that hearing/vision will also be talked about in terms of touch.

Finally, according to Ullmann, because there are abundantly more visual wordings than those of hearing, sound is suggested to be the dominant destination of crossmodal transfers. Williams suggested that "sensory words in English have systematically transferred from the physiologically least differentiating, most evolutionary primitive sensory modalities to the most differentiating, most advanced, but not vice versa" (Williams, 1976, p. 464-465).

In particular, in the notes of wine tasting, the most frequently found synesthetic

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metaphor is ACIDITY IS LIGHT. In the example given by Paradis and Eeg-Olofsson (2013), "*A lightning bolt of acidity* jolts the palate […]," *lightning bolt* is in fact the interpretation of the intensity of acidity plus the consequent surprise of the tasters. As shown in Figure 2.1 (proposed by Paradis), there is a positive correlation in intensity between brightness and acidity.

From a sudden impact that disappears briskly to a pleasant lingering sensation, the intensity of acidic stimulation is detected in the taster's mouth and illustrated vividly through the sense of sight. Although the metaphor does not involve actual pH indices and lacks scientific numbers or data, it is comprehensible in the context of perceptions because it expresses "*perceived relative* acidity (i.e. measured against other parameters)" (Paradis & Eeg-Olofsson, 2013). This synesthetic metaphor is the strategy that allows a certain degree of subjectivity or incongruity of perception to be involved to "light up" the expressions.

The synesthetic metaphor of ACIDITY IS LIGHT evidently rejects the first tendency proposed by former studies. According to the first tendency, acidity sensed by taste located on the left of the hierarchy should serve the source domain; however, it serves the target domain in this metaphor. At the same time, light sensed by sight, the supposedly higher sense, serves the source domain when it should serve the target domain. It is possible that a hierarchical relationship between perceptions, as stated by Lu (2011), may not exist. On the other hand, since flavor is condensed as a united percept of both olfactory and gustatory perceptions in our present data, a redirection of linguistic perceptual categorization should be construed as well.

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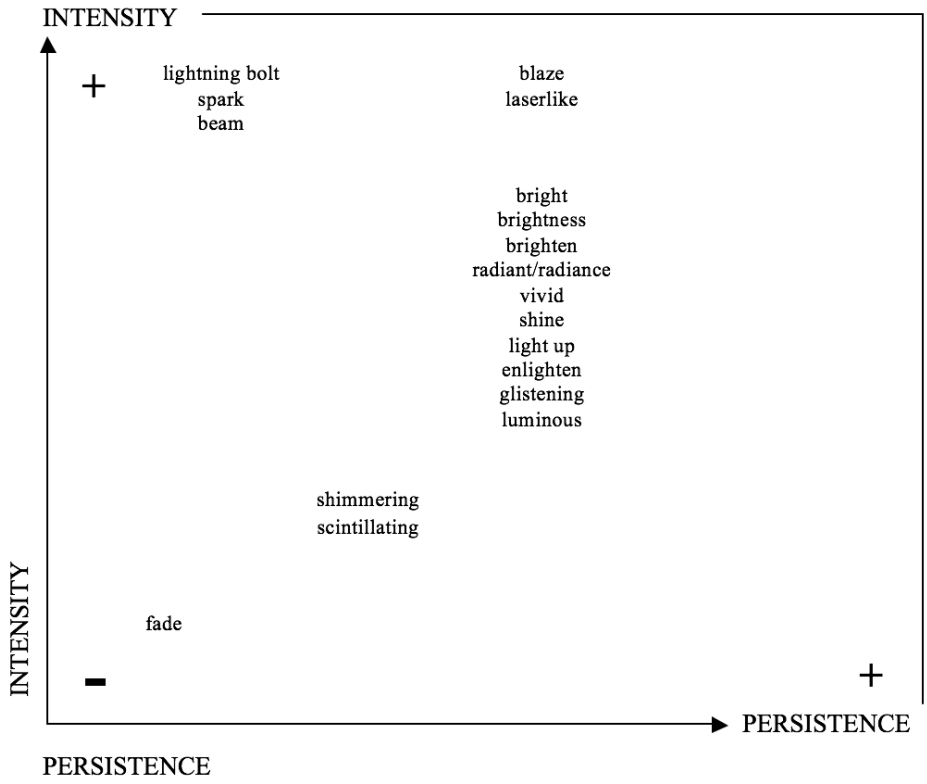

Figure 3.4 ACIDITY IS LIGHT proposed by Paradis and Eeg-Olofsson (2013)

3.2.2 Foregrounding and Backgrounding: the Zone Activation of Modifiers

As suggested in cognitive linguistics research, basic cognitive abilities are utilized in the conceptualization of flavor. To comprehend how flavors are conceptualized through various properties, we consider the concept of active zone (Langacker, 1984, 1987, 1990) or zone activation (Paradis, 2004, 2008), which is used to analyze metonymy in relation to the **salience** of word meanings. Derived from Croft and Wood (2000), the word "salience" stands for *focus of attention*. When discussing salience in metonymy in terms of cognitive semantics and grammar, a mechanism of the imposition of a "profile" on a "base" (Langacker, 1987, 1990) rooted in the **figure-ground effect** developed in Gestalt psychology (Cruse, 2000) is

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generally applied. As stated by Langacker (1984, 1987, 1990), the **profile** denotes the substructure that is designated by a certain context to be elevated to a special level of salience. The profile must be within the base. On the other hand, the base is the domain in a complex matrix that supports the salience of the profile. Similar to the figure and ground contrast, the profile and the base, as explained by Cruse (2000), are linked by a PART-WHOLE relation, with the profile meaning the figure within the base, and the base meaning the conceptual ground. In fact, Langacker (1984) argued that several aspects from the profile act as candidates to be highlighted by the context, and the highlighted part of the profiled entity within its domain is called the **active zone**. An example provided by Langacker (1990: 192) is as follows:

a. I smell a cat.
b. The ball is yellow.

In these two sentences, though both profiles are designated as nominal entities such as *cat* and *ball*, we can infer from the contextual contents that it is the *smell* aspect of the cat (the *odor* emitted by specific excretions) in (a) rather than other aspects such as the cat's size, appearance, or sounds that works as the active zone in the target context. Similarly, in (b), the color perception associated with the ball's outer surface is activated by the context. From this point of view, the active zone does not necessarily share a part-whole relationship with the profile. It is instead associated with the profiled entity in some ways (Langacker, 2004). Thus, a salience-based selection of profiles is a continuously variable process of the foregrounding versus backgrounding of aspects (Cruse, 2011: 206). Moreover, the shifting aspects of profiles are highly context-dependent.

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Types	Example sentences	Lexically encoded notion	Intended notion	Direction
ZONE ACTIVATION	Fill *it* up, please! (i.e., the glass)	ARTIFACT	CAVITY	WHOLE/PART

Table 3.2 Zone Activation

However, Langacker was concerned mainly with the profiled nominal expressions, and neglected the modifiers that evoke certain properties of the entity. We argue that in coffee flavor descriptions, the aspect-taking from profiled entities is driven by modification as well. As noted by Paradis (2008), all of the different meanings of words depend on which function of the "performance" is profiled. For instance, in terms of adjectives and property-denoting modifiers, the difference between *tall man*, *lazy man*, and *real man* is that the *adjectives* conventionally activate different zones/facets of the meaning structure of MAN, that is, physical (*tall*), functional (*lazy*), and personal characteristics (*real*), respectively. Moreover, property-denoting modifiers also contain their own categorization of zones/aspects in meaning structures. For example, in Table 3.2, *glass* is applied to the intended notion of CAVITY to be filled by liquid.

The difference between *active zone* and *zone activation* lies in the human awareness of the highlighted aspect. In the active zone, readers are aware of the automatic switching of aspects from complicated meanings to being profiled. In other words, different "zones" or aspects are profiled in metonymy for readers' understanding. By contrast, in zone activation, aspects are hidden beyond readers' comprehension, and "thinking that far" exceeds general cognitive capacity. Therefore, in the example of *zone activation* given in Table 3.2, neither the speaker nor the audience can turn their attention directly to the CAVITY of the *glass*. In other words, the speaker and the audience do refer to the qualia, but they are not aware of the

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denotation switching from the conceptual complex of *glass* into the certain zone of CAVITY. Thus, compared with metonymy, zone activation concerns all of the text-discourse under every context; it is always the case that only a certain portion of the use potential is in focus (i.e., the zone of a lexicon) in linguistic communication.

Foundational categories	**Sub-categories**
SIGHT	color, shape, size, light/dark
HEARING	pitch, timbre, volume,
TOUCH	texture, temperature, humidity
TASTE	sour, sweet, bitter, umami
SMELL	
KINESTHESIA (MUSCULAR TENSION)	pressure, weight

Table 3.3 Multi-Level Taxonomy Adapted from Raskin and Nirenburg (1995), Dixon (1982), Givón (1970), and Frawley (2013)

Notably, in contrast to the previous studies, which did not focus on the categorization of *perceptions*, the present study adapts the multi-level taxonomy developed by Raskin and Nirenburg (1995), Dixon (1982), Givón (1970), and Frawley (2013) by dividing the aspects/zones according to the perceptions. The aspects involve six perceptions as the foundational categories, as shown in Table 3.3. Thus, in the present study, **foregrounding** means the elevation of certain perceptual aspects from the property modifiers. **Backgrounding** stands for the inhibition of other perceptual aspects contained in the knowledge of single modifiers. In Chapter 5, we will analyze which distinctive perceptual aspect is foregrounded from other backgrounded perceptual aspects in the property modifiers.

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3.2.3 Imagistic Simile: Prototype Effect and Image Schema

In terms of simile, we aim to understand the cognitive mechanism behind the similes selected from our data of flavor expressions, as well as the crossmodal expressions utilizing gustatory imagery. Thus, we propose the use of imagistic simile, which is parallel to the use of image metaphor (Lakoff, 1987b) and imagistic metaphor (Kövecses, 2011). The reason to use imagistic similes lies in their employment of similes rather than metaphors. Similes concern the categorization of more abstract concepts; image metaphors concern structured metaphorical expressions, and thus the use of image metaphors would not be useful in our examination. For the most part, image metaphors map conventional images on the basis of conceptual metaphors, whereas imagistic similes focus on applying mental images on account of primitive cognitive theories. These theories involve the prototype effect (Lakoff, 1987a; Langacker, 1987) and the image schema (Clausner & Croft, 1999; Lakoff, 1987c).

On the other hand, Kövecses (2011) suggested that the "image" in imagistic metaphor should be regarded as the rich details that "are specific and fully-felt experiences in context" which we perceive through different senses. Although we consider the images in imagistic similes to be abstract and less of a schematic portrait based on experiences, Kövecses considered the conceptual metaphor as the base of the imagistic metaphor, with the image schema supporting its extension, as shown in his example below.

> The 2005 hurricane **capsized** Domino's life, though he's loath to confess any inconvenience or misery outside of missing his social circle...

According to Kövecses, the imagistic metaphorical statement of "the 2005 hurricane **capsized** Domino's life" is derived from the general metaphor of LIFE IS A JOURNEY and becomes the specific conceptual metaphor of LIFE IS A SEA JOURNEY. Most importantly, in this

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imagistic expression, the word *capsize* is unconventional and non-recurring in the context of LIFE IS A (SEA) JOURNEY. Thus, it is seen as an extension chosen by the speaker for "visual consequence" and becomes an imagistic metaphor (Kövecses, 2011).

Notwithstanding, in our data, the expressions of similes do not tend to be supported by conceptual metaphors; rather, they are more "imagistic," activating a conceptualized or analogical mechanism that supports the scenario. Consider the following simile examples from our present data:

(3.3)

…當然它的風味就會有比較多的煙味。可能是瑕疵豆比較多的關係，它會有是***煙灰缸***的味道…

… of course its flavor has a much more smoky smell. It may be because it has more defective beans inside. It has the odor of an ***ashtray***.

(3.4)

…然後有一個辛辣的味道，彷彿你的嘴巴…在***被一個森巴女郎在那邊跳舞***，在那邊刺你的舌頭。

…. Afterwards, it has a pungent flavor, as if your mouth…as if ***a Brazilian lady is dancing on it***, and stinging your tongue.

We find that the hidden conceptual mechanisms behind these similes in fact echo the second and third dimensions of imagery proposed by Langacker (1990), that is, the "level of specificity" and the "scale" and "scope of prediction." While the former involves the specification of a certain flavor or quality of gustatory perception, the latter focuses on how an expression can extend from its original region or schema.

On one hand, in terms of the second dimension of imagery ("the level of specificity"),

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Langacker (1990) suggested that in the two sentences below, the former sentence can be schematic for the latter one elaborating on the specifications and limiting them to a narrower range. Discussing lexical items in particular, the relationship of schematicity regarding specificity, for example, animal → reptile → snake → rattlesnake → sidewinder (see Langacker, 1991:7), helps us to classify objects in shared categories.

(a) That player is tall.
(b) That defensive player is over 6' tall. (Langacker, 1991: 7)

Similarly, we find that the concept-to-object analogy (e.g., *the smoke flavor of the coffee* is like *the smoke from an ashtray*) is often used to specify a flavor. In turn, when applying a level of specificity to example (4), we consider the **prototype effect** (Lakoff, 1987a; Langacker, 1987) for the conceptual labeling of the nominal expression of a similar flavor.

On the other hand, we argue that recurring schematic and analogical knowledge, that is, awareness of the so-called **image schema** (Kövecses, 2011: 60), is required to understand the perceptual embodiment of flavor experiences. First presented in Lakoff and Johnson (1987: 267), image schemas are constantly recurring patterns of particular bodily experiences, such as CONTAINERS, PATHS, LINKS, FORCES, BALANCE, and in orientations and other relations like UP-DOWN, FRONT-BACK, PART-WHOLE, and CENTER-PERIPHERY. Image schema is, overall, a schematic structure that is constantly operating in our "perception, bodily movement through space, and physical manipulation of objects" (Johnson, 1987: 23). Hence, Hampe (2005) emphasized that "embodied schema" and "image schema" are other terms that can be used interchangeably with "image schema."

We take the **image schema** (Lakoff, 1987c) into consideration, as similes are able to construe an associated scenario (e.g., for the dancing scenario, see example (3.4)) from the perceptual stimulus. Johnson (1987) pointed out that this schema is derived from a bodily

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experience: “we experience our bodies both as containers and as things in containers constantly.” For instance, in example (3.4), in the CONTAINER schema involving the CONTAINER and the CONTENT, the gustatory feeling in the mouth is likened to a lady “dancing” within the container of the mouth. In addition, the **PROCESS schema** proposed by Grady (2005) is also essential for forming schematic scenarios from the flavor tasting. The **PROCESS schema** presumably formulates our understanding of both physical processes (e.g., chewing, walking, washing, etc.) and more “abstract” ones (e.g., thinking, evolving, etc.) (Grady, 2005). Grady (2005) noted that this schema is not restricted to particular perceptual experiences. However, we argue that in the similes utilizing crossmodality in our data, the physical and perceptual processing of coffee tasting and other multi-perceptional physical processing evoked by it share the PROCESS schema, from monomodal perception (i.e., tasting) to multimodal imagination (i.e., sensation from the imagined scenario, such as seeing, listening to, and feeling a Brazilian lady dancing).

Furthermore, similar characteristics are shared between imagistic simile and image/imagistic metaphor. Based on the definition of image metaphor given by Lakoff (1987b), first of all, both image metaphor and imagistic simile include *one-shot mappings*, that is, they are not conventionalized but highly creative and “are susceptible to triggering different interpretations” (Rodríguez, 2001). Second, they are not commonly used in everyday reasoning. Third, there are also no systematic or idiomatic expressions based on both image metaphor and imagistic simile. Fourth, they are not applied to understand the abstract in terms of the concrete. Finally, there is no basic rule in experiential knowledge that stipulates what should be mapped onto what.

Moreover, imagistic simile also stays in accordance with imagistic metaphor

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(Kövecses, 2011). First, both are context-induced or could be construed as the "priming effect of the context." Next, they require an immediate physical setting to evoke experientially-based image schemas for elaboration. Last but not least, the speakers using both expressions should be aware of the major entities in the discourse, that is, their resultant interpretation could be traced back to its referential rather than fleeting imaginations. In Chapter 6, we will use the analytic mechanism of imagistic similes to discuss the crossmodality of the similes found in the present data.

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Chapter 4 Synesthetic Metaphor

We focus on examining synesthetic metaphors along with the crossmodal regulations and directional tendencies reflected in these synesthetic metaphors. As noted in Chapter 2, synesthetic metaphors have been defined as linguistic expressions with crossmodal interaction. Researchers such as Williams (1976) and Ullmann (1959) have proposed a directional tendency of crossmodal interactions within synesthetic transfers. However, these criteria are only based on a few languages, mainly English. Although Yu (2003) presented a crossmodal directionality in Chinese synesthetic metaphors that is similar to that found in English synesthetic metaphors, we find that his study mostly emphasized distantly related crossmodal interactions, that is, crossmodal associations or imaginations. These weakly related crossmodal interactions tend not to obey the same rules governing the comparably strong crossmodal connections mentioned in Williams (1976), Ullmann (1959), Marks (1996), and Paradis and Eeg-Olofsson (2013).

In addition, the principles and directionality discussed in previous researches (Shen, 1997; Ullmann, 1959; Williams, 1976) are taken into consideration during our analysis of synesthetic metaphor. Our results show that the directional tendency, as well as the classification of distinctive perceptions or senses, should be reorganized based on the linguistic expressions. In other words, the basic five perceptions outlined by scientists seem unsuitable for linguistic analysis.

Therefore, in the following sections, we discuss the types of synesthetic metaphors found in the present data, the directionality evident in the data, and our proposed adaptation of the traditional directional tendency developed by Williams (1976) and Ullmann (1959). Afterwards, we also unfold the shared hierarchical relationship of perceptions found in

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Chinese flavor expressions.

4.1 Types of Synesthetic Metaphor

The results reveal that synesthetic metaphors usually occur in descriptions involving a modification of the flavor properties, or the extended qualities of a flavor. In the modifiers of flavor listed below, we find that the words which should not belong to perceptual modalities of smell and taste do appear to elaborate flavor. For instance, the word "bright" simply denotes the brightness of light, and is supposed to engage the sense of sight. However, the word is shown to illustrate the qualities of both aroma and flavor in the present data.

AROMA	**明亮(bright)**, 複雜(complex), 花香(floral), 果香(fruity), 輕輕/淡(light), 豐富(rich), 酸(sour), 腐臭(stinky), 重(strong), 甜香味(sweet), 茶香(tea-smelling), 濃厚(thick)
FLAVOR	收斂感(astringent), 平衡(balanced), **明亮(bright)**, 完整/複雜(complete), 奶油感(creamy), 澀(harsh), 淡淡/淡(light), **低沉(low-toned)**, 中庸(medium), 溫和(mild), 平淡(plain), 豐富(rich), 全面發展(rounded), **尖尖(sharp)**, 單調(simple), 順口(smooth), **輕柔(soft-light)**, 強烈/重/強(strong), 有層次(structured), **悶(stuffy)**, 濃厚/濃郁/厚(thick), 多變(varied), **溫暖(warm)**, 薄弱(weak)

Table 4.1 Property-Denoting Descriptions in Flavor Expressions
(properties denoting the five senses are listed)

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In short, the property-denoting descriptions of the coffee taste from our cupping data are divided into two categories: the aroma category and the flavor category. As evident in Table 4.1, the reason for classifying these two types is that most property-denoting descriptions explain the feeling of smell and taste in an integrated way. In particular, flavor is a mixed experience of smell and taste happening simultaneously and interacting with one another. Most of the property-denoting descriptions of the mixed perceptions include the intensity of olfactory and gustatory feelings. Moreover, they are synonyms for the richness of the smell and taste, for example, *complete* (完整), *rich* (豐富), *complex* (複雜), *structured* (有層次), and *varied* (多變).

Eventually, three dominant types of synesthetic metaphors are determined from the present data. They include the source domain of SIGHT, SOUND, and TOUCH. More importantly, only some subtypes from the SIGHT, SOUND, and TOUCH modalities are involved in the crossmodal interactions of flavor (or SMELL and TASTE). Using CWN, we mark the modifiers without correspondent perceptual contextual bases in their separate lexical WordNet, in boldface, apart from the modifier, *bright* (明亮) (see 4.1). We discuss the perceptual contextual bases of these modifiers using CWN as well as other crossmodal mappings in motion lexicons.

4.4.1 Flavor is Sight

First, we deal with the semantics of the Chinese lexicon, *liang* (亮), according to CWN. As shown in Figure 4.1, *liang* serves as an intransitive verb in Taiwan Mandarin, obtaining 19 senses (each note stands for one sense, and a sense can be gathered by a sense cluster). In total, three senses have perceptual contexts, namely, the sense stimulated by a light color

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with high brightness, the sense stimulated by a good-looking appearance, and the sense stimulated by a clear sound and a good timbre. If applied in perceptual contexts, the Chinese modifier *liang* is supposed to be situated in the perceptual modality of either SIGHT or SOUND.

However, this word is utilized in both smell and taste contexts. As evident in example (4.1), *liang* acts as a property indicator to modify the quality of the floral smell. This word, which is originally used for describing brightness experienced by sight, has nothing to do with brightness in example (4.1). According to the context of coffee tasting, the perceived brightness describes the sudden intensity of the floral scent detected in the taster's nasal and oral capacities that disappears briskly into a pleasant lingering sensation. In other words, the pleasure arises from "smelling light" (FLORAL SMELL IS LIGHT).

FLORAL SMELL IS LIGHT:

(4.1)
在 Americano 部分它有***明亮的花香***，在後來的時候它就會有一點點橡膠或是膠水的味道。
The Americano has a ***bright floral aroma***, and then later there is a bit of the flavor of rubber or glue.

Although the word is originally used to describe brightness experienced by sight, it has been mapped to depict a delightful quality of smell. The floral smell accompanied by "brightness" "turns on the lights" of the tasters' taste buds.

As Paradis and Eeg-Olofsson (2013) suggested, in wine reviews, the synesthetic metaphor of ACIDITY IS LIGHT is most frequently used to describe the flavor of white wine. In our coffee cupping data, this synesthetic metaphor is utilized in several examples. Firstly, this synesthetic metaphor directly denotes the intensity of acidity, along with indescribable

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feelings of brightness. Consider examples (4.2) to (4.4).

ACIDITY IS LIGHT:

(4.2)

Espresso 部分，入口的***酸味是很明亮***，有刺激性，過後是澀感比較***強烈***。

In tasting the espresso, ***the acidity*** in the beginning ***is very bright***, with pungency; afterwards, the astringency becomes stronger.

(4.3)

喝起來的感覺呢，第一杯 espresso 有點刺酸，就是***那個酸度是非常明亮的***。

In drinking the espresso, the first cup is a bit stingily sour, which means that the ***acidity is very bright***.

(4.4)

Espresso 的淺焙呢，是刺舌的、很酸，有藥水的味道，然後***它的酸是明亮的酸***。

The light-roast espresso is very stingy, very sour, with the flavor of liquid medicine. Then, ***its acidity is bright***.

In the examples shown above, the brightness of acidity is associated with pungent, stingy, or uncomfortable feelings. We can relate these negative feelings to the intensity of a sour taste. In a more abstract domain, mapping the brightness experienced by sight to the acidity experienced by taste is in fact emotionally driven. To be more precise, the negative feelings are those evoked when one is faced with the brightness of a harsh light.

Apart from being similar to the tasting of an intense sourness, tasting the "bright"

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acidity also results in indescribable happiness and positive feelings. The feeling of happiness can be found in the following examples (4.5) to (4.8).

(4.5)

在 ESPRESSO 部分，第一杯我們會覺得它就是，***非常亮的酸，***柑橘的酸，那其他的味道就沒有那麼的明顯。

In tasting the espresso, we feel that the flavor involves ***a very bright acidity***, the acidity of tangerines, while other flavors are not so obvious.

(4.6)

喝下去的風味，一開始會覺得有燒焦味，它有一點點***莓果的亮酸***。而口感上是比較清淡的。

The flavor during drinking is the feeling of a burned flavor at first. It has a bit of the ***bright acidity of berries***, and the mouthfeel is comparably light.

(4.7)

酸值是亮的、紅茶的味道，然後酸值是甘甜的檸檬酸。

Its acidity is bright with the flavor of black tea, and its acidity is the sweet acidity of lemon.

(4.8)

在口感的部份，我們認為前段是***明亮的柚子酸***，然後尾段的部分有焦糖。

In sensing the mouthfeel, we think that it has the ***bright acidity of a pomelo*** in the beginning, and then there is a caramel flavor near the end.

Apart from the modifiers, the verbs denoting motions or events can be correspondent to several perceptual associations, which are not constant and stable. One of the reasons may be that the motion verbs do not contain the consequent situations. In the motion descriptions of flavor, three crossmodal metaphors are found in total. In example (4.9), the acidity can "brighten up" the flavor of the espresso, allowing the flavor to be perceived on a different

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perceptual scale, that is, the scale of SIGHT.

(4.9)

酸味本身，緬甸這支的酸味就會比，越南的酸味要明顯，所以它在 espresso 的部分就***放得更亮***。

As to the acidity of the Burmese coffee itself, it is more obvious than the acidity in the Vietnamese coffee, so in espresso form, ***the acidity is brightened up***.

As example (4.10) shows, it is easy for the audience to associate the flavor with sight since they visualize the "blossoming" of the flourishing flower. This image-association, however, is triggered by the most dominant human ability, visual thinking, and is also a process of comprehension via image transfer. As long as the audience adopts a visual perspective in their motion descriptions or event depictions, they can view any expression as related to sight. In other words, besides image association in the two examples, there is no direct cue connecting the sense of sight to the target sense, taste.

(4.10)

第一支在加水的時候，一開始有一個比較***明亮的酸味綻放***，但是之後的苦味蠻重的，所以在之後比較感覺不到酸味，但是組員是蠻喜歡那一開始的明亮度。

The first one, when combined with water, ***has a blossoming bright acidity*** at first, but afterwards the bitterness intensifies, so we don't feel the acidity later, yet some members like the brightness that appears in the beginning of the tasting.

To put it another way, the verb "brighten up" (提亮) already points out the consequence of the event, i.e., become brighter. The consequent sight perception of brightness in the

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linguistic expression is axiomatic.

SWEETNESS IS LIGHT:

(4.11)

加糖之後呢，他的酸可以***提亮整個糖的甜味***，不會讓那個甜感覺很死。

After adding sugar, its acidity can ***brighten up the sweetness of the sugar***, making it not so sweet and unctuous.

Therefore, by directly promoting the brightness of the target entities (e.g., in example (4.11), the *sweetness* is brightened up), the implication of taste possessing the property of sight is obviously clear. Thus, the property of taste is replaced by the property of sight to not only modify the perceptual phenomenon of taste, but also widen the audience's comprehension of the target domain.

4.4.2 Flavor is Sound

Sound modifiers can also be utilized in flavor expressions. In example (4.12), the word "low-toned" ***di-cheng*** (低沈) means low-sounding in terms of pitch, and modifies the sour feeling, representing a mild intensity and a profound sensation during and after tasting. Compared with the synesthetic metaphor of ACIDITY IS LIGHT, this synesthetic metaphor not only illustrates a comparably slow change to the intensity of the acidity in both oral and nasal capacities, but also suggests that the acidity felt on the tongue has moved from the base level to a lower, deeper, and flatter level.

ACIDITY IS PITCH:

(4.12)

然後有蜜糖味道，還有一個比較**低沉的酸味**，跟油膏味。

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And then it has the flavor of sugar, and a much ***lower-toned acidity***, along with an odor of over-cooked oil.

In short, the synesthetic metaphors in the present study form a comparably indirect and abstract association between the source and target domains compared with conceptual metaphors. Thus, a complex associative implication regarding sensation or emotion as seen in the previous section is taken into account, as crossmodal interaction usually involves a non-correspondent mapping between the perceptions in the source domain and those in the target domain.

4.4.3 Flavor is Touch

Tactile feelings can also serve the source domain to map onto the quality of flavor. Two synesthetic metaphors are included concerning TOUCH in the source domain and FLAVOR in the target domain, namely, **ACIDITY IS TEMPERATURE** and **ACIDITY IS TEXTURE**. For instance, in example (4.13), the word "warm" *wen-nuan*, which originally evokes the sensation of heat, is mapped onto the acidity of coffee. Neither does this description of *warm* acidity have anything to do with the feeling of temperature in terms of tactility, nor does it simply denote the medium intensity of acidity. Emotional sensation such as delightfulness and appreciation may be involved as its factors. In other words, a new concept of the lexicon "warm" *wen-nuan* (溫暖) is generated by the mapping between the modifier as the source domain from a foreign perception and the other perception stimulated by the entities of the target domain. The other crossmodal metaphor concerning TEMPERATURE is **ACIDITY IS HUMIDITY**.

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ACIDITY IS WARMNESS:

(4.13)

第二支的話它的 flavor 是一片的***溫暖的酸味***，跟水果茶的味道。

For the second one, the flavor is a sheet of ***warm acidity***, with the flavor of fruit tea.

In examples (4.14) to (4.17), the property modifiers are all in use under tactile contexts. "Stuffy" *men* (悶) indicates the actual congestion of the nose due to unbalanced air temperature and humidity, "sharp" *jian* (尖) describes the abrupt pointiness felt on skin, and "soft" *qing-rou* (輕柔) indicates the tender smoothness felt on skin.

ACIDITY IS HUMIDITY:

(4.14)

酸的話是***比較悶的酸***，苦的話比較久留一點，像山苦瓜的味道，是比較不舒服的。

In terms of acidity, it is an arguably ***stuffy acidity***, and the bitterness stays longer in the mouth, tasting like a balsam pear. It is not very comfortable.

As evident in example (4.14), the negative feeling of stuffiness is further illustrated as being "not very comfortable." We find that the mapping from tactility to flavor in the expressions evoke emotional aspects as well.

ACIDITY IS TEXTURE:

(4.15)

加糖之後***它的酸味則是會比較尖***，在後段的時候會釋放一點果香的感覺。

After adding sugar, ***its acidity would be sharper***, and later a fruity flavor will come out.

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(4.16)

Americano 它其實是有一點酸，那個酸是蠻明亮的，然後是帶有一點***尖銳的酸味***這樣子。

The Americano is actually a bit sour. The sourness is very bright, and has a little bit of a ***sharp acidity***.

However, when applying "stuffy" ***men*** (悶) and "sharp" ***jian*** (尖) to the acidity experienced by taste, "stuffy" takes on an implied lack of relief in terms of acidity, as well as an unfavorable sensation, while the "sharp" modifier of acidity illustrates not only a great density of acidity, but also an acute change in the intensity of acidity felt in both oral and nasal capacities. The acidity feels as if it has moved from the base level to the highest level of intensity.

(4.17)

喝起來就是甜甜的，就是比較單純的那種甜，所以是蔗糖的味道，然後還有***輕柔的果酸***，以及有洛神花茶的味道。

It tastes sweet, a simply pure sweetness, so the flavor is that of table sugar, and then it has a ***soft and fruity acidity***, along with the flavor of roselle.

Delightful sensation is involved in the expression of "soft" acidity, which associates the sourness with tender and gentle substances. Despite the fact that "soft" *qing-rou* (輕柔) is mentioned, there is no tactile feeling of softness evoked at the same time; rather, a slow relief from experiencing a change of taste from sour to neutral is elicited.

4.2 Directionality and Proposal

In this section, we discuss the regulations and directional tendencies proposed in previous studies (Shen, 1997; Ullmann, 1959; Werning et al., 2006; Williams, 1976). As noted by

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Marks (1978, 2014), synesthetic metaphor is a typical kind of perceptual metaphor with crossmodal equivalence in both (perceptual) domains. In our findings of crossmodal metaphors, we assume that the crossmodal equivalence is comprises of the feeling of unspecified dimensions within another perception in the source domain. Although the metaphors result in the evocation of feelings that suggest imprecise scientific connection between the source and target perceptions (e.g., "a warm and bright acidity appears in the mouth"), they are somehow still perceptually comprehended by the audience.

Conceptual primacy in the crossmodal descriptions of sensory experiences is not regulated to violate or obey any conceptual domains reflected in the language. However, this does not mean that the physiological differences among the sensory modalities are impossible to distinguish; it does imply, however, that at the conceptual level, human cognition offers a flexible transformation of sensory perceptions into conceptual structure, such as the reconceptualization of sensory experiences into language. In a more complicated sense, the transformed conceptual structure from sensory perceptions seems to be an overarching representation capable of capturing modal convergences and similarities (Binder and Desai, 2011). In fact, the supra-level of the structures is simply due to its components of integrated descriptions that pertain to the multiple sensory modalities of a flavor experience from the properties of objects and imagery.

4.3.1 Directionality and Regulations

After reviewing the studies concerning the directionality of crossmodal or synesthetic metaphors, we compare the results found in the present study with those proposed mainly by Williams (1976) and Werning, Markus, Fleischhauer, Jens, and Beseoglu (2006). The

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comparison concerns the directional tendency and hierarchical relationships of the distinctive perceptions involved in linguistic expressions of flavor. We simplify their schemas into the following diagram as shown in Table 4.2, which depicts taste and smell as the target domains.

Taste and Smell as Target Domains from Williams (1967)

TOUCH→TASTE→SMELL

Table 4.2 Taste and Smell as Target Domains from Williams (1967)

Our investigation supports the finding that touch is in truth the most primitive perception in linguistic representations, and thus is the most frequent source domain in crossmodal mapping. According to Williams, the terms of TOUCH can modify those of TASTE; we find this to be consistent with our analysis of the synesthetic metaphor, ACIDITY IS TEXTURE (e.g., ACIDITY IS SHARPNESS, as in example (4.16)). However, apart from our findings of tactility, our findings of the other perceptions such as SOUND and SIGHT serving as the source domains are not constant with the results of Williams' study.

Moreover, the two tendencies proposed by Williams are found to be present in our data. First, the properties possessed by the lower senses tend to serve the source domain, whereas the properties of the higher senses tend to serve the target domain. Further, the lowest sensation (i.e., TOUCH) is the predominant source in relation to the accessibility of crossmodal transfers.

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Taste and Smell as Target Domains from Werning et al. (2006)
TOUCH → TASTE
TOUCH → SMELL
COLOR --> TASTE
COLOR --> SMELL

Table 4.3 Taste and Smell as Target Domains from Werning et al. (2006)
(Black arrows represent significant enhancement; dotted lines represent not significantly impeded directions)

Four directional routes proposed by Werning et al. are found to be similar with our results, that is, the mapping from TOUCH and SIGHT as the source domains to TASTE and SMELL, respectively. However, the aspects of SIGHT here, in our study, are supposed to be brightness and dimension, rather than color and dimension. Two routes were not mentioned in Werning et al.'s hypothesis, namely, the mapping from SOUND to TASTE and SIGHT to SMELL.

In the vast number of expressions of flavor collected in the present study, ACIDITY remains the most common target domain for crossmodal metaphorical interactions. Other target domains include TASTE and SMELL, whereas SMELL is only present in one synesthetic metaphor, namely, FLORAL SMELL IS LIGHT.

(4.18)

a. TASTE IS LIGHT

b. ACIDITY IS PITCH

c. ACIDITY IS SHARPNESS

d. ACIDITY IS TEMPERATURE

e. SMELL IS LIGHT

In the case of acidity, consider the listed synesthetic metaphors in (4.18). Acidity, as suggested by previous researches on the critique of wines (Paradis & Eeg-Olofsson, 2013),

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retains its productivity and richness in crossmodal metaphors. Despite the fact that the metaphors lack actual pH indices and scientific numbers or data, we find them perceptually more comprehensible owing to their *perceived relativities* compared with the other senses. Firstly, the most frequently used synesthetic metaphor is ACIDITY IS LIGHT. This synesthetic metaphor allows a certain degree of the intensity of brightness to be equivalent with that in acidity. Besides obtaining the property of light, acidity in this metaphor serves as an agent giving light to the patient (i.e., human oral capacity). The dimensional property of SIGHT is utilized in the expression of TASTE as in example (4.9). In terms of sound, acidity can be mapped onto pitch. The low-intensity acidity is correspondent with a low tone in pitch. Specifically, both the timbre of a low-toned sound becoming profound and the feeling of listening to the sound are merged into a final impression.

In terms of mapping the perceptions of touch and thalposis (i.e., heat sensation), positive and negative emotions and attitudes are more detectable. In the metaphor, ACIDITY IS SHARPNESS, the connection between acidity and sharpness in texture automatically arouses the negative feeling of being stung on the tongue. The application of this metaphor does not simply involve a stingy feeling in taste; it also evokes negative, unbearable emotions. Similarly, in terms of TEMPERATURE, aside from the feeling of sultriness, sensing the stuffiness of air also leads to emotional instability. On the other hand, positive attitudes are also evoked by the utilization of synesthetic metaphors such as ACIDITY IS LIGHTNESS and ACIDITY IS WARMNESS, since both sensations are comparably comfortable and emotionally delightful. In sum, the consequent emotions and attitudes towards primitive perceptions like THALPOSIS and TOUCH are closely linked to the expressions, while those of high-level perceptions such as SIGHT and HEARING are indirectly shown and difficult to detect. What the

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two perceptions (SIGHT and HEARING) present is, accordingly, an *appreciation* of the images constituted by intersecting perceptions.

4.3.2 Proposal

Overall, we identify four limitations in the former researches according to our findings. First, THALPOSIS (i.e., sensations of TEMPERATURE and HUMIDITY) is not taken into consideration in both figures, while this sensation is frequently used in the crossmodal flavor expressions in Taiwan Mandarin. Next, except for the textual aspect, the *pressure* sensation of weight should belong to the tactile perception as well. Third, it is insufficient for SIGHT to be divided into two aspects, namely, color and dimension. Brightness is the most dominant aspect in mapping SIGHT onto FLAVOR. Last but not least, the hierarchical relationship of perceptions in linguistic communication may be more suitably categorized into three groups (see Figure 4.1) rather than as a linear relationship, as supposed by Ullmann.

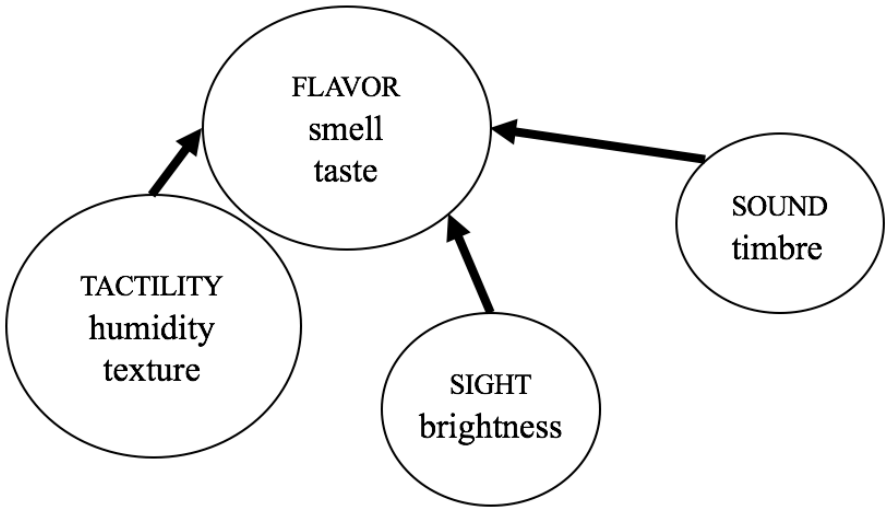

Figure 4.1 Flavor Descriptions in Terms of Crossmodal Mappings

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Accordingly, we propose a directionality for the crossmodal mappings in favor descriptions. Since they are at the receiving end of the directional tendency of literary synesthesia in flavor expressions, TASTE and SMELL, rather than the other senses, are usually the target domains. In Figure 4.1, the capitalized words indicate the basic perceptions, while the lower-case words represent the subtypes of the basic perceptions. In addition, flavor is believed to be the combined percept of SMELL and TASTE, not a subtype sense. Instead of classifying the senses into five categories, we divide them into four categories according to the proximity between scientific receptors and linguistic expressions, namely, the TACTILE and THALPOSIS category, the FLAVOR category, the SIGHT category, and the HEARING category. TACTILITY and THALPOSIS are categorized together due to their identical receptors of sensations on the skin, but they differ in the ways of stimulation. The FLAVOR category contains smell and taste as they are simultaneously perceived during the act of eating and drinking, and are mixed in linguistic expressions.

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Chapter 5 Synesthetic Metonymy

The present study takes property modifiers rather than the nominal expressions into consideration, because the modifiers evoking certain functions of the coffee's particular property (i.e., flavor) are more significant than the entity (i.e., coffee) itself. As noted in Chapter 3, to comprehend how flavors are conceptualized through various properties, we use zone activation (Paradis, 2004, 2008) to analyze metonymies with a focus on the **salience** of word meanings. Compared with active zone (Langacker, 1984), zone activation is a metonymic mechanism without human awareness of the highlighted aspect. Paradis (2008) suggested that all different meanings of a word depend on which function of the "performance" is profiled, and the performing function is without notice.

In this section, we discuss the modifying words of coffee flavor expressions that can be situated in other perceptual modalities besides the smell and taste modalities. We examine the possible perceptual contexts of those modifiers by using CWN, as well as the multi-level taxonomy adapted from Raskin and Nirenburg (1995), Dixon (1982), Givón (1970) and Frawley (2013), as shown in Table 3.3.

Instead of being merely mappings of crossmodal associations or perspective changes, these mappings exploit a similarity between experiences in different perceptual modalities (Heyrman, 2005). We find that these modifiers are "crossmodalized" based on a similarity of multi-perceptual intensity. Again, the mappings require both domains to be perceived. In our study, we realize that this synesthetic metonymy is in fact transferred from the general conceptual metaphor of MORE IS UP. However, with regards to the different possible perceptual contexts suitable for the modifiers, we alter the conceptual metaphor of MORE IS UP to MORE IS HEAVY and MORE IS THICK, according to the six types of perceptual senses listed

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in Table 3.3.

5.1 Foregrounding and Backgrounding

Since the foregrounding and backgrounding strategies are more useful than the figure-ground effect in approaching the switch of "zones" (i.e., aspects) in synesthetic metonymies, we analyze the foregrounded distinctive perceptual aspect and the backgrounded perceptual aspects in the property modifiers of crossmodal interactions, namely, *nong* (濃), *dan* (淡), *hou* (厚), *bo* (薄), and *zhong* (重). As mentioned in the previous chapter, **foregrounding** means the elevation of certain perceptual aspects from the property modifiers. By contrast, **backgrounding** stands for the inhibition of other perceptual aspects contained in the knowledge of the single modifiers.

Moreover, *nong* (濃), *dan* (淡), *hou* (厚), and *bo* (薄) can modify specific aspects of the flavor percept, together with other subtype senses in the other perceptual modalities. Nonetheless, these words cannot be applied to the KINESTHETIC perceptions, such as pressure, muscular tension, and weight, as shown in Table 3.3. On the other hand, *zhong* (重) can be applied to the KINESTHETIC perception, as shown in Table 3.3. In fact, this modifier is usually regarded as a "de-perceptual" term, which simply indicates the intensity or degree of any conceptual aspect.

5.1.1 Density: *Nong* and *Dan*

Semantically speaking, *nong* (濃) and *dan* (淡) are contraries in their own semantic network (see Figures 5.1 and 5.2). Most of their usual meanings are related to the high or low density of physical entities. For instance, in the CWN for "今天霧很濃" (the fog is dense today), the

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word *nong* is utilized to describe the high density of the particles in the mist. As for *dan*, it is applied to mean the low degree of the quantity of physical entities in a CWN sentence such as "她臉上的彩妝乍看很淡" (she wears little make-up at first sight). Respectively, *nong* has nine distinctive senses, and *dan* has eight separate ones.

In total, three different perceptual modalities can be viewed as the perceptual aspects for *nong*: SIGHT, SMELL, and FLAVOR. According to CWN, in the example sentence of "您的圖片顏色很*濃*" (the color of your picture is very *dense*), *nong* stands for the dense hue of color in the picture. In the sentence of "曇花在晚上開花，而且花香很濃" (The epiphyllum blossoms at night and its floral smell is very dense), *nong* stands for the high intensity of flower scents. Last, in the sentence of "這裡油條很好吃、豆漿很濃" (The youtiao (deep-fried breadstick) here is really delicious and the soybean milk is very dense), *nong* means the high density of flavor in the soybean milk.

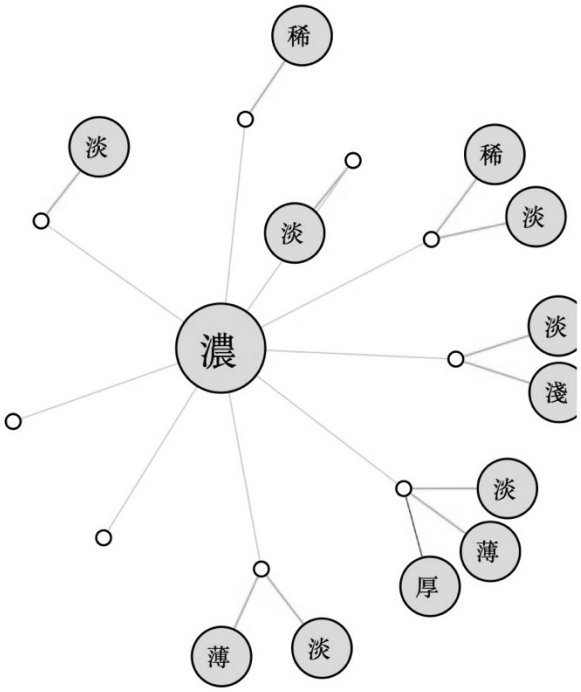

Figure 5.2 The Chinese WordNet of *nong*

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These property modifiers contain their own aspects within mainly perceptual domains, and these aspects are correspondent to the zones of the object they activate. Within perceptions, the activated zones of the modified subject are within the domain of human senses, and thus can the aspects of both property modifiers and modified objects be efficiently communicated. In the following examples, (5.1) to (5.3), the aspects of the modifier *nong* range from the intensity of hue in SIGHT (e.g., "deep green" 濃綠, "light purple" 淡紫), SMELL, and TASTE to the complex sensation of FLAVOR. However, in the context of coffee cupping, their aspects are transferred to the density of SMELL to modify the olfactory sensation of *rice*, and to the density of FLAVOR to modify the gustatory sensation of *white champaca*.

(5.1)
加糖的部份的話，就是***濃濃的米香味***，以及一種藥水味。
In the espresso with added sugar, there is a ***dense smell of rice***, and a kind of medicinal flavor.

(5.2)
第三杯的 latte 的話，主要還是有***濃濃的白菜味***，那有人說有海鮮的味道…
In the third cup of the latte, there is mainly ***a dense flavor of Chinese cabbage***, and some have said that it has the flavor of seafood…

(5.3)
第一杯則是，入口的時候完全喝不到牛奶的味道，可是在尾韻的時候出現***濃濃的奶味***。
In terms of the first cup, the milk flavor is completely gone at first taste, but then there is ***a dense milk flavor*** in the aftertaste.

Mostly, this word is repeated to describe the high density of the smell quality or taste quality.

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In example (5.1), the repeat of *nong* in *nong-nong* is used to signify a high degree of the rice smell. In the next two examples, (5.2) and (5.3), *nong-nong* is applied to elaborate the high density of Chinese cabbage flavor and milk flavor. As evident in the following examples of (5.4) and (5.5), this word can also modify the complete flavor of coffee, instead of reflecting the distinctive types of smell or taste. In (5.4), it is ambiguous whether the word *nong* stands for the flavor or the color of the coffee. In other words, this word allows a **double-modal** interpretation.

(5.4)

Espresso 我們覺得它非常的濃，然後是這三杯裡面最好喝的，所以我們也覺得她最適合做 espresso。

We think that ***the espresso is very dense (or dark in color)***, and it is the best one within the three types of coffee. Thus, we consider it as the most suitable one for making an espresso.

(5.5) Aftertaste 一樣會有一些苦味，但是***味道會比第二支濃一些***，比較沒有這麼酸。

The aftertaste of this coffee has some bitterness as well, but ***its flavor would be denser than that of the second coffee***, and would not be so sour.

As the antonym to *nong*, *dan* (淡) can also be specifically situated within the perceptual contexts of SIGHT, SMELL, and FLAVOR. However, compared with *nong*, *dan* denotes the low density within those perceptions. For instance, as shown in CWN, in the sentence of "生抽是醬油的一種，特色是色澤較淡" (Light soy sauce is a kind of soy sauce, and its characteristic is a pale color), *dan* modifies the thin color of the soy sauce. In the example of "口味較淡的月餅" (The mooncake with less flavor), the word indicates a reduced richness in the FLAVOR of the mooncakes.

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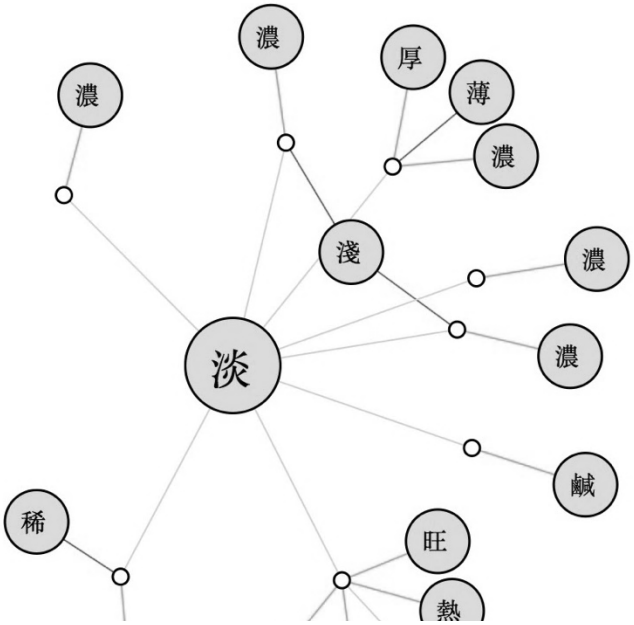

Figure 5.3 The Chinese WordNet of *dan*

In our present data, the foregrounded perceptual aspects are all within the flavor percept (i.e., SMELL, TASTE, or FLAVOR), while the SIGHT perceptual aspect is haphazard (see example (5.4)). Only the FLAVOR aspect is foregrounded because synesthetic metonymic words are highly context-dependent. To be more precise, it is the context of the coffee tasting that "primes" the perceptual aspects of FLAVOR to be in the foreground. Consider examples (5.6) to (5.8), which all involve the low density of flavor.

(5.6)

它在熱的時候入口後，苦味比較明顯而且有煙味，但是***它的味道是稍微比較淡的***。

When drinking it while it is still hot, the bitterness is more obvious, accompanied by a smell of smoke, but ***its flavor is less dense***.

(5.7)

味道喝起來的話，是有一點水，它沒有甚麼 body，然後有一些菸味和起士味，可是整體而言***味道很淡***。

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The flavor when drinking it is a bit watery; it does not have any (creamy) body. Then, there is the smell of smoke and the flavor of cheese, but in sum, ***the flavor is very low density***.

(5.8)

風味的部分，第一杯喝起來是比較清爽的麥茶，然後***有淡淡的焦味***，和微微的鹹味。

As for the flavor, the first cup tastes like fresh wheat tea, and there is ***a low-density burnt flavor***, and a little saltiness.

In examples (5.9) and (5.10), the word *dan* modifies the quality of smell. Moreover, it is applied to the subtypes of taste in examples (5.11) and (5.12). In these examples, *dan* indicates the intensity of the perceptual qualities sensed via the act of tasting.

(5.9)

加糖之後，有***淡淡的榛果香***，而且感覺蠻鮮甜的味道。

After adding sugar, the coffee has ***a low-density scent of hazelnut***, and we feel that the flavor is fresh and sweet.

(5.10)

…然後有組員認為，它有一點***淡淡***的玉蘭花香。

…and some members have thought that it has a slightly ***light*** smell of *white champaca*.

(5.11)

喝起來的感覺呢，第一杯 espresso…入口的時候是先酸後苦，那有人說有帶點***淡淡的鹹味***，然後有少許的中藥味。

In drinking the first espresso…there is at first acidity and then bitterness, and someone has said that it has ***a low-density saltiness***, and there is a bit of the flavor of Chinese medicine.

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(5.12)

然後在尾韻的部分，它有些許的奶油感，還有就是***淡淡的甜味***。

In the aftertaste, there is a bit of a creamy feel, and it has ***a low-density sweetness***.

5.1.2 Thickness: *Hou* and *Bo*

In terms of the modifiers of thickness, *hou* (厚) and *bo* (薄) share an antonymic relationship in depicting the degree of thickness and thinness, respectively, within their semantic networks (see Figures 5.3 and 5.4). In other words, their usual application of scale modification is connected to the large or small dimension of physical entities. According to Williams, dimension is also viewed as another magnitude for measuring the SIGHT perception. For instance, according to CWN, in the saying, "手裡拿著一個很*厚*的簿子" (with a very *thick* notebook in his hand), the word *hou* is utilized to depict the thickness of the notebook. As for *bo*, the word is used to mean the small degree of thickness of physical entities. For example, in the CWN sentence of "修行者在石板地面上鋪一塊斑駁破舊的***薄***布，盤腿而坐" (The cultivator placed an old, shabby, and very ***thin*** piece of fabric on the stone ground, and sat on it with his legs crossed), *bo* is used to depict the thinness of the fabric. According to CWN, *hou* has seven distinctive senses, and *bo* has eight separate ones. Compared with *nong* and *dan*, *hou* and *bo* have four different perceptual modalities whose perceptual aspects are foregrounded, namely, SIGHT, SOUND, SMELL, and TASTE. However, in terms of its perceptual aspect, that is, SIGHT, *hou* elaborates the dimensional scale of physical objects rather than the hue of their color. In the sentence of "他的說話聲音厚而不滯" (The sound of his voice is thick without lifelessness), *hou* stands for the thickness of the timbre of a voice. In the sentence of "風磨酒是博若萊斯著名的葡萄酒，

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其酒味厚質良” (Moulin-a-vent is a famous grape wine from Beaujolais. Its wine flavor is thick and the quality is great), *hou* means the high density of flavor in the grape wine.

In our present data of *hou*, we find that the perceptions concerning the flavor percept (i.e.,

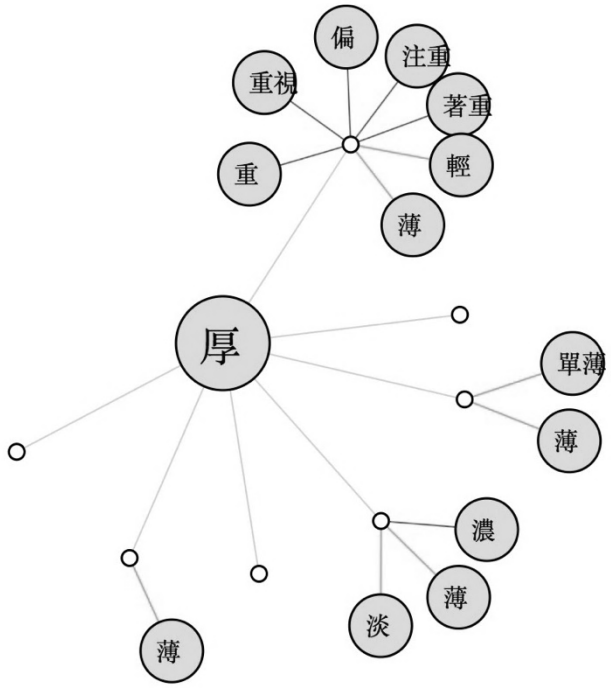

Figure 5.4 The Chinese WordNet of *hou*

SMELL, TASTE, or FLAVOR) are the foregrounded perceptual aspects while the SIGHT and SOUND aspects are backgrounded. Further, highly context-dependent synesthetic metonymic words foreground the FLAVOR aspect, while other possible perceptual aspects are in the background. In example (5.13), the word *hou* indicates the high density of the coffee flavor.

(5.13)

冷掉之後會覺得***這個味道比前兩支更厚***，然後有點像是發酵過後的葡萄

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乾的味道。

After the coffee is already cold, we feel that ***its flavor gets thicker than that of the former two cups***, and it tastes a bit like the flavor of fermented raisins.

Nonetheless, *hou* is not shown independently in our present data. In fact, it appears along with *nong* most of the time. Since CWN can only cope with one-word lexicons, we view the frequent modifier, *nong-hou* (濃厚), as a lexicon, meaning both *nong* and *hou*, used to elaborate the quality of the flavor. Owing to the perceptual aspects of SMELL, TASTE, and FLAVOR that both words evoke, there is no exclusiveness or vagueness in the semantics of *nong-hou.* Consider the following two examples.

(5.14)

第二杯 espresso 喝起來，主要是可可的味道，就是***黑巧克力的味道非常的濃厚***。

In tasting the second espresso, there is mainly a cocoa flavor, that is, ***a really thick flavor of dark chocolate***.

(5.15)

喝美式的時候有發現，它其實***澀味跟苦味非常的濃厚***。

When drinking the Americano, we found that it actually has ***a very thick feeling of astringency and bitterness***.

On the other hand, *bo* (薄) also evokes the perceptual aspects of SIGHT, SOUND, SMELL, and FLAVOR. Yet, compared with *hou*, *bo* modifies the degree of these perceptions in terms of lowness. In particular, in terms of the perceptual aspect of SOUND, *bo* stands for the low degree of the volume instead of the timbre, as it is for *hou*. As shown in CWN, in the sentence, "協奏曲中的大提琴聲音太小，樂團的低聲部太薄" (the cello sound is too low in this concerto, and the sound of the low part of the orchestra is too *thin*), *bo* indicates the low

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degree of volume in the concerto. In the example of "壽司飯粒鬆垮，飯質過軟，該有的醋香味薄到幾乎不見" (The sushi rice is very loose, the rice is too soft, and the required vinegar flavor is so thin as to be nearly gone), the word *bo* indicates the lack of vinegar in the sushi. In short, property modifier *bo* contains its own aspects within the senses of SIGHT, SOUND, and FLAVOR, which are correspondent to the "zones" of the entity that they activate.

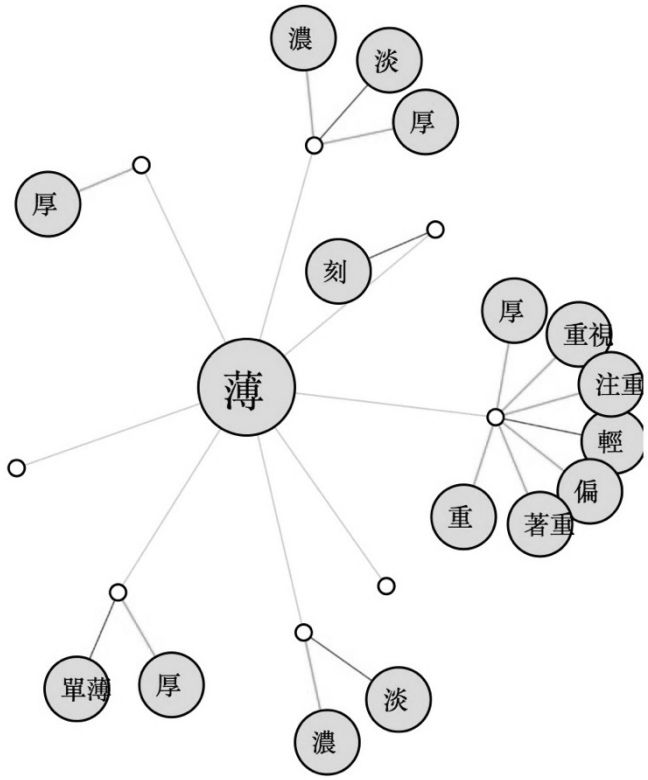

Figure 5.5 The Chinese WordNet of *bo*

In the following examples, (5.16) to (5.18), the aspects of SMELL, TASTE, and the complex sensory experience of FLAVOR are activated in the context of coffee cupping. In addition, although it appears independently as a one-word lexicon, *bo* is sometimes accompanied by other modifiers signifying a low degree of intensity, such as *dan*, forming the lexicon *dan-bo* (淡薄).

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(5.16)

然後加了牛奶之後，咖啡可以帶出牛奶的甜味，但是他本身就顯得味道比較***薄***一點。

After adding milk to the espresso, the coffee is able to bring out the sweetness of the milk, but its flavor is a bit ***thin***.

(5.17)

加了牛奶，它的牛奶味是比較明顯的，並且***味道上是比較淡薄***。

After adding the milk, its milk flavor is more obvious, and the flavor is more low density and thin.

(5.18)

那 espresso 稍微可惜一點就是有點中藥味，加水的部分，尖銳的酸，以及***淡薄的苦***。

In terms of the espresso, it is a pity that it has a bit of a Chinese medicinal flavor. When water is added to it, there is a sharp acidity, along with a ***low-density, thin bitterness***.

5.1.3 Intensity: *Zhong*

In contrast to the previous four modifiers, the modifier, *zhong* (重), is found to be able to evoke nearly all of the perceptual aspects mentioned in Table 3.3. Most importantly, it stimulates the kinesthetic perceptual zone, which none of the four aforementioned modifiers could stimulate. First, in its lexical semantic network, *zhong* (重) is applied to the kinesthetic aspect to signify the high degree of weight in a sentence such as "孩子們背著又重又大的書包" (The kids are carrying heavy and big backpacks). Second, when applied to other perceptual contexts, this word mainly stands for the high intensity of any concerned quality. For instance, in terms of the perceptual aspect of SIGHT, when saying "圖像中的紅色太重

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了” (The red color in the picture is too intense), *zhong* simply means the high degree of color intensity. Likewise, in the SMELL perceptual contexts, as shown in examples (5.19) and (5.20), the degree of the fruity scent is “intensified” by the modifier, *zhong*.

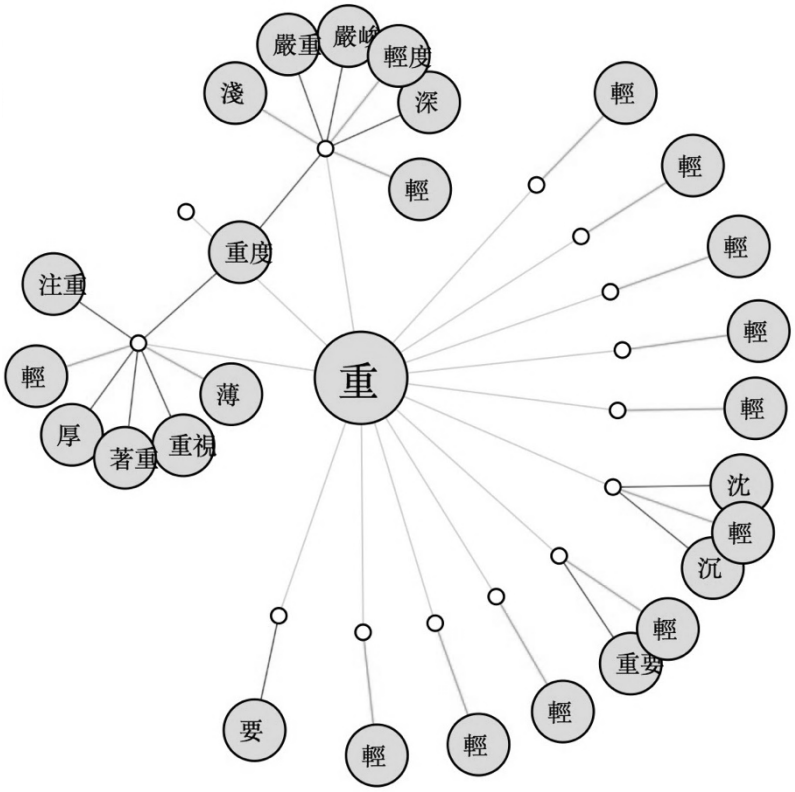

Figure 5.6 The Chinese WordNet of *zhong*

(5.19)

第一種的口感，***果香味還蠻重的***，我們組員是覺得有種化學的芒果香。

In terms of the mouthfeel from the first coffee, ***its fruity scent is quite heavy***. Our members have thought that it has a chemical flavor of mango.

(5.20)

那在喝起來的部分，第一杯喝起來***水果香味非常的重***，然後我們覺得它

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非常像英國的水果茶。

During tasting, we tasted ***a very heavy fruity scent*** in the first coffee, and then we thought that it tastes very much like English fruit tea.

Because synesthetic metonymic words are highly context-dependent, according to our present cupping notes, only the flavor aspect is foregrounded while other perceptions are relegated to the background. In other words, the perceptual aspect of flavor is the only perceptual aspect activated in the contexts of coffee tasting. Consider examples (5.21) to (5.22), which all involve the high intensity of flavor.

(5.21)

它熱的時候是泥土味、沙石味，還有蔓越莓味。冷的時候也是感覺***煙味比較重***。

When it is hot, it has the flavor of mud and sand, together with the flavor of cranberries. When it is cold, ***the smoke scent is also very heavy***.

(5.22)

比起喝第一杯，有發現***它的杏仁味比較重***，而且比較酸，沒有第一杯這麼順口。

Compared with the first coffee, ***this coffee has a heavier almond flavor***, and it is sourer, but it is not as smooth as the first one.

Moreover, it is applied to the subtypes of taste in examples (5.23) and (5.24). In these examples, *zhong* indicates the intensity of the perceptual qualities experienced through the act of tasting.

(5.23)

第二種有水梨的甜味，以及大麥[味]，蠻***重***的苦味。

The second coffee has the sweetness of pear, and a barley flavor, as well as a

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heavy bitter taste.

(5.24)

第一杯 espresso 的話，我們覺得***它的酸味太重了***，還有一些中藥與酸菜的味道。

In terms of the first espresso, we think that ***its acidity is too heavy***, along with some flavors of Chinese medicine and Chinese pickled vegetables.

In terms of metonymy, the mapping occurs between aspects or zones rather than different concepts or senses. Specifically, zone activation profiles the *conventional* referring point. This means that no superfluous inference on the part of the addressee is required (Paradis, 2004). Thus, compared to other types of metonymization, these modifiers are of less salience.

5.2 MORE IS HEAVY, DENSE, AND THICK

In this type of crossmodal mapping, in the source domain, the perceptual properties denoting the terms of one perception other than those of smell or taste are precisely matched with those of smell or taste. In other words, these modifiers are originally accessible in more than one perception, but a certain perceptual zone is switched or chosen to activate the same perceptual zone of the target entity according to certain contexts. Following the definition of *synesthetic metonymization* developed by Paradis and Eeg-Olofsson (2013), crossmodal metonymization involves shifting active zones by "foregrounding" a certain aspect from the property denotation that is correspondent to the perception in the target domain. Thus, we view crossmodal metonymization (or *synesthetic metonymization*), which, in the present study, concerns the shifting of zones from and to TOUCH, SIGHT, TASTE, and SMELL, as involving less salient crossmodal mapping than the authentic synesthetic metaphor.

In terms of etymology, besides indicating the perceptual properties of TASTE and SMELL,

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these modifiers are mostly activating the zone of TOUCH, concerned with weight and texture, and dimension in relation to sight. However, according to *Shuowen*, the original Han dynasty dictionary by Xu Shen, ***nong*** (濃) and its counterpart ***dan*** (淡) can be the property-denoting terminology of flavor. Thus, they are not considered crossmodal metonymies in flavor expressions, but descriptive terminology instead. While ***nong*** (濃) initially means the rich flavor of wine, ***dan*** (淡) typically stands for a water-like flavor or minimal flavor in a drink.

On the other hand, the terms ***hou*** (厚) and ***zhong*** (重) are able to activate multiple zones in terms of etymology. For instance, "thick" ***hou*** (厚) and "heavy" ***zhong*** (重) distinctively activate the zone of TOUCH by describing the high degree of intensity in the *texture* and *weight,* and the zone of SIGHT by describing the large degree of DIMENSION. Yet, in the target domain, they both activate the TASTE zone by describing the density of taste. Consider example (5.25):

(5.25)

喝起來的時候是覺得它比較偏 crema 的部分，一樣也會有鹹味，然後比較***沉重***的烏梅味，最後會有一點點像腰果在嘴巴裡面的那種感覺，冷掉之後會覺得這個味道比前兩支更***厚***。

In tasting, the flavor is mostly of the crema, which has bitterness as well. Then there is a ***heavier*** flavor of smoked plums, which eventually leads to a bit of the feeling of cashew nuts in the mouth. After it is cooled, we feel that the flavor is ***thicker*** than that of the former two types of coffee.

(Crema: brownish foam that forms on the top of freshly made espresso)

As recorded in *Shuowen*, ***hou*** (厚) signified the wideness of the landscape, and functioned as the contrast of ***bo*** (薄). It was subsequently used to modify the dimension experienced by SIGHT, illustrating the great depth of vertical distance between the upper and the lower borders of flat substances. ***Hou*** (厚) is sometimes synonymous with ***zhong*** (重) when describing

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heaviness in weight. It is also applied in FLAVOR expressions depicting the richness of flavor in wine. Likewise, ***zhong*** (重) was paralleled with ***hou*** (厚) in *Shuowen*, functioning as the contrast of ***qing*** (輕). As mentioned in *I Ching*, the word later became a property modifier denoting a great depth in dimension and a heavy mass in weight. In addition, the aspect of TOUCH (i.e., tactility) is always involved in ***hou*** (厚) and ***zhong*** (重). This reflects the hierarchy of perceptions in which touch is believed to be the most primary one, and thus the most frequent source domain in crossmodal mappings.

MORE IS HEAVY, DENSE, AND THICK: COFFEE FLAVOR

Figure 5.7 Synesthetic Metonymy and MORE IS HEAVY, DENSE, AND THICK

To take a comprehensive view, combined with the idea of "language as a representation of human embodiment" from CMT (Kövecses, 2010; Lakoff & Johnson, 1980; Yu, 2008), it is clear that the aforementioned synesthetic metonymies share similarities in describing the *intensity* of the flavor impression. In other words, the intensity of the perceptual feelings of smell and taste is metaphorized by the intensity modifiers evoking the other perceptions, which are mainly TOUCH and SIGHT. Therefore, we find that the consequent conceptual metaphor, MORE IS HEAVY, DENSE, AND THICK, is actually innate and embodied in the synesthetic metonymies, rendering accessible the shifting of zones across different perceptions.

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Chapter 6 Synesthetic Simile

We turn our focus to crossmodality in similes to comprehend how flavors are conceptualized through simile expressions. As mentioned in Chapter 3, in order to analyze crossmodal similes, which are similes containing crossmodal interactions, we choose to use some primitive mechanisms developed in cognitive linguistics, that is, the prototype effect and the image schema.

Later on, we discuss the crossmodal mapping of imagistic similes derived from the two mechanisms, which function in parallel with imagistic metaphors. Since the mechanisms within imagistic similes are concerned with primitive sensory-motor experience and are not limited to particular perceptions, imagistic similes are self-evident multimodal or crossmodal expressions. Thus, imagistic similes from this point of view are, in fact, synesthetic similes. However, the following questions remain: how are imagistic similes mapped between different perceptual modalities, and what perceptual modalities are included or excluded?

Last but not least, we investigate the two functions of synesthetic similes: to capture flavor experiences, and to capture image associations. Although smell and taste are within the scope of basic human perceptions, in linguistic expressions the perceptual experiences must "demand a great deal of knowledge and experience on behalf of the readers" (Paradis & Eeg-Olofsson, 2013). Therefore, as recognized by Dewey (1958: 285), linguistic schematic expression is a representation of our body-mind continuity, an underlying continuity connecting our physical interactions in reality with our imagination or thought forms.

6.1. Imagistic Mapping

As suggested by Croft and Cruse (2004), a simile does not require an indescribable or

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undetermined meaning in either the source or target domain, or an extended construal as a metaphor does; rather, an explicit comparison between two concepts, entities, events, properties, etc. is to be expected. We discuss this entity-concept comparison in the first section by applying the prototype theory. We also argue that instead of acting as contrasts, the entities placed in juxtaposition specify certain flavor qualities. We call this mechanism a **narrowing** to concreteness.

In addition, according to Cruse (2000), a connotative simile is comprised of both descriptive interpretation and a more emotively charged interpretation. In the present study, the imagistic similes found in the data can also function as connotative similes. Specifically, the **broadening** to abstracts, that is, the second mechanism of imagistic similes, which utilizes the image schema, can evoke the thought of scenarios connected to the speaker's personal experiences. Afterwards, we consider the simultaneous application of both mechanisms within an imagistic simile, exploring the interaction between narrowing and broadening.

6.1.1 Narrowing: the Prototype Effect

To begin with, in the similes involving entity-concept comparisons, we find that the entity behind the connecting words (i.e., the entity in the source domain) is more prototypical than the target entity of the shared concept. Using the prototype effect, we analyze this phenomenon by conceptually categorizing it according to the level of "being representative" of any element of a cognitive model. Rosch (1973) primarily proposed that every domain of human perceptions is construed "into nonarbitrary, semantic categories which develop around perceptually salient 'natural prototypes.'" Lakoff (1987c) later suggested that the

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prototype effect is a by-product of the ICM: a basic kind of prototype effect results from *gradience* in the fitting between the background conditions of the ICM and our knowledge of categorical concepts. One predication behind this effect of fitting *gradience* is that a clear-cut conceptual boundary between lexical units is absent or fuzzy. In fact, the other predication, a more radical approach to conceptual categorization, is that there is no single and generally accepted cognitive modality for a common concept (in Lakoff's (1987; 76) example, he applies the basic concept of "mother"). Accordingly, since there is no definite matching between concepts and lexicons within a certain cognitive modality, our goal for using the prototype effect in mapping similes is to understand the prototypical gradience in the conceptualization of the flavor percept.

Firstly, pure comparisons of coffee and other foods mostly take the form of similes. Finding the prototype for certain flavor impressions from coffee tasting is hard as tasters are told to *clarify* the details of the flavor quality. Hence, simply describing the "coffee flavor" tasted in a non-figurative way is not allowed. In specifying the quality of the coffee flavor, the similes comparing coffee and other foods are very enlightening and informational for beginners and inexperienced tasters to capture the coffee flavor. Because the extra flavor aroused from a certain coffee cannot be captured by a simple gustatory description using words such as bitter, sour, sweet, or umami, tasters are required to search for entities that reflect that flavor in a concordant way.

When describing the quality of smoke in a certain coffee, tasters often make analogies to the flavor of tobacco or tobacco-related entities as the prototype. In examples (6.1) to (6.3), the idealized concept to be defined is "smoke." Owing to the vagueness of meaning in "smoke flavor from the coffee," tasters find "second-hand smoke from a cigarette," "cigarette

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smoke from an ashtray," or "smoke from a tobacco pipe" to be more precise in indicating what we know about *smoke*. In other words, we might describe the sensation of smoke as tobacco-like or cigarette-like, but it is far from common knowledge to describe it as coffee-like. Thus, these expressions are more prototypical in describing the sensation of smoke rather than the taste of coffee itself.

(6.1)
Aftertaste 呢有點怪，感覺很像是***吸了一口二手菸***的感覺。
The aftertaste is a bit weird, as if ***having inhaled second-hand smoke***.

(6.2)
…當然它的風味就會有比較多的煙味。可能是瑕疵豆比較多的關係，它會有是***煙灰缸***的味道…
… of course its flavor has a much more smoky smell. It may be because it has more defective beans inside, which would lead it to have an odor of an ***ashtray***.

(6.3)
再來第二個牙買加藍山咖啡的部分，他最大的特色就像一個***老爺爺的老煙槍(斗)***，他基本上他雖然是一種煙味，但卻不是難聞的…
And then in the second one, the Jamaican Blue Mountain Coffee, its main distinct feature is that it is like ***an old man's tobacco pipe***. Although it is basically a smoky smell, it is not a bad smell…

The descriptions of "second-hand smoke" (二手菸) and "ashtray" (煙灰缸) are usually given by non-smokers or people who have a negative attitude towards smoking. In particular, when smoking or second-hand smoke is mentioned, there is an unfavorable sensation along with an uncomfortable feeling. We view this emotive, evaluative response as another abstract concept transmitted through the application of imagistic similes. Here we discuss how it

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works and what its function is in the later sections.

Further, the simile of a burnt flavor in deep roast coffee being equated to guoba (i.e., scorched rice) is also common in our cupping data. Although both deep roast coffee and scorched rice are overcooked, the use of "burned rice" is more appropriate than "burned coffee" as a way to limit the concept of a "burnt flavor." In addition, other comparisons of the burnt flavor to puffed rice (爆米香), burnt charcoal (炭燒), and a roasted flavor (燒烤味) are generally evident in our data as well.

(6.4)

緬甸與越南的 arabica 比較有層次，可能是越南的 Robusta 的話，可能是缺陷豆的問題，就是我們喝下來始終覺得，他焦掉的米的味道非常重，甚至是，你可以想像你的飯煮焦掉，然後那個鍋巴磨成粉，然後就在喝那個東西。就是那個細的焦的顆粒，你就一直在嚐那個苦的味道。

The Burmese and Vietnamese arabica coffee are more structured. The Vietnamese Robusta coffee, when tasted—maybe because of its defective beans—still has a heavy flavor of burned rice. Even like, you can imagine that your rice has been overcooked to burnt rice, and you grind the rice to powder, and then you drink it. It is that small burned particle that you are tasting, and you keep tasting that bitterness.

In some similes that are aiming to capture a sensory experience, the sensation of flavor in the target domain is paralleled with the correspondent feelings of taste or smell in the source domain. As we see in example (6.5), the flavor experience in tasting the espresso is compared with the experience of the burned and bitter taste of *tea-goose*. The taster's motivation is to specify the quality of the burned-bitter gustation. Rather than saying that the coffee is burned and bitter, the taster finds that the taste of the dish of *tea-goose* completely fits with his ideal modal meaning of simultaneous sensations of scorchedness and bitterness.

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(6.5)

然後在那個美式的話，他喝起來像茶鵝，就是有一道菜叫茶鵝，那他喝起來中後段有點像***茶鵝後面那個焦焦苦苦的味道***。

The Americano tastes like *tea-goose*, which is a dish. The middle and later parts taste more like ***the burned and bitter taste of tea-goose*.**

Most importantly, these referred entities are within the audience's grasp of cognitive modalities owing to their culture-based characteristics from the Eastern world or Taiwan. In other words, the choice to use more prototypical foods that precisely contain these flavors in similes reflects the speaker's cultural priming. While people of different cultural backgrounds may think of these dishes or foods as foreign or newfangled, the speakers as well as the local audience consider these cuisines as part of their lives. Applying them in simile comparisons aims to strike a chord with the regional audience easily.

(6.6)

在喝 Americano 的時候，我們這組給了一個*比較極端的評價*，很像是***沒有勾芡的酸辣湯***。

In tasting the Americano, our group gave an extreme evaluation for this coffee, namely, that it is like ***hot and sour soup without flour thickening***.

Another example of the prototype effect can be seen in example (6.6). In order to define the negative concept of "being extremely (bad) (*比較極端的評價*)," the speaker used *hot and sour soup without flour thickening* to analogize. To more precisely justify the use of this kind of cuisine as an analogy, we must use another simile to describe the *hot and sour soup without flour thickening*, namely, that it is like *crispy doughnuts without frosting*. Instead of applying an object-to-object comparison, the speaker applies the prototype effect in this example to achieve emotively charged readings, whereby the speaker is trying to strike an emotional

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chord with the audience. Apparently, in example (6.6), the coffee flavor is understood as negatively evaluated, since flour thickening is an indispensable procedure in making hot and sour soup. Without thickening, the broth will be tasteless and fail to be qualified as traditional Chinese cuisine. Besides pure descriptive readings, evaluative and affective expressions are embedded within the descriptions. Thus, the speaker chooses to use a made-up version of a familiar cuisine to describe the extremely terrible flavor of the coffee, evoking a negative emotion in the audience, rather than capturing the precise quality of flavor. Based on complete simile comparisons, taste expressions are formed with more representative contents, allowing the audience to accurately recognize certain perceptual feelings.

(6.7)

Espresso 的部分，他***酸味的靈活度很高***…然後接下來就是***帶有果酸，以及些微藥味，以及胺樹的藥味***，簡單來說它就是非常***活潑***，***很像未經世事的小孩***，這是第三個的部分。

As to the espresso, ***the flexibility of its acidity is high***… afterwards, ***it has fruity acidity, a bit of a medicinal flavor, and a cinoelic flavor***. Simply speaking, the flavor ***is like a child with agility, innocent and lively***. This is the third part of the cupping.

To put it in a more extreme way, when mentioning prototypical entities to capture the ideal concept (of flavor qualities), the flavor can be metaphorized or even personified and mapped onto personality or human characteristics. Consider example (6.7), in which the flavor is described as an innocent and lively child with agility. The only ideal concept we can infer from the context is “a feature of being highly flexible and multifarious.” Since this ideal concept is too complicated to illustrate by inanimate features, the speakers choose animate human traits to increase the level of interactivity and vividness of the idea closer to his/her

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prototypical figure. In addition, if we do not consider the form of similes, this expression can be further defined as a metaphorical strategy or an example of personification.

6.1.2 Broadening: the Image Schema

Chapter 3 discussed the function of the image schema as a primitive byproduct from the ICM which is applied to analyze the imagistic mappings in our present data. In other words, in contrast to the prototype effect, which connects more precise entities with the target one to capture speakers' concepts in their idealized modal meanings, the image schema is a broadening of contents which are related to or recollected on the basis of the speakers' experiences. Mandler (1992: 592) suggested that image schemas consist of dynamic spatial relation and movements in real concrete images and are more abstract than images. According to Dodge and Lakoff (2005), concepts of motion and spatial relations are the initial shared factors in cross-linguistics analysis which construct the identification of image schemas. Further, these factors reflect everyday experiences through the "informal analysis" of the phenomenological contours (Johnson, 1987).

A consensus has not yet been reached on a generally accepted image schema list, and numerous subsequent additions to the list have been relatively weak in keeping with the list's original spirit. Even though image schema lists vary from scholar to scholar, we find that the **static** characteristics that are shared within imagistic similes allow us to determine some typical kinds of image schemas. These include the CONTAINMENT/CONTAINER schema (Lakoff, 1987: 267; Lakoff and Turner 1989: 97-98) the SURFACE schema (Johnson, 1987: 126), the orientational schemas, the UP-DOWN schema, and the FRONT-BACK schema (Lakoff, 1987; Clausner and Croft 1999: 15). On the other hand, other kinds of image schemas, namely, the

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dynamic kinds, such as the PROCESS schema (Johnson, 1987: 126), the INANIMATE MOTION schema, and the ANIMATE MOTION schema (Mandler 1992: 593-596), are also included but they usually seem abstract, or appear to "jump out" from the original scale. In particular, they are able to evolve imagined scenarios.

As we taste coffee, we tip the drink into our mouths and sense the gustatory feeling on the tongue. Because taste buds are located "on" the tongue, we have to pour the drink with complex flavors onto the tongue to perceive consequent feelings. As a result, the relation between the tongue and the flavors forms the SURFACE schema, that is, our tongue is the SURFACE for flavors as CONCRETE ENTITIES are placed onto it. For instance, a pungent flavor stinging one's tongue is analogized to a Brazilian lady dancing on the perceptual surface (see example (6.8)). The spatial relations between our tongue, mouth, and flavor are viewed as the componential elements of the imagistic similes used in flavor expressions.

(6.8)

…然後有一個辛辣的味道，彷彿你的嘴巴…在***被一個森巴女郎在那邊跳舞***，在那邊刺你的舌頭。

…. Afterwards, it has a pungent flavor, as if your mouth…as if ***a Brazilian lady is dancing on it***, and stinging your tongue.

Dynamic image schemas such as the PROCESS schema, ANIMATE MOTION schema, and INANIMATE MOTION schema are also applied in the similes found in the cupping notes. In the PROCESS schema, the perceiving process (i.e., flavor tasting) is schematically structured by a more straightforwardly physical process (i.e., dancing). However, the motion schemas in the target and source domains are transferred from the schema of INANIMATE MOTION to that of ANIMATE MOTION. As we see in example (6.8), the chemical stimulation of coffee on the tongue, which forms our realization of the flavor, is metamorphosed to a lady's dancing. In

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this regard, by "animating" the motion from inanimate objects such as a chemical stimulus or natural force, speakers can relate the perceptual event to a more vivid point of view. Further, if we take off its simile appearance, the strategy of placing an inanimate entity from the target domain into an animate one, in metaphor, is called personification.

In other imagistic similes utilizing gustatory imagery, the CONTAINMENT relation between the *perceiver* and the *flavors* in the target domain can be inferred in the source domain. This inference of a containment relation can be seen in examples (6.9) to (6.11). For instance, in example (6.9), the taster places the coffee into his/her mouth in the beginning, thus creating a CONTAINMENT relationship between the *perceiver's mouth* as the CONTAINER and the *flavors* as the CONTENTS in the container. Moreover, in the source domain, the *perceiver* is walking into another environment evolved from the *flavor*. This example echoes the original spirit of our bodily experience, which is that "we experience our bodies both as containers and as things in containers (e.g., rooms) constantly" (Lakoff, 1987: 272, cf. Johnson, 1987).

The CONTAINMENT schema is thus commonly utilized to schematize this certain spatial relationship. Besides CONTAINER and CONTENT, another structural element of the CONTAINMENT schema is present, that is, BOUNDARY, which is noted in examples (6.10) and (6.11). In the target domain, the boundary of the container is the boundary between the taster's mouth/nose and the exterior area (i.e., things which are "beyond the taster's body"). Consequently, the taster's body is contained within his imagery of a garden or a forest evoked by the flavor contained in his body. In the source domain, or the imagined scenario aroused by the flavor percept, the garden or the forest becomes the bounded container.

(6.9)

然後第三組豆子的味道，就像是你走進大自然，可以聞到大自然清香

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的味道…

And then the flavor of the third cup is like walking into Mother Nature, and smelling the freshness of nature.

(6.10)

喝下去的時候，我們聞到了***煎茶的味道***，然後有組員***形容***是***走進了一座花木扶疏的花園的感覺***。

When drinking the coffee, we smelt ***a flavor of sencha tea***, and then some members have described ***the flavor as walking into a flourishing garden***.

(6.11)

加奶之後，整體喝起來酸，但是是順的然後還蠻輕盈的，有人覺得有點像***在森林裡面慢跑***。

After adding milk, the overall taste is sour, but ***it is smooth*** and then ***it is light*** as well. Someone has felt that it is like ***jogging in the forest***.

However, if we view these examples based on the logic of the CONTAINMENT schema, then "everything is either inside a container or out of it" (Lakoff, 1987: 272). Therefore, if the first container (the mouth) is in the second container (the garden, forest, nature), and the flavors are in the first container (the mouth), then the flavors are in the second container (i.e., the imagined scenario). Indeed, this conclusion is illogical because the actual world and the imagined scenario differ in their spatial dimensions. In other words, to say that flavors "give rise to" or "evolve into" a certain scenario implies that there must be a sequential order between the actual tasting and the imagined experience. Certainly, the line between target and source domains in imagistic similes is stricter and clearer than that in metaphors. We thus propose that the actual flavor perception and the associative scenario follow a sequential

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order rather than happen simultaneously.

Moreover, inanimate-animate actions can be illustrated by means of the PROCESS schema, in which the perceiving process (i.e., flavor tasting) is schematically structured by a more straightforwardly physical process (i.e., jogging or walking). Instead, since we consider more the perceptual crossmodality within these evoked motional scenarios, we discuss, in a later section, the potential of MOTION schemas to facilitate crossmodal interactions.

6.1.3 Narrowing and Broadening

In fact, the two mechanisms in imagistic similes are not incompatible with each other. To be precise, it is possible to apply both the prototype effect and the image schema in a single imagistic simile. As mentioned in the previous chapter, both mechanisms are primitive cognitive byproducts of the ICM, which aims to reflect our mental concepts. While the prototype effect involves the gradience of classification, the image schema focuses on mappings with experiential schematic structures. Therefore, it is unnecessary for them to form an exclusive relationship. In this section, we analyze the imagistic similes requiring both narrowing and broadening, and discuss the reasons why it is necessary to place both mechanisms of these imagistic similes under investigation.

As evident in examples (6.12) and (6.13), since the metallic feeling of coffee is an indescribable sensation, the speaker is forced to find its prototype closest to the ideal concept. An “iron spoon” or “aluminum foil” also evokes the *rust taste* similar to the speaker’s ideal concept. However, because an iron spoon and aluminum foil are rarely tasted or even eaten by people, the speaker needs to recall a daily situation wherein the audience may happen to taste these objects. Therefore, the accidental action of “touching” or “biting” these objects is

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used to help express the gustatory imagery.

(6.12)
[鐵鏽味]就是像那種，你就覺得，可能是牙齒碰到湯匙，那種鐵腥的感覺。
[The metallic taste] is just like the kind of sensation you would feel, like, if your teeth touched an iron spoon, that kind of metallic feeling.

(6.13)
Espresso 的部分，組員覺得喝起來很像咬那個鋁箔紙的味道…
In tasting the espresso, our members have felt that it tastes like how it would biting into aluminum foil…

In the speaker's recollection, the PROCESS schema employed for mapping the perceptual action (coffee tasting) onto another physical action (biting) constructs a vivid scenario, allowing the audience to immerse into the situation for bodily experiences. At this point, the image schema applied here is to achieve a more precise mapping of a prototypical object in order to capture the ideal sense of flavor. Moreover, it is because of this construed situation based on the PROCESS schema that association between cupping and other actions is allowed. Similarly, we assume that crossmodal interactions happen at the same time as well. We discuss the crossmodality of imagistic similes in section 6.2.

On the topic of bitterness, our data show that *medicine* is a common object indicated as the prototype of bitterness. Yet, simply describing the bitter flavor as reminiscent of pills and medicinal powder seems to lack specification of the quality of bitterness. In the following two examples, the speaker uses the CONTAINMENT, SURFACE, and ORIENTATION schemas to indicate the precise position of the bitter feeling (i.e., CONTENT) in the BACKSIDE or UPSIDE of the mouth (i.e., CONTAINER). Notably, in example (6.14), the SURFACE of the bitter feeling

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is the soft palate rather than the tongue. It reflects a common controversial issue involving the tongue map illustrating different positions where subtype senses of the gustatory feeling are located. The tongue map proposed by Edwin G. Boring was later discovered to be mistakenly translated from its original German version by Hänig (1901). In fact, there are no specific positions for the five distinctive subtypes (i.e., acidity, sweetness, bitterness, saltiness, and umami) to be detected on the tongue. In addition, besides being on the upper surface of the tongue, the taste buds are also located on the soft palate, upper esophagus, cheek, and epiglottis. Through these image schemas, the speaker specifies the spatial relations of the flavor.

(6.14)

然後尾段的部分有焦糖，還有像是***藥粉卡在上顎的苦味***這樣。

And then at the end of the taste, there is a caramel flavor, and a bitterness much like ***the bitter taste of medicine stuck on the palate***.

(6.15)

Espresso 的苦味會很明顯，像是那種吃藥丸，沒有吞成功會***留在舌跟後面的味道***。

The bitterness of the espresso is very obvious: it is like the taste of taking a pill, and having it ***stay on the root of the tongue*** after failing to swallow it successfully.

Meanwhile, the INANIMATE MOTION schema can help the speaker explain how the bitter feeling lasts. In example (6.15), the persistence of bitterness is elaborated as another inanimate motion, that is, of "being stuck," which may evoke painful and annoying feelings. The speaker tries to create a scenario that matches the identical feeling evoked from tasting the coffee, in terms of both spatial and durative aspects of the flavor.

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The perception of acidity is often accompanied by aggressive feelings or high-intensity events. For example, the acidity can feel as forceful as if the gums are being punched and enduring a violent attack (see example (6.16)). Moreover, aggressive acidity felt in the mouth can feel like "a vigorous right-wing radical" (激進的極右派分子) as though the tongue is fighting with the acidity.

(6.16)
最後餘韻的部分覺得特別的***酸***，很像是***打在牙齦上的鳳梨***酸。
The aftertaste is especially sour, very much like **the acidity of *pineapple punching the gums***.

(6.17)
Espresso 很像是***葡萄酒的酸味***，整個酸味是***很激烈但是是有個性的，猶如舌頭打架的感覺***，整個 espresso 喝起來很像是一個***激進的極右派分子***。
The espresso has a flavor similar to ***the acidity of grape wine***. That acidity is ***very aggressive, but it has its unique personality***, as if the ***tongues are fighting***. The espresso tastes like a ***right-wing radical***.

To describe the coffee's quality of acidity, the speaker uses fruity objects such as pineapple and grape (wine) that are prototypical to the ideal concept of "acidity," and *right-wing radical* as a closer entity meaning "aggressiveness." Despite this, the ANIMATE MOTION schema matches the two ideal concepts together, forming "aggressively sour." For example, the "punching the gums" action activates the agency of acidity, and the "tongues fighting" action highlights the fierce response from the sour feeling.

6.2. Crossmodality in Imagistic Similes

The results show that the two mechanisms of imagistic similes have distinctive approaches

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to conceptual mappings. While the prototype effect aims to determine a more concrete entity to capture an ideal concept, the image schema aims to construct an abstract scenario related to bodily experiences. In terms of crossmodal interactions, the former centers on visually and tactically connecting with prototypical entities, whereas the latter is not limited to certain perceptions. Yet, neither of them can be labeled as synesthesia metaphors; they are synesthesia similes due to their imagistic and schematic nature.

Although many perceptions in synesthetic similes are gathered and recalled from conceptions such as a particular property, event, or subject, the crossmodal interactions are rather vague. Usually, crossmodality is displayed as a single image or scenario without the directly correspondent mappings of perceptions. The main reason for this uncertainty in intersensory mapping is that the recalled image or scenario is both highly context-dependent and subjective to the speaker. At this point, the contents in the source domain pertain to **subjective imagery**, that is, the personal experiences taking place in a character's body like perceptions, internal sensations, and emotions.

Specifically, in imagistic similes that contain the dynamic type of image schemas, such as the PROCESS schema and the (INANIMATE or ANIMATE) MOTION schema, the dominant mapping between the source and target domains involves actions rather than entities. Thus, the crossmodal mapping is intrinsic as the schematic concept of PROCESS is not tied to any perception (Johnson, 1987). The process schema was later labeled as "nonperceptual image schemas" by Grady (2005: 38) for it is not tied to any particular aspect of sensory experience. However, the present study argues that instead of being regarded as nonperceptual, the imagistic similes containing these dynamic schemas should be regarded as multi-perceptual owing to their rich connections to various perceptions. We discuss this statement in the

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following sections.

6.2.1 Visual Image, Tactility, and Flavor

The first and foremost crossmodality in synesthetic similes is flavor-sight mapping. The transfer to sight involves the visualization of the prototypical entity, not of the target flavor. In other words, the speaker tastes the coffee "as if" viewing the visual image of a certain object, which evokes a flavor prototypical to his/her ideal concept. Therefore, the speaker cues the image of "a dish called *tea-goose*" to recall a burned and bitter taste, or mentions the circumstance of *smoking a second-hand smoke* somewhere to refer to the typical smoky flavor. After cuing these prototypical conceptions, speakers aim to specify the feeling when tasting them through other perceptual actions; thus, it is simply monomodal mappings from the coffee flavor to other flavors.

Thus, the visual image aroused in our minds is actually a reflection of our preference to think visually. As noted by Mandler (2005: 149), our visual information is kept in an iconic store prior to attentive processing. We continuously refresh this store and integrate the information across time, allowing us to see continuous information, that is, motion. O'Regan and Noë (2001) even demonstrated that visual perception is rooted in both real and anticipated bodily experiences, which are called "sensorimotor contingencies." While vision is undoubtedly a very important factor of experience for people, it should be viewed as the basis for crossmodal mapping in synesthetic similes.

In fact, in the present data, some speakers take the time to illustrate the precise visual images of the prototypical entity for fear that they would fail to strike a chord with the audience. For instance, when mentioning the scorched rice to match the flavors of being

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heavily burned and of bitterness, the speaker offers the details of how that *small burned particle* comes from: "you can imagine that your rice has overcooked to burnt rice, and you grind the rice to powder, and then you drink it. It is that small burned particle that you are tasting, and you keep tasting that bitterness." In this case, the prototypical image is visually obvious and clear.

Besides this, when image schemas are applied for specifying the spatial or durative features of the flavor sense, tactility always becomes the primary perception. We consider that the appearance of tactile perception is due to the kinesthetic imagery evoked by image schemas. To be more precise, the flavor being "durative" in certain "positions" results in different qualities tactilely adhering to the space. As can be seen in the examples of a metallic odor as if "your teeth *touched* the iron spoon," the bitter taste of "medicine *stuck* on the palate," and the "acidity of pineapple *punching* the gums," these kinesthetic expressions can easily recall or awaken the resultant tactile senses when conducting the actions. Human nature compels us to empathize with these mentioned motions so that we create the consequent tactile imagery; that is, a compensation for, not a deliberate response to, the cues of motion is involved.

The specification of flavors by using the prototype effect allows the idealized concept in descriptions to be concretized. Mandler (2004, 2005) stated that the perceptual interpretation of visual data "provides the main route of our concept of physical force" and a similar situation occurs for image schemas (cf. Zlatev (2005)). Therefore, compared with metaphors, synesthetic similes require more time in the depiction of images extended from natural perceptual imagery, which allows an audience to engage with the coffee flavors in close proximity using more than just their imagination.

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6.2.2 Multisensory Recollection from Flavor

In our cupping data, there is more than one distinctive perception stimulated. One of these involves crossmodal interactions with the target perception in an imagistic simile based on image schemas. The foremost function of this kind of simile is to create a scenario to broaden the target concept to an abstract. However, the crossmodal mapping highly depends on personal experiences related to the information in the source domain and differences between the speaker's and the listener's perspectives. These mappings are dynamic and fleeting in particular. For instance, when the pungent flavor is described as similar to *a Brazilian lady dancing* on the tongue, besides the visual image that "pops up" due to our natural preference mentioned in the former section, the auditory image of *Brazilian samba (dance)* and the kinesthetic image are evoked from person to person. Moreover, the example of a flavor feeling *as if one is walking into a flourishing garden* evokes a visual scenario and a kinesthetic image (walking). Tactile feelings of "walking" or touching the ground of the garden may be aroused as well. In terms of crossmodal interaction, these examples engage, in fact, one-to-many perceptual mappings.

However, some have argued that these examples involving the PROCESS schema is actually nonperceptual owing to the schema's feature of not being tied to any particular perception (Grady, 2005:38). In my point of view, these examples are partly perceptual and partly not. On the one hand, since the action of entering a garden is regarded as a single motion in context, to separate the perceptual component from the action, for example, the sight of seeing flowers, the hearing of swinging plants, or the texture from touching leaves, for mapping the target domain seems unnecessary. In addition, recalling scenarios requires no specific perception in the source domain for mapping. Consider *jogging in the forest*, in

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which the overall flavor experience is condensed into a scenario of a person jogging in the forest. We cannot be certain which perception of the five senses is specified to be mapped onto the target feeling of flavor. The whole associated action and image in the scenario are activated for the target domain. In other words, all of the components of the scenario work entirely in the foreground to be mapped onto the coffee flavor. Therefore, the mapping is not tied to any perception.

Notwithstanding, these fleeting, one-to-many perception mappings should be regarded as multi-sensory connections rather than non-sensory connections. Namely, although its tendency of different perceptual correspondence is unstable, its capability or indispensability of crossmodality cannot be withdrawn. Consider the example sentence of "the flavor is like walking into Mother Nature, and smelling the freshness of nature," the recollection of several types of perceptual images naturally becomes that of one image. In other words, the synesthetic simile creates a virtual scenario rooted in bodily experience, driving the audience to "see, hear, touch, or feel" the scenario. Undoubtedly, the crossmodal nature of synesthetic similes evokes in the audience a multi-sensory experience rather than a nonperceptual one.

Since it is not an easy task to separate the distinctive perceptions within synesthetic similes, to see the expression as a unified impression stimulating multiple senses seems to be natural and comprehensible. Lastly, we propose that there should be two pathways of viewing the synesthetic similes as a unified percept, namely, synchronically or simultaneously occurring feelings and adjacently occurring feelings in flavor tasting.

The pathway of simultaneously occurring feelings consists of the mixture of the smell, taste, and mouthfeel as a unique percept. Why are these perceptions qualified to be in a unified percept rather than others? The reason lies in their synchronic appearance in flavor

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tasting. As introduced in the previous chapter, the perception of flavor usually stands for the combination of taste and smell, as they are stimulated nearly at the same time during consumption. In the present study, we consider the primary definition of flavor as having feelings of smell and taste at the same time during tasting. As evident in "the burned and bitter taste of *tea-goose*," the linguistic presentation of flavor is often shown as a combination of taste and smell. This mixture of expressing the sensation of a burned smell and a bitter taste in language is probably due to the limited number of taste subtypes.

Admittedly, the Chinese term for the sensation of tasting denotes the combination of smell and taste: ***wei dao*** (味道). This term is a vague term for respectively indicating smell and taste, yet it is utilized commonly in Taiwan. In terms of etymology, the linguistic expression of ***wei dao*** (味道) means the sensation felt by the tongue in tasting and the sensation activated by the nose in smelling as well.

Compared with the synchronic pathway, the pathway of adjacently occurring feelings mainly concerns the preceding or consequent feelings of a direct tasting. Since emotion, previous expectations, cultural experience, perhaps related to comparisons with previous coffee tastings, and mostly imagination are included as factors, this pathway is believed to be more emotional. As we see in example (6.8), the pungency feeling facilitates the imagination of a Brazilian lady dancing on the taster's tongue. This percept of adjacent feelings, therefore, is a combination of dominant crossmodal sensations.

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Chapter 7 Conclusion

Finally, we return to Vroon's (1997) statement mentioned in Chapter 2 to evaluate the conceptualization of flavor in language. It was noted by Vroon (1997) that terms derived from other sensory systems are utilized to describe such senses as smell. Our results show that property descriptions of perceptions such as touch, hearing, or sight are available for flavor depictions, which is similar to what Vroon supposed. In addition, many words describing flavors belong prototypically to substances possessing similar scents. This finding is analogous to Vroon's finding of associated nouns, from which modifiers directly connected to the perception of a smell are generally derived. Most importantly, excluding purely biological or neurophysiological limitations in the verbal expressiveness of flavor experiences, our present data demonstrate a significant number of synesthetic similes utilizing smells of the place, event, and imagined scenarios.

In accordance with our findings and discussions in the previous chapters, we will give a quick review of the main issues and viewpoints elaborated and highlighted in the present study. At the end of this thesis, we pinpoint an analytical network for examining perceptual expressions and classifying crossmodal mappings in language. Further, the suggestions and issues worthy of future investigation are outlined afterwards.

7.1 Recapitulation

In this section, we reexamine the three distinctive synesthetic forms used in the flavor expressions found in our data. As mentioned in Chapter 4, according to our findings, we assume that in terms of the perceptual and conceptual mechanisms that structure the crossmodal descriptions of sensory experiences, there is no certain regulation stipulating that

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crossmodality in linguistic expressions must violate or obey any perceptual directionality reflected in the language. To be more precise, the conceptual structures adopted in sensory descriptions, for example, ICM, figure-ground effect, or Conceptual Metaphor Theory, seem to be overarching frameworks capable of capturing modal convergences and similarities (Binder and Desai, 2011). Indeed, the complicated formations in crossmodal expressions (i.e., synesthetic metaphor, metonymy, and simile) are simply the results of the human cognitive ability to present linguistic representation as an integration of multiple sensory modalities as a *unity of senses* (see Marks, 1978). Thus, we propose that the hierarchical relationships between perceptions reflected in the literature are non-existent.

Despite the non-existent hierarchy, different perceptual "categories" have their preferences in crossmodal interactions. We view their tendencies to match perceptually as a consequence of the different scales of distance between them in the human mind. Thus, the reason why the TOUCH modality is frequently mapped in the source domain onto other perceptual modalities in the target domain to form synesthetic metaphors is because TOUCH is closer in mental distance to the other perceptions.

In terms of the two dominant functions of crossmodal expressions, we assert that perceptions usually function as a unified percept rather than work separately, and thus we should analyze the construction of crossmodal expressions utilizing a panoramic view. In this way, we are able to seek the status of their communicative operations within perception, cognition, and emotion.

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7.1.1 The Shared Mechanism

After having discussed the major findings and issues of the present thesis, we should first bear in mind that whether it is an ontological metaphor, a structure metaphor, or a synesthetic metaphor, each one of the aforementioned metaphors is within the categorization of conceptual metaphors because they all involve the mappings of distinctive domains from concreteness or being perceptually more comprehensible to abstractness in accordance with the relations among the inter-components of the ICM (Lakoff, 1987a).

	Definition	*Basis*
SYNESTHETIC METAPHOR	Perceptual analogy Linked expression	Perceptual similarity Perceptual directionality
SYNESTHETIC METONYMY	Zone activation Embodied conception Firm expression	Foregrounding and backgrounding MORE IS THICK MORE IS HEAVY
SYNESTHETIC SIMILE	Crossmodal simile Imagined scenario Dynamic expression	Imagistic simile IMAGE SCHEMA PROTOTYPE EFFECT

Table 7.1 Crossmodal Expressions in Language

Furthermore, the basic difference between structure metaphors and synesthetic metaphors is that the former concerns the mappings between cognitive concepts, whereas the latter focuses on the comparably perceptual level of mappings between the human senses. Most importantly,

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there is no hierarchical relation or correlated dependency between the two types. In sum, they are both conceptual metaphors with different standards of categorization, based on separate properties of the domains onto which they are mapped.

Synesthetic Metaphor

In the present study, the crossmodal metaphors featuring interactions across TOUCH, SIGHT, TASTE, and SMELL are regarded as *synesthetic metaphors.* Although *synesthetic metaphors*, such as the ACIDITY IS LIGHT metaphor, lack actual pH indices and scientific numbers or data, they are perceptually more comprehensible due to their *perceived relativities*.

Moreover, two tendencies proposed by Williams are proved to be present. First is that the properties possessed by the lower senses tend to serve the source domain, whereas the properties of the higher senses tend to serve the target domain. Second, the lowest sensation (i.e., TOUCH) is the predominant source in terms of the accessibility of crossmodal transfers. A modified directionality of crossmodal mappings in describing flavors is thereafter proposed in the present study to gain a precise understanding of the crossmodal interactions of flavor expressions.

As shown in Figure 5.2, flavor is believed to be the combined percept of SMELL and TASTE, not a subtype sense. We then divide the perceptions into four categories according to the proximity between scientific receptors and linguistic expressions instead of into five categories according to the basic senses.

A distinctive sense, THALPOSIS, is proposed and categorized with TACTILITY due to their identical receptors of sensations on the skin; however, they differ in ways of stimulation. Last but not least, due to their simultaneous stimulation during the act of eating and drinking, and

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their mixed expression in language, smell and taste are included in the same category.

Synesthetic Metonymy

Following the definition of *synesthetic metonymization* by Paradis and Eeg-Olofsson (2013), we find that the crossmodal metonymies present in our data are simply the results of *zone activation*. By "foregrounding" a certain aspect from the property denotation in the context of flavor expressions can a lexicon shift its perceptual aspect to SMELL or TASTE, corresponding to the perception in the target domain.

According to the idea that "language is a representation of human embodiment" from CMT (Kövecses, 2010; Lakoff & Johnson, 1980; Yu, 2008), it is obvious that the intensity of smell and taste perceptions is metaphorized by the intensity modifiers evoking the other perceptions. We thus come to the conclusion laid out in Chapter 5 that the innate conceptual metaphor of MORE IS HEAVY or MORE IS THICK is actually embedded in synesthetic metonymies, allowing the accessibility of shifting aspects.

Synesthetic Simile

The crossmodal mappings of flavor expressions present imagined scenarios through the extra cognitive resource of *associating*. In expressions of synesthetic similes, many perceptions are gathered and recalled from conceptions (i.e., property, event, or subject) during the description of smell and taste. However, the crossmodal interactions are rather vague and ambiguous, and are displayed as a single scenario rather than directly correspondent mappings of perceptions.

The present study states that mainly two pathways of both human cognition and emotion

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are involved in synesthetic associating, and construct a unified percept of flavor, namely, the synchronic pathway of simultaneously occurring feelings during tasting, and the adjacent pathway of preceding or consequent feelings such as expectations and emotions.

The study also shows that it is the action of perspective taking that decides the orientation of crossmodal mappings in the synesthetic association of flavor descriptions. In truth, the comprehension of crossmodal similes typically requires narrative empathy from the audience to understand both cognitive and perceptive contents and feel the speakers' emotions. Narrative empathy, proposed by Keen (2006) as a term representing the sharing of feelings and perspective taking induced by reading or hearing the narratives of another's situation and condition, seems to serve as a mediator between speakers and listeners, allowing listeners to take on certain perspectives to understand identical contexts in this way.

In short, Table 7.1 lists the categorization of crossmodal (or synesthetic) metaphorical strategies. Compared with the fixed expressions of *synesthetic metonymies* and relatively connected formations of *synesthetic metaphors*, the *synesthetic simile* remains dynamic in interpreting multiple and different perceptual views to facilitate the experience of landscapes present in flavor expressions. In fact, besides synesthetic association, which relies dominantly on narrative empathy, in order to facilitate the crossmodal mappings in flavor expressions, empathetic experience in appreciating flavors is a necessary procedure.

7.1.2 Communicative Functions of Synesthetic Expression

When describing the flavor of coffee, basically speaking, two functions are involved in the use of synesthetic metaphorical forms by tasters. To apply synesthetic expressions and render their flavor experiences more vivid for the listeners or to elicit empathetic responses, tasters

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use synesthetic forms to either achieve perceptual comprehension or welcome emotional participation from the audience.

Perceptual Comprehension

The first function based on the connection of the intensity of every perceptual modality allows listeners to understand one perception through another perception or experience. The coffee tasters' detailed depictions of their flavor experiences using associated perceptual feelings based on a similarity of intensity resonate with the audience members who have a similar experience. Those who do not have similar experiences can build a mental image connecting the perceptual features from both modalities.

Emotional Participation

The second function based on the linking of the positivity and negativity of every perceptual modality allows listeners to map one emotion from a certain perception onto another from another perception or personal experience. In this aspect, we view perception as a unified percept of human sensation.

Furthermore, even the elements of oriental culture are found in coffee tasting. Some tasters express that the coffee possesses the traditional Chinese custom of wearing "overcoats with mandarin jackets" (長袍馬褂). Although the image of the clothing is recalled, the perceptual feeling of the clothes is unspecified. Namely, the audience may be confused on whether to associate the flavor with "seeing" the cloth (stimulating sight) or "touching" the cloth (stimulating touch [texture]) or other feelings.

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(7.1) 整體會覺得，第一支的酸味明亮，然後苦韻明顯，有組員覺得像***有長袍馬褂的中國風***。

Overall, the first one has a bright acidity, and an obvious bitterness. Some members have thought that it is like ***the traditional Chinese custom of wearing overcoats with mandarin jackets***.

As if the audience is tasting the same coffee as the taster, crossmodal expressions closely link the abstract imagery with a great deal of cultural experiences and imaginations, which invite the audience to enter the imagined frame on the basis of emotional and sensational dimensions. More importantly, two pathways of both human cognition and emotion are involved in synesthetic expressions, that is, the synchronic pathway of simultaneously occurring feelings during tasting, and the adjacent pathway of preceding or consequent feelings such as expectations and emotions. These trigger the audience to echo the speaker cognitively, perceptually, and emotionally.

7.2 Implications and Prospects

In terms of methodology, by adopting three synesthetic metaphorical forms in the examination of crossmodal expressions of flavor, we are able to conduct a comprehensive analysis of the conceptualization of flavor in language. Moreover, three aspects examined through our theoretical framework respectively correspond to previous findings in researches on flavor descriptions, namely, synesthetic metaphor, zone activation, and imagistic simile in relation to the image schema and prototype effect. In fact, abundant perceptually and conceptually metaphorical expressions are determined according to these three aspects. Again, the consequent findings of conceptual metaphors and crossmodal mappings through the utilization of these three synesthetic metaphorical forms all have their origins in such

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concepts in cognitive semantics and pragmatics as the ICM, active zone, image metaphor, and the Metaphor Identification Procedure of Crossmodal Metaphor and Metonymy (CMMIP).

In discussing the metaphors involved in the study of perceptual descriptions, conceptual metaphor works as a reflection of perception, sensation, and culture. Indeed, as indicated by Ackerman's (2004) "metaphor isn't just decorative language," especially in the perceptual mappings of linguistic expressions, although "colorful language threatens some people" at first, it is essential "to help us detail how we feel, what we once felt, what we can feel." However, taking an overall look at cognitive semantics and contextual environments, we have discovered some issues that still require further development. Besides accounts of conceptual and cultural backgrounds, scientific concerns of flavor as a combination of both taste and smell are included as the main factors in crossmodal expressions. We thus propose that synesthetic metaphors are not simply hard-wired and innate perceptual analogies, "but are generated through semantic processes and fashioned by time and cultural elements, much like other metaphors" (Day, 1996). Human cultures and experience, in this sense, are the foundations for "flavoring" our percept of smell, taste, and flavor.

Lastly, the present study achieves a breakthrough in the construction of a framework for understanding the conceptualization of language and perception. As the speakers of the cupping events are common Taiwanese people, rather than coffee cupping experts, we can gain clear insight into the possible mechanisms of synesthetic expressions, and how they are applied by regular people. Moreover, we propose a potential directionality of crossmodal interactions in flavor expressions, and classify literary synesthesia into three types according to their degree of mapping. Based on our review of previous researches, only a few researches

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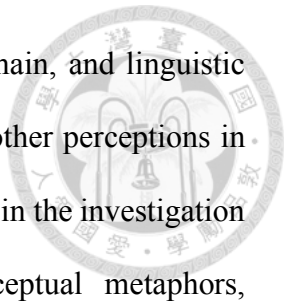

have focused on the metaphorical mappings of flavor in the target domain, and linguistic studies are rarely concerned with the comparisons between flavor and other perceptions in Taiwan Mandarin. We thus reaffirm that the significance of the study lies in the investigation of flavor conceptualization and metaphorization in terms of conceptual metaphors, conceptual metonymies, and synesthetic metaphors in Taiwan Mandarin. More importantly, since previous studies have not reached a consensus on which lower and higher modalities of perceptions are transferred in crossmodal mappings (Paradis & Eeg-Olofsson, 2013), our proposal of crossmodal transfers in flavor expressions certainly turns over a new leaf in the analysis of literary synesthesia and conceptual metaphors.

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