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Understanding Weather Phenomena via Metaphors in Mandarin Chinese: An Investigation from Meteorological Expressions in Cyber News in Taiwan

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Abstract

Metaphor pervades in people's everyday communication but language users hardly perceive them. With the aim to understand how Taiwanese people conceptualise weather phenomena, this study investigates metaphors expressed in Mandarin weather reports in Taiwan with the theory of conceptual metaphor (Lakoff & Johnson, 1980). The study was done via content analysis by accessing the suggested upper concepts of meteorological expressions from Suggested Upper Merged Ontology, Sinica BOW (Ahrens, et al, 2003; 2004). In order to examine weather metaphorical expressions and classify them into different categories, a total number of 673 weather reports were collected from major online news websites in Taiwan. After analysing the data, it was found that language users definitely understand weather phenomena via the features of human beings, attributes of different objects, and even from abstract ideas. As a result, Taiwanese people comprehend metaphors in meteorological expressions through metaphors of personification, objectification, and abstraction.

1. INTRODUCTION

Metaphor pervades in people's everyday communication but it is rarely noticed by language users. Lakoff and Johnson's (1980) theory of conceptual metaphor proposes that metaphor is a way people express and understand an abstract concept through a relatively concrete concept. People's embodiment and different contexts would affect their metaphor production and comprehension (Gibbs, 1993, 1996; Gibbs *et al*., 2004; Stern, 2000). Many studies on different aspects of metaphor have been done, e.g. body-part terms (Tsai, 1994; Tsau *et al*., 2001), economic expressions (Ahrens *et al*., 2003), and colour terms (Liu, 2002), but there has been little investigation into metaphor in Mandarin meteorological expressions in Taiwan. Therefore, this study aims to examine metaphors embedded in weather expressions in Mandarin Chinese and then attempts to classify them by employing Suggested Upper Merged Ontology (SUMO), Sinica BOW (Ahrens *et al*., 2003, 2004; Chung *et al*.,

2004, 2005). In other words, this research studies how Mandarin speakers comprehend weather phenomena through using metaphors.

With the purpose of investigating metaphors from people's everyday communication, the next section reviews the theory of conceptual metaphor (Lakoff & Johnson, 1980) and some previous studies about metaphors (Tsau *et al*., 2001; Ahrens *et al*., 2003). The presentation of linguistic data in this study follows the sequence of Chinese characters, the pronunciation of each character, and the English translation of the example. For instance, in 颱風眼/tai feng yan/the typhoon eye, the Chinese characters 颱風眼 are firstly shown at the beginning. "Tai feng yan" present the pronunciation of each Chinese character. Finally, "the typhoon eye" refers to the English meaning of the Mandarin example.

2. LITERATURE REVIEW

Theory of Conceptual Metaphor (Lakoff & Johnson, 1980)

Metaphor is no longer simply believed as a rhetorical device in language but has an intimate relationship with people's thought and cognition (Lakoff & Johnson, 1980; Gibbs, 1993, 1996; Gibbs *et al*., 2004). The theory of conceptual metaphor describes a systematic way of how people think, allowing them to comprehend one concept in terms of another (Lakoff & Johnson, 1980). For example, the metaphorical expressions about time in English are widely discussed and the conceptual metaphor TIME IS MONEY is found as English speakers associate the concepts of MONEY with TIME. English speakers could conceptualise time in this way because they treat time as a limited, fixed, and valuable resource for everyone. Therefore, some expressions about TIME IS MONEY are formed, e.g. don't *waste* my time, go this way can *save* you more time, and do you *have* time.

For Lakoff (2006, p. 15), "metaphor is a cross-domain mapping in the conceptual system". Mapping is the projection of partial attributes from the source domain to the target domain. Figure 1 demonstrates an image of mapping, which is a one-way projection from the source concept to the target concept. Each circle represents a boundary of a concept and the black dots refer to the features affiliated with the specific concept. The features in the source domain map onto the target domain. That is to say, some attributes in the source domain are borrowed or projected to the target. The main function of metaphor is to achieve understanding (Kövecses, 2002; Lakoff & Johnson, 1980; Su, 2005). Figure 1 also entails that the one-way mapping does not occur among all the feathers because individuals may just select some proportions of a schema to understand the target concept.

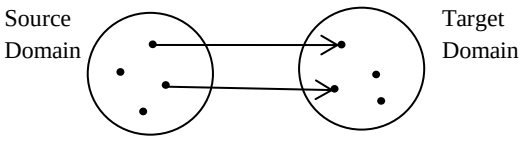

Figure 1. Metaphorical mapping

In the case of TIME IS MONEY, the source domain of the conceptual metaphor is MONEY projecting its attributes, such as valuable and physical entity, to the target domain, TIME. The source domain concepts support the attributes/schemata for people to think of the target concepts. By contrast, the target domain is another concept domain which people incline to comprehend by retrieving their prior knowledge and making inference (Yule, 1996; Kövecses, 2002).

In addition, mnemonics mapping strategy (Lakoff & Johnson, 1980) is proposed to reveal the process of understanding concepts. Mnemonics can be exemplified by the formula ARGUMENT IS WAR (A is B). That is to say, mnemonics mapping strategy can be conceived as target-domain is source-domain, or alternatively, target-domain as source-domain (Lakoff, 2006).

Furthermore, people's conceptual system is based on their references or embodiments (Yule, 1996; Kövecses, 2002, Goschler & Darmstadt, 2005). Embodiments are structured when people meet or interact with the world. A word meaning is derived from people's acts of referring linguistic expressions to their referents and the co-text, which is generated with the utterance and it helps the users infer the meaning effectively (Yule, 1996). Moreover, every experience is based on a specific culture so different individuals living in varied cultures may have diverse viewpoints on an identical thing or event. For example, the linguistic expression which conveys the concept of a jealous look in Chinese is 眼紅 /yanghong/red-eyed, but the same meaning is reflected in the term "green-eyed" in English (Liu, 2002). These two examples show speakers of different languages conceptualise the same concept differently as language speakers employ different colour terms to present the concept of jealousy. In this case, Chinese people employ "red" but English speakers use "green" to express a jealous look.

Language contains both explicit and implicit information (Yule, 1996). Language receivers could easily understand the explicit meaning but for the implicit information, language receivers have to make inference. Inference making is a mental process which makes people understand the relationship among entities, words, and contexts. Language receivers try to infer what the language producers intend to express by the specific referring expressions. The communication will be successful when the language users share the same references and contexts. Otherwise, miscommunication might occur. Besides, individuals are also able to comprehend the entailments and implicatures of language by inference making so metaphor is not only a way for people to understand an abstract concept in terms of a concrete one (Lakoff, 2006) but also an implicit information people have to infer.

The Study of Tsau *et al*. (2001)

Tsau *et al*. (2001) employ prototype theory and radial structure theory to investigate body-part metaphors and discuss cross-culture variations between languages. Their Mandarin linguistic data were mainly collected from Academia Sinica Balanced Corpus, Xinhua Chinese dictionary, and the Chinese website dictionary established by the Taiwanese Ministry of Education. The English data were collected from Collins Cobuild English Dictionary and The American Heritage Dictionary of the English Language. In addition, some up-to-date usages were gathered from television and everyday conversation. Accordingly, Tsau *et al*. (2001) separate and discuss their findings into two categories, the physical body-parts, involving external body-parts and internal body-parts, and abstract body-parts.

The physical body-parts and Metaphors

Tsau *et al*. (2001) find physical body-part metaphorical expressions occur broadly and they can be categorised according to (i) the functions of the body parts, e.g. 眼尖/yan jian/sharp-eyed refers to vision, and (ii) part for the whole, e.g. 數人頭/shu ren tou/count heads. Moreover, Tsau *et al*. (2001) propose the foundations of metaphorical projection of body part metaphors are based on (a) the position of the body, e.g. 山頭/shan tou/the head of a mountain indicating the highest part of the mountain, (b) the shape of the body-part, e.g. 颱

風眼/tai feng yan/the typhoon eye illustrating the eye-shaped structure of a typhoon, and (c) the functions, e.g. 電眼/dian yan/an electric eye describing the detecting function of a device.

Interestingly, the projection of metaphor can create and form new meaning. For instance, people project physical sight onto knowledge, intellect, and mental vision, such as in 他的眼界很高/ta de yan jie hen gao/he has grand vision. Through projection and meaning extension, the body-part phrases may turn into function words. They may become affixes or quantifiers. For instance, when the body-part term 頭/tou/head appears after a noun, verb, adjective, or a locative noun, it will be functionalised, such as 木頭/mu tou/wood. Furthermore, in Chinese speaking culture, many quantifiers are also created from body-part terms, such as 一頭牛/yi tou niu/a cattle and 兩口井/liang kou jing/two wells. Both of the body-part terms, 頭/tou/head and 口/kou/mouth, are functionalised and play as quantifiers in the phrases for counting the quantity.

In addition to external body-part terms, internal body-part metaphors are similarly spoken in people's everyday communication. However, metaphors with internal body-parts have a wider variation across languages because internal organs are invisible and the functions are not as manifest as external organs. For instance, people treat the 心/xin/heart as the most important organ inside one's body so a significant number of metaphors about the heart can be observed in people's everyday conversation, e.g. 圓心/yuan xin/the centre of a circle and 地心/di xin/the heart of the earth. Both of them refer to the central area of something.

The abstract body-parts and Metaphors

Along with physical body-part terms, abstract body-part terms, 精/jing/energy, 氣/chi/air, and 神/shen/spirit, cannot be overlooked in Chinese culture (Tsau *et al*., 2001). Chinese medicine pays much attention to people's internal world and deems a person's body consists of solid parts (physical organs) and fluids (energy and air). Hence, abstract body-part metaphors definitely function to structure Mandarin native speakers' cognition. For example, 氣/chi/air can be understood as an ontological entity. People project many tokens of an entity to 氣/chi/air in regular communication, as shown in the following metaphors:

Air as a fluid: 一*股*氣/yi gu chi/a stream of air

Air as a solid: 財大氣*粗*/cai da chi cu/opulent and arrogant

Air as a resource: *省*點氣力/sheng dian chi li/to save some energy

As it can be seen, although air is abstract and invisible, it can be metaphoricalised as a solid entity, liquid, and a valuable resource. Mandarin speakers can employ the quantifier 股/gu/a stream of, the adjective 粗/cu/thick, and the verb 省/sheng/save to describe air.

The same kinds of metaphor can be used to describe 精/jing/energy and 神/shen/spirit, too. Moreover, Tsau *et al*. (2001) find 精/jing/energy, 氣/chi/air, and 神/shen/spirit are

Chinese language-specific and they are often used in expressions about art, e.g. 這幅畫很傳神/zhe fu hua hen chuan shen/this picture is full of spirit.

The Study of Ahrens *et al*. (2003)

Lakoff and Johnson's theory of conceptual metaphor (1980) motivate many studies in the past decades but Ahrens *et al*. (2003) question the principle of source concept selection on the lexical level. Thus, they combine corpus-based linguistic data, ontology-based representation, and mapping principle as a new approach to examine metaphors. Their purpose is to avoid making mistakes with concept selection caused by the differences among metaphors. Furthermore, the conceptual mapping model of metaphor presupposes that some shared knowledge exists between the source domain and the target domain. Therefore, people can understand the target concept via the source concept.

Ahrens *et al*. (2003) collect 2000 linguistic data focused on 經濟/jingji/economy from Academia Sinica Balanced Corpus. The hypothesis in their study was "each source-target domain paring will have a prototypical instance of mapping as evidence by an individual lexical item that is highly frequent as compared with other mappings" (Ahrens *et al*., 2003, p.37). They employ two ways to define the source concept of metaphors. Firstly, Ahrens *et al*. (2003) assume that the representative source concept is instantiated by a shared upper ontology. For instance, when searching the selected token in Suggested Upper Merged Ontology (SUMO) in the Academia Sinica Bilingual Ontological Wordnet (Sinica BOW), the suggested concept node can be a representative source concept for the searched token. Secondly, they examine the mapping of the metaphorical expression in corpora to find the most frequent mapping.

Sinica BOW (Academia Sinica, 2003) is an integration of WordNet, SUMO, and the English-Chinese Translation Equivalents Database. It functions as a bilingual dictionary or WordNet between English and Chinese, and a bilingual lexical access to SUMO. It also provides several methods for researchers to broadly access and combine data from lexical, semantic, and ontological aspects. Four advantages are suggested by using Sinica BOW, (1) both English and Chinese can be investigated, (2) the investigators can easily access the logical structure form WordNet or SUMO by using with words or conceptual nodes, (3) multiple linguistic indexing is built in to allow additional versatility, and (4) domain information allows another dimension of knowledge manipulation. With those benefits of employing Sinica BOW, Ahrens *et al*.'s (2003) methodological procedures for data analysis followed the four steps: (a) target word selecting, (b) corpus searching, (c) data sorting, and (d) assessing the data in WordNet and SUMO.

Accordingly, after the data collection was done, the selected metaphorical tokens were highlighted and further investigated via WordNet and SUMO. The empirical prototype hypothesis could explain most of the mappings, except for the ECONOMY IS WAR conceptual metaphor. Ahrens *et al*. (2003) explain that WAR is a sub-concept of competition so the concept of war does not appear when using SUMO, but COMPETITION instead. In addition, the conceptual metaphors in respect of economy include ECONOMY IS A PERSON because a person's life cycle, e.g. birth, growth, and death, is similar to the growth cycle of economy; ECONOMY IS A BUILDING because both economy and building have structures; and ECONOMY IS A COMPETITION as both of them share the attribute of strength to support or defeat something.

Ahrens *et al*. (2003) strongly suggest employing this kind of ontology-based and corpus-driven approach to analyse conceptual mappings between the source and the target domains because the shared upper ontology is designed to present the common knowledge

structure of human beings. Researchers will be assisted because using ontology to do research is more objectively when selecting the source concept.

In summary, Lakoff and Johnson's (1980) theory of conceptual metaphor denotes that people's conceptual system is metaphorical because they can understand one concept in terms of another. Many studies about metaphor have been done. For instance, Tsau *et al*. (2001) investigate the human body-part metaphors and find both physical and abstract body-part terms are employed in metaphors across languages. They also suggest that the base of many metaphorical expressions is mainly related to people's embodiment because culture variation can influence the uses of metaphorical expressions. Besides, Ahrens *et al*. (2003) demonstrate an ontology-based approach and suggest researchers studying metaphors by employing Sinica BOW to avoid making mistakes on source domain selection. With those theories in minds, the researcher in the present study assessed weather metaphors by employing Sinica BOW and discussed them from both the theory of conceptual metaphor and pragmatic perspective.

3. METHODOLOGY

In order to completely collect metaphors of meteorological expressions from the four seasons of a year, a total number of 673 weather reports were collected from January to December in 2006. They were collected from Professional Technology Temple (PTT) which is the most famous Mandarin Bulletin Board System (BBS) in Taiwan. The news was gathered from its sub-board, TY-Research, which has much meteorological news transferred from YahooKimo! News, Ettoday News, BBC, FTV, CAN, EPA, and AFP.

As indicated, the purpose of the present study is to examine the metaphors used in Mandarin meteorological expressions in Taiwan. Content analysis, which is defined as "the study of the content with reference to the meanings, contexts and intentions contained in messages" (Elo & Kyngäs, 2008; Prasad, 2008, p. 1), was employed to analyse the collect linguistic data of weather reports. Additionally, the present study followed Ahrens *et al*.'s (2003) research steps to analyse the data. Accordingly, the collected data were firstly carefully examined to define the metaphorical tokens used in weather reports. Next, the selected metaphors were sent and searched in Sinica BOW. For instance, the metaphorical expressions were investigated via WordNet, and then the sense provided for the metaphors were examined. Thirdly, the metaphorical token was surveyed by examining the SUMO node, which is manually connected with WordNet allowing assessing the SUMO explanations directly. For example, the researcher searched the metaphorical expression 腳 /jiao/foot in WordNet and got the WordNet sense "foot" with the SUMO node showing "BodyPart". Investigating the SUMO definition in a more elaborative way, the upper concept node of the metaphorical expression 腳/jiao/foot is traced. The SUMO node for 腳/jiao/foot refers to "Organism". Hence, it suggests that when the readers read the meteorological expression, 艾維尼颱風的前腳剛走…/ai wei ni tai feng de qian jiao gang zou…/the typhoon's front foot just left… (Yahoo! KimoNews, 2006), the readers may get the context of an organism or a person and unconsciously comprehend the expression through the context. The expression may create a person's image in the reader's mind. In other words, the reader personalises the weather phenomenon as it is a human being.

4. DISCUSSION

After collecting and analysing the data, metaphor in Mandarin meteorological expressions can be majorly categorised as metaphors of personification, metaphors of objectification, and metaphors of abstraction. Personification includes body-part metaphors and body-motion metaphors (Tsai, 1994; Tsau *et al*., 2001). Objectification contains wider usages, as almost everything in the world, e.g. water, money, plants, fire, and buildings, can become the source domain in a conceptual mapping process. Metaphors of abstraction are defined as the identification of an abstract concept by assigning its qualities of another abstract concept, such as war, space, and disease, which create mental images for people to perceive the target concepts. For example, people may think of the aggressive feature of a typhoon because it brings negative influence or huge disaster so the typhoon may cause harm to them.

Metaphors of Personification

When analysing the data, it is found that the features of human beings largely appear in the description of weather phenomena in Mandarin Chinese. Personification refers to "a figure of speech by which animals, abstract ideas, or inanimate things are referred to as if they were human" (Baldick, 2009). The researcher found that there are many metaphors related to the terms of human body-parts and body motion in Taiwanese online meteorological expressions, such as 前腳/qian jiao/front foot, 走/zou/walk, 扁頭/bian tou/flat-shape head, 颱風眼/tai feng yan/typhoon eye, 跑/pao/run, 起步/qi bu/start a step, 誕生/dan sheng/born, 來/lai/come, 變臉/bian lian/change face, 徘徊/pai huai/move around, 生命力/sheng ming li/vitality, and 攀升/pan sheng/climb. By assessing those metaphorical expressions in SUMO, these tokens are related to the concepts of BodyPart and BodyMotion. The features of a human being are largely transferred to weather phenomena in Mandarin Chinese because people try to understand abstract weather via human attributes. For instance, Mandarin speakers employ human body-part terms to describe a weather phenomenon because they may to some extent want to create a more vivid image in the language receivers' minds to further help their understanding. Furthermore, body-part metaphors are widely discussed in Tsau *et al*.'s (2001) study. The body-part terms appearing in the meteorological expressions are majorly based on the functions or the shape of the organs. Therefore, a typhoon can have legs, eyes or a flat head. It can also walk, run, and move around a specific place.

To sum up, the above metaphorical expressions indicate that weather phenomena can be personalised by projecting the attributes of human beings to various weather system in Mandarin Chinese. The researcher also found that both the physical body-parts, e.g. 前腳/qian jiao/front foot, and abstract body-part metaphor, such as 生命力/sheng ming li/vitality, are used in the description of weather phenomena (Tsau *et al*., 2001). The BodyPart and BodyMotion SUMO nodes suggest that Mandarin speakers project the features of human body organs and behaviours to comprehend the shape, the movement, or the power of the weather phenomena (Lakoff & Johnson, 1980). The weather reporters are inclined to employ some of those terms to form a mental image or context of the target weather phenomenon in the readers' minds (Yule, 1996) in order to assist them to understand both the weather system and the implicature of the metaphorical expression.

Metaphors of Objectification

Like the concept of human beings can be transferred to weather phenomena, attributes of nonhuman beings are also commonly borrowed to show different aspects of weather in

Mandarin Chinese in Taiwan. The metaphors of objectification refer to the projection of the attributes of a nonhuman object onto a target in order to describe or comprehend the target concept. By assessing the weather reports in 2006, the researcher found that metaphors referring to meteorological phenomena can be presented through the concepts of container, plant, building, money, fire, and water. For instance, when talking about the weather with the expressions 挾帶/xie dai/bring, 挾著/xie zhe/hold, or 沙塵帶菌/sha chen dai jun/dust brings bacteria, the image of a container is formed. It apparently entails that people to some extent believe the weather can bring things from one place to another. In reality, the objects which can be brought by the weather are mostly mist, sand storms, rain, and bacteria, according to the Mandarin weather reports in 2006. The function of a container is applied to the weather, giving it the power to store things and bring them from one place to another place (Ahrens *et al*. 2003, 2004; Chung *et al*., 2004, 2005; Kövecses, 2002; Lakoff & Johnson, 1980; Su, 2005).

Furthermore, the concept of water can be conceived as money. People who grow up in Mandarin speaking cultures frequently consider water as a symbol of money. This kind of metaphor definitely can be found in the weather reports in Taiwan. For example, the metaphorical expressions, 進帳/jin zhang/to earn money and 儲水/chu shui/to store water, reveal that people think water or rain in terms of money and the reservoir is the bank for water. Water is deemed valuable because every creature needs it to maintain their lives. Some utterances with the conceptual metaphor WATER IS MONEY are used in people's everyday life, such as 珍惜水資源/zhen xi shui zi yuan/to treasure water resources, 不要浪費水/bu yao lang fei shui/don't waste water, and 水資源財/shui zi yuan cai/water resource money. These money metaphors are similar to the examples discussed along with TIME IS MONEY conceptual metaphor (Lakoff & Johnson, 1980, pp. 7-8), e.g. "you are wasting my time" and "this gadget will save you hours." Hence, the researcher suggests that the valuable quality of water can create the image of money in Mandarin speakers' minds so Taiwanese people are able to understand weather phenomena in terms of the concept of money.

Besides, the concept of building is found in the description of weather phenomena, too. For instance, 颱風結構/tai feng jie gou/the structure of typhoon borrows the attribute of configuration, which is embedded in the source concept, building. Similar to the conceptual metaphor, THEORIES AND ARGUMENTS ARE BUILDINGS (Kövecses, 2002), people have to carefully construct the foundation of an argument to support the ideas. Otherwise, the argument will collapse if its foundation is too weak. A building has to be solid in order to stand for a long time and protect its residents. When people intend to describe the structure of a typhoon, they may form the context of building to show the strength of the weather system. If the structure of the typhoon is firm, it may cause great damage to human beings when it goes pass their homeland. While a stronger argument defeats other arguments, a stronger typhoon may cause acuter problems.

Interestingly, several noun phrases, which can be the names or the descriptions of weather phenomena, are already metaphorical expressions via objectification, e.g. 熱浪/re lang/hot weave, 寒流/han liu/cold current, 火苗/hou miao/fire seedling, 火海/hou hai/the sea of fire, and 沙海/sha hai/the sea of sand. The researcher suggests this kind of expression as "partial metaphor", which is defined as a simple word that retains the quality of the semantic head and the other part is the source domain creating the visual contexts to describe the semantic head. For instance, the semantic head of 火海/huo hai/the sea of fire is 火/hou/fire

and the other part, 海/hai/the sea, provides the visual clue for people to imagine the context of a wide range of fire. The head of this partial metaphor still remains the same, which is fire. It is not converted to another concept.

Likewise, 熱浪/re lang/hot weave and 寒流/han liu/cold current are both the terms describing air flow. The semantic heads in each phrase are 熱/re/hot and 寒/han/cold portraying the degree of temperature. In these cases, people use water flow to describe air flow and to understand the movement or status of the air mass. People borrow the motion of waves to describe the activity of the hot air flow, which comes wave by wave. Besides, the concept of water current is projected in order to comprehend the movement of cold air masses. Because the context of water flow helps people realise the movement of the invisible air mass, it implies the conceptual metaphor AIR FLOW IS WATER CURRENT.

Moreover, the concept of plant can be transferred to describe weather phenomena, too. For example, 火苗/hou miao/fire seedling is a metaphorical expression whose semantic head is 火/hou/fire and it is understood by the shape and growing process of the baby plant, 苗/miao/a seedling. The spread of the fire resembles the biological processes of a plant, which grows up from a seed into a seedling, from a young plant to a huge plant, and finally expands to a forest. In addition, more metaphorical expressions related to the plant metaphor can be found from online weather news, such as 火種/huo zhong/a fire seed and 野火快速蔓延/ye hou kuai su man yuan/the bush fire rapidly spreads. The SUMO node of 蔓延/man yan/spread is "Growth" which refers back to biological development. When people describe fire by saying 蔓延/man yan/spread, it means the fire has biological development process. In this case, fire is similar to a plant as it can grow up, become larger, and further cause tougher problem. Investigating with 火苗/hou miao/fire seedling, 火種/huo zhong/a fire seed, and 蔓延/man yan/spread, these three metaphorical expressions entail the conceptual metaphor FIRE IS A PLANT.

Finally, the concept of sea can be accessed in Taiwanese weather reports, e.g. 火海/hou hai/the sea of fire and 沙海/sha hai/the sea of sand. The semantic heads in the former and latter are 火/hou/fire and 沙/sha/sand respectively. The concept of the second word, 海/hai/sea, is employed to provide the visual image of a wide range of area. Accordingly, 火海/hou hai means a huge range of fire and 沙海/sha hai indicates a wide scope of sand. Both terms not only entail the measure of area but also the quantity of the semantic heads.

Metaphors of Abstraction

The researcher found personification and objectification cannot cover all the types of metaphor collected from Mandarin weather reports so the third category, which is metaphor of abstraction, is employed to cover the other metaphorical expressions. A metaphor of abstraction is one that defines a concept by giving it the status of another abstract concept. In some cases, people can only "illuminate" the meaning with other abstract concepts. That is to say, people may comprehend the target concept through the images or contexts formed by another abstract concept, such as war, space, or disease. For example, the expressions, 洪災惡化/hong zai e hua/the flood deteriorates and 交通癱瘓/jiao tong tan huan/the traffic paralyses, are used to describe the situation of natural disasters caused by acute weather

phenomena. The SUMO concept nodes suggest that when people use 惡化/e hua/deteriorate and 癱瘓/tan huan/paralyse to report weather system, they treat the weather phenomenon as "disease" or "a syndrome". Everyone has the prior knowledge that bacteria may cause people to fall ill. Accordingly, floods and dust can be thought as varied bacteria because they may bring disaster, e.g. 洪災/hong zai/floods and 沙塵暴/sha chen bao/dust storms, to human beings. As a result, meteorological phenomena are to some extent seen in terms of different diseases as they may negatively cause things worsen and affect people's lives.

Furthermore, war metaphor is found in weather reports in Taiwan because the coming or the passing of a weather system can be described with various terms which are used to describe a battle. For instance, 摧殘; 蹂躪/cui can; rou lin/ruin, 襲擊/xi ji/attack, 搏鬥; 對抗/bo dou; dui kang/fight against, 戰役/zhan yi/war, 失敗/shi bai/lose, 來襲; 侵襲/lai xi; qin xi/invade, 防颱/fang tai/to protect something from a typhoon, and 破壞/po huai/break are observed from online weather reports. When these metaphors are expressed out, they establish the context that the weather phenomenon is an aggressive group of army, who is going to invade a place. The coming weather system may bring various weapons, e.g. rain and wind, and cause disasters destroying or attacking the patients, e.g. people and their mother country. The weather assails and then people have to defend or to fight against the weather. It builds the image of war between the weather and humans. According to SUMO, those metaphorical expressions are in line with the concept of "Contest". The event of war basically has to take place between two sides of group as they attack and defend with each other. In the case of weather reports, the weather and human beings occupy the two sides. On the one hand, the weather is the invader who attacks humans and their homeland. On the other hand, human beings have to undergo or fight with the heavy rain, strong wind, and other disasters brought by the weather. Thus, people treat the coming weather system as an army because the weather phenomenon may lead damages and influence people's lives and properties. The above context resembles a war between two militaries so the researcher suggests that war metaphor is used in weather reports.

Finally, the concept of time is often spatialised and then comprehended. From the collected online weather reports in Taiwan, 入春/ru chun/enter the spring, 入夏/ru xia/enter the summer, 入秋/ru chiu/enter the fall, and 入冬/ru dong/enter the winter are accessed. The verb 入/ru shows the action of enter a place or a space. The four phrases imply that the concept of time can be understood as space. In other words, seasons are metaphoricalised as rooms where people can walk into and leave. When one goes into a space, it means one arrives somewhere. When the season alternates, it means people leave one space and enter next space (season). The results show that a season is seen as a space and the conceptual metaphor TIME IS SPACE can be suggested using in the Taiwanese weather reports.

To be brief, metaphors can be found in Mandarin meteorological expressions in cyber news in Taiwan and they can be classified into metaphor of personification, metaphor of objectification, and metaphor of abstraction. Lakoff and Johnson's (1980) theory of conceptual metaphor and Sinica BOW (Ahrens *et al*., 2003, 2004; Chung *et al*., 2004, 2005; Academia Sinica, 2003) function in the data analysis and suggest many objective source concepts, such as human or nonhuman objects, to interpret and infer the metaphorical expressions in Taiwanese weather reports. People certainly understand weather phenomena in terms of another concept, e.g. money, war, plant, human, and etc. For metaphor of personification, both physical and abstract body parts are employed in the online news reports (Tsai, 1994; Tsau *et al*., 2001). In addition, in order to successfully understand metaphor,

people have to make inference and retrieve their prior knowledge because they can hardly get the meaning from the linguistic level of the metaphorical expression (Yule, 1996; Kövecses, 2002, Goschler & Darmstadt, 2005). Conceptual mapping is thought as a kind of inference making as the language users have to use any of their learnt experience or knowledge to grasp the meaning, the implicature as well as the entailment of the metaphor (Gibbs, 1993, 1996; Gibbs *et al*., 2004; Stern, 2000). Besides, in light of the news reporter's different point of views on weather phenomena, various metaphors may be employed in the description of the news article. The language receivers have to attain the speaker's intention embedded in the metaphorical expression to fully understand the meaning.

5. CONCLUSION

Based on the purpose of this study, which was to explore which types of metaphors are used in Taiwanese cyber weather reports, the researcher collected 673 weather reports from some Taiwanese major news websites from January to December in 2006. Content analysis and Sinica BOW were employed to analyse the collected data and found that Taiwanese absolutely understand metaphorical expressions in weather reports through varied concepts. According to the findings and the suggestions from SUMO, metaphors in Mandarin meteorological expressions consists of metaphors of personification, metaphors of objectification, and metaphors of abstraction. Mandarin speakers can borrow or transfer various attributes from persons, nonhuman objects and abstract concepts to comprehend weather phenomena.

The present study has some limitations which may influence the findings and discussion. For example, although Sinica BOW, including WordNet and SUMO, is introduced and suggested by Ahrens *et al*. (2003, 2004) and Chung *et al*. (2004, 2005) as a tool to define the source concept in a metaphor study, it is not a fully-constructed database. Some metaphorical expressions cannot be assessed from such a database. The researcher has to seek for helps from some previous studies to make an appropriate source concept selection. Furthermore, the combination of metaphor varies but the present only discuss the weather metaphors from a cognitive perspective. In other words, it does not investigate the metaphor of weather by assessing its morphological components. Future research can be done with the morphological structure of metaphors and to further discover the relationship between people's reading habit and their understanding of metaphors.

REFERENCES

Academia Sinica. (2003). 中央研究院中英雙語知識本體資料庫 [The Academia Sinica Bilingual Ontological Database]. In. Taipei, Taiwan: Academia Sinica.

Ahrens, K., Chung, S. F., & Huang, C. R. (2003). Conceptual Metaphors: Ontology-based Representation and Corpora Driven Mapping Principles. [Electronic version] In the Proceedings of the ACL Workshop on the Lexicon and Figurative Language. pp. 35-41.

Ahrens, K., Chung, S. F., & Huang, C. R. (2004). From Lexical Semantics to Conceptual Metaphors: Mapping principle verification with WordNet and SUMO. [Electronic version] In Donghong Ji, Kim Teng Lua, and Hui Wang (Eds). Recent Advancement in Chinese Lexical Semantics: Proceedings of 5th Chinese Lexical Semantics Workshop (CLSW-5). Singapore: COLIPS. pp. 99-106.

Baldick, C. (2009). *The Oxford Dictionary of Literary Terms*. Oxford: Oxford University Press.

Chung, S. F., Ahrens, K., & Huang, C. R. (2004). Using WordNet and SUMO to determine source domains of conceptual metaphors. [Electronic version] In Donghong Ji, Kim Teng Lua, and Hui Wang (Eds). Recent Advancement in Chinese Lexical Semantics: Proceedings of 5th Chinese Lexical Semantics Workshop (CLSW-5). Singapore: COLIPS. pp. 91-98.

Chung, S. F., Ahrens, K., & Huang, C. R. (2005). Source domains as concept domains in metaphorical expressions. [Electronic version] *Computational Linguistics and Chinese Language Processing. 10(4)*, 553-570.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of advanced nursing, 62*(1), 107-115.

Gibbs Jr., R. W. (1993) "*The contemporary theory of metaphor."* In Adnrew Ortony (ed.) Taking metaphor out of our heads and putting it into the cultural world. (2nd ed.). Cambridge: Cambridge University Press. pp. 145-166.

Gibbs Jr., R. W. (1996). Why many concepts are metaphorical. *Cognition. 61*, 309-319.

Gibbs Jr., R. W., Lima, P. L. C., & Fracozo, E. (2004). Metaphor is grounded in embodied experience. [Electronic version] *Journal of Pragmatics. 36*, 1189-1210.

Goschler, J., & Darmstadt, TU. (2005). Embodiment and body metaphors. [Electronic version] Metaphorik.de 09/2005. Retrieved January 10, 2007, from http://www.metaphorik.de/09/goschler.pdf

Kövecses, Z. (2002). *Metaphor: A practical introduction*. N.Y.: Oxford University Press.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.

Lakoff, G. (1993). "The contemporary theory of metaphor." In Adnrew Ortony (ed.) *Metaphor and thought*. (2nd ed.). Cambridge: Cambridge University Press. pp. 202-251.

Lakoff, G. (2006). Conceptual metaphor: The concemporary theory of metaphor. In D. Geeraert (Ed.), *Cognitive linguistics: Basic reading* (pp. 185-238). Berlin: Walter de Gruyter CmbH & Co. KG.

Liu, Ida Yi-ping. (2002). *A cognitive approach to the understanding of the six basic colour words in Mandarin Chinese*. Un-published master's thesis, National Taiwan Normal University, Taipei, Taiwan, R.O.C.

Prasad, B. D. (2008). Content Analysis: A method in Social Science Research. In D. Royse (Ed.), *Research methods in social work*: Cengage Learning.

Stern, J. (2000). *Metaphor in context*. London: The MIT Press.

Su, Yi-wun. (2005). *Metaphors and Cognition*. Taipei: NTU Press

Tsai, Li-chong. (1994). *The metaphor of body-parts in Chinese*. Un-published master's thesis, National Tsing Hua University, Hsinchu, Taiwan, R.O.C.

Tsau, Fong-fu, Tsai, Li-chong, & Liu, Siou-ying. (2001). *Body and metaphor: The primary interconnection between language and cognition.* Taipei: The Crane Publishing Co. LTD.

Yule, G. (1996). *Pragmatics*. N.Y.: Oxford University Press.

Yahoo!KimoNews. (2006, July 9). 一颱剛走 又有熱帶低氣壓. Retrieved August 16, 2006, from http://tw.news.yahoo.com/060709/15/3c0d0.html

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