A TIME FOR ANGER: CONCEPTIONS OF HUMAN FEELING IN MODERN ENGLISH, A. D. 1500-1990

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A TIME FOR ANGER: CONCEPTIONS OF HUMAN FEELING IN MODERN ENGLISH, A. D. 1500-1990

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CHAPTER I

Introduction

The chapter will introduce the major theoretical and methodological topics that motivate and inform this dissertation research project. These topics include Cognitive-Functional Linguistics, conceptualization, cultural models, and time. Each of these ideas will be discussed in turn.

Cognitive-Functional Linguistics

The research study discussed in this dissertation combines two traditionally distinct views of language. One view is that language reflects the way in which the human mind is organized: this is the cognitive view. The second view holds that language serves a pragmatic, communicative purpose: this is the functional view. These two perspectives are viewed by some linguists as being in conflict; however, others believe that previous research (and the results of the current study) shows them to be complementary. That is, cognition and pragmatics work together to comprehend and produce utterances appropriate to the form, content, and social constraints of a particular language, culture, speech community, and time period. The logical result is that both cognition and function are essential to understanding language. The combined perspective is termed the *cognitive-functional* point of view.

This perspective, which has been employed primarily in the field of Cognitive Linguistics, has several fundamental assumptions. The following four principles, accepted by the cognitive linguistics research community, are important for the current study (See Geeraerts, 2006, for a complete review of the principles).

1. The overall goal is to investigate the human mind via language.
2. Language consists of *symbolic units,* or conventional form/meaning pairings, which include syntactic, morphological, semantic, pragmatic, and sometimes phonological information.
3. Meaning is the fundamental characteristic and purpose of language.
4. Meaning is a product of human experience in the world and the patterns of use of linguistic expressions.

The first assumption shown above, that the purpose of language analysis is to explore the human mind, is shared among many theorists and researchers in a variety of fields, including cognitive science, neuroscience, psychology, computer science, artificial intelligence, literary studies, and linguistics. In linguistics, the generative grammar theory developed by Noam Chomsky (1957, 1965) has had a particular focus on the relation between the human mind and language. The investigation of the mind (Chomsky, 1975) was one of Chomsky's major contributions to the field of linguistics. As a result, since the 1960s cognitive-functionalism has contributed important insights to understanding how the mind works and stores information. To accomplish this goal, cognitive-functionalism draws on theory and research in cognitive psychology (as well as other fields centered on human cognition), placing linguistics squarely within research activity on cognitive structure. Before Chomsky, linguistics was more closely aligned

with anthropology and history, fields which study language in its social context. The significant shift in focus to the human mind prompted psychologist Michael Tomasello (1998) to argue that cognitive-functionalism is "the new psychology of language" (p. xx)

Due to Chomsky's shift in focus from social context to cognitive structure, generative grammar is not a theory of language *function* (i.e., language use by native speakers) because generative grammar focuses on formal grammatical rules, separate from the function of meaning (Tomasello, 1998). Meaning is not viewed as theoretically important in Chomskyan linguistics; as a result, semantic and pragmatic aspects of language are often not analyzed in research because semantics and pragmatics are based in the language user's idiosyncratic, situational *performance*, rather than in stable cognitive *competence*. In generative grammar, cognitive competence is the primary object of study.

Chomsky further divides grammar (the structure of language) into two distinct parts: aspects that are claimed to be necessary to understand the mind/language relation (called the *core*), and those which are ancillary to that pursuit (called the *periphery*). Syntax, morphology, and phonology are core aspects, and semantics and pragmatics are peripheral. Thus, generative grammar theory partially accepts assumption #2, that language consists of conventional form/meaning pairs called *symbolic units*, but the theory does not accept the related principle that all aspects of language are important for the study of the mind.

That semantics and pragmatics, due to their focus on idiosyncratic meaning, are not accepted for study in generative grammar is made clear in Chomsky's further rejection of principle #3—meaning is the fundamental characteristic of language.

Conversely, cognitive-functionalism fully accepts the principle by collapsing the competence vs. performance and core vs. periphery distinctions to put all aspects of language on equal footing, and asserts as a fundamental principle that "language is all about meaning" (Geeraerts, 2006, p. 3). Thus, in contrast to generative grammar, cognitive linguistics declares that all aspects of linguistic structure are meaningful and thus every aspect of language is available for systematic investigation.

Finally, generative grammar and cognitive-functionalism diverge concerning the sub-field of semantics (the study of linguistic meaning) in assumption #4, which concerns how meaning in language is generated. During the 20th century, theory in semantics focused on formal rules, including *truth conditions,* for applying meaning in the real world: cognitive categories of meaning were based in knowledge of the objective, physical world (called *classical categories*). In contrast, cognitive-functional theory views cognitive categories of meaning as developing through the human subjective perception of the world and the linguistic behavior of the individual language user (called *natural categories*). In sum, cognitive linguists diverge fundamentally from Chomsky and his generative grammar theory as well as the theory of formal semantics concerning the relationship between the mind and language--the major differences include what aspects of language should be studied, the role of meaning in language and how meaning is created. As mentioned previously, in the field of linguistics, the sub-field of cognitive linguistics (hereafter, CL) accepts all four of the assumptions discussed above, and the current study accepts them as well.

Conceptualization

As a study in CL, the current research project analyzes the complex theoretical construct, *conceptual metaphor* (CM), in both its cognitive and functional aspects, a construct developed by George Lakoff and Mark Johnson (1980, 1999). A CM is not a linguistic form; as Lakoff (1986) explains, it is a "figure of thought"—a cognitive structure—rather than a linguistic one. CMs are formed by a person's experience in the physical world (termed *embodied realism*, or *bodily experience*). The human mind, situated in a biological body, takes the visual, auditory, tactile, and other information that is gathered by perceptual processes in everyday experience and produces *cognitive conceptualizations*, or meaningful, thought-based interpretations of experience.

Lakoff and his colleagues claim that these conceptualizations provide the cognitive structure for interpreting new experience. For example, when a person expresses anger, his or her body becomes warm, the skin turns red, and the person shakes the fists at the person or circumstance that has caused the anger. Over many repetitions of the experience, a CM called ANGER IS A HOT FLUID IN A CONTAINER (Lakoff, 1987; Lakoff & Kövecses, 1987) is said to form and becomes part of the cognitive structure in the mind of the experiencer (Note: in CL notation, small capitals are used to denote a cognitive conceptualization, generally in the form ABSTRACT CONCEPT IS CONCRETE ENTITY). Essentially, the CM *maps* the abstract concept of anger onto the concrete entity of a container of hot fluid (which references the human body and its fluids, such as blood). The HOT FLUID CM is in turn used to interpret new experiential situations; for example, when a friend becomes angry during a conversation, a *metaphoric expression*, such as "His blood boiled," is employed to interpret the experience via the CM. In this

way, cognitive concepts are formed by repeated everyday experience and are later expressed through language to interpret new experience. Thus, for Lakoff, et al., embodied experience leads to conceptualization, and conceptualization later becomes semantic meaning in linguistic expressions; for some other cognitive linguists, the process is characterized by stating that conceptualization equals semantic meaning (Langacker, 1986).

The ability which language possesses to express non-linguistic, cognitive conceptualizations has made linguistic data the primary means in CL to investigate aspects of the human mind within one language or cultural group. Moreover, using language for this purpose has wider implications: since conceptualization is a universal cognitive process of human beings, comparing the CMs of various languages leads to the discovery of the *universal* aspects of human experience, cognition, and language. Though individual human experience is subjective, some experiences are seminally important to everyday life, especially experiences of the physiological body such as breathing, walking, and expressing emotions. These fundamental experiences, required for survival in the world, are *intersubjective*; that is, though such events are experienced individually, the meaning derived from them is shared among all human beings because all humans have the same fundamental experiences. Thus, the HOT FLUID CM is considered by Lakoff, et al. to be ubiquitous across languages and cultures, serving as evidence for the *universal* and *pre-cultural* nature of cognitive conceptualization and of CMs. In sum, Lakoff and his colleagues employ language data with the goal to investigate the universal, intersubjective, cognition-based interpretations of human experience; analysis of CM is therefore one method in CL for studying the human mind.

Cultural Models

Though conceptual metaphor theory primarily focuses on language data to study cognition, language is not the only avenue for studying cognition. CL as a research field acknowledges the role of other types of knowledge in conceptualization, including social practices and situational context—that is, *culture* (Kövecses, 2005; Langacker, 1994). CL theorists have characterized the relationship between cognition and culture as *encyclopedic* and *non-autonomous* (Geeraerts, 2006, pp. 4-5); in order to interpret each new experience, a person brings to bear all past concepts learned (i.e., meaning is encyclopedic) and the concepts learned include cultural and social ideas which are an integral component of the conceptualization (i.e., meaning is non-autonomous). Therefore, meaning fundamentally includes *cultural knowledge*.

Culture is often defined as local (i.e., non-universal) knowledge of social practices in a particular speech community, and such a definition implicitly assumes that culture has little effect on cross-cultural universals of cognition. For example, Kövecses (2005), a CM researcher, defined *culture* "as a set of shared understandings that characterize smaller or larger groups of people" (p. 1); the understanding is specific to a particular local group and is not typically shared with other groups. However, defining culture as local knowledge obscures the fact that culture also has a universal aspect: each individual has an experience of culture, just as each person experiences his or her own physical body. Just as cognition is intersubjective and universal, cultural experience exhibits these characteristics as well, producing knowledge of fundamental concepts that receive detailed specification in a particular language. These fundamental concepts govern the

ways in which a person perceives the world, and that perception in turn affects the meaning and use of language.

An example will show the universal nature of cultural knowledge. Heine (1997) discusses the two major types of deictic orientation that are found in the world's languages. Deictic orientation refers to how the speaker is aligned in physical space in relation to another object; that is, how the speaker perceives a *scene* in the physical world (Note: The concept of an experiential scene which serves as the basis for conceptualization is a fundamental notion in CL—see Chapter 2)..

The two types of deictic orientation found in the world's languages are termed "face-to-face" and "single-file," and each type characterizes a different perspective on viewing a scene and orienting two separate objects in relation to the speaker. Face-to-face deixis orients the two objects as "facing" the speaker—i.e., the portion of the objects termed the "front" (in the language) is visible—whereas single-file orients the objects so that the "back" portion of the objects are viewable by the speaker. Heine's examples (1997, p. 12) of the two deictic orientation types, for a scene in which a box is placed between the speaker and a distant hill, are shown below (Note: The speaker is looking toward the objects).

Face-to-face: *The box is in front of the hill.*

Single-file: *The box is behind the hill*.

In the first case, the speaker looks on the scene and characterizes the objects as oriented towards her, whereas in the second the speaker sees the objects as oriented away from her. The human experience of the physical scene is the same across all languages, yet languages which differ in deictic orientation system *construe* (interpret) the scene in

radically different ways; the different construals lead to different perceptions of the scene, and the evidence for these different perceptions are found in language. Languages which employ different types of deictic orientation simply choose one which is line with the cultural norms and values of the speech community, and the choice is encoded in linguistic structure, meaning, and use.

Specifically, the face-to-face and single-file orientation types contribute to the construal of deixis in language because 1) deixis requires the employment of one of the two possible orientation types; 2) both types are culturally specified; and, 3) one type is not privileged over the other as "typical" (i.e., *prototypical)* in the world's languages. Without a culturally-specified model, there is no basis on which to choose one orientation over the other; therefore, culture specifies aspects of conceptualization that cannot otherwise be construed.

At the end of the section discussing deictic orientation around the world, Heine concluded:

> Such findings are remarkable. They give an impression of the *wealth of cognitive patterns* [italics added] that can be observed in the cultures of the world. No doubt, such differences must have an impact on the structure of the languages involved (1997, p. 14).

Heine's assertion for a "wealth of cognitive patterns" indicates that perception (the basis for forming cognitive conceptualization) is variable, and variation in perception is influenced by cultural values, such as deictic orientation type. If perception is influenced by culture, then it follows that cognitive conceptualization (discussed earlier under conceptual metaphor theory) is also influenced by culture, since concepts are formed by

perceiving them in the physical world of experience. Thus, cultural knowledge is required to imbue the scene with a meaning that can be encoded in a language and understood by a hearer in that language. Cultural knowledge is therefore universal because it is an inherent component of universal conceptualization. In addition, cultural knowledge is intersubjective because all humans experience culture at the level of perception (i.e., viewing a scene). Deictic orientation type determines how the scene will be perceived, and then that perception is encoded in language. Thus, all humans share the same basic process for interpreting a scene through cultural knowledge.

In sum, I argue that conceptualization relies on culturally-sanctioned models for specifying the particular perspective that will be enacted in an experiential scene, and the model further contributes to both linguistic structure and semantic meaning in a specific language. Thus, the cultural model in the example discussed above (i.e., deictic orientation type) is a fundamental component of the cognitive conceptualization, and the model also instantiates a semantic meaning (i.e., the culturally-licensed relation between a speaker and objects in the physical world) which is encoded through syntax and vocabulary.

Heine's evidence indicates that basic human experiences (and their cognitive conceptualizations) are specified in fundamental ways by cultural knowledge. The perception of the experience includes both bodily experience and cultural models. These two aspects of conceptualization are mutually interdependent and inseparable—to describe one independent of the other is to miss important features of a conceptualization. This follows the CL principle of non-autonomous language discussed earlier.

Time

An aspect of conceptualization that overlaps with culture is history. Historical (i.e., *diachronic*) language forms and the cultural models that produced those forms affect present-day (i.e., *synchronic*) iterations of linguistic expressions, as Sweetser (1990) has pointed out. Bybee (1988) argues that "synchronic states must be understood in terms of the set of factors that create them. That is, we must look to the diachronic dimension…" (p. 351). Changes in meanings over time have synchronic effects; as result, the current meaning of an expression can reflect accumulated historical changes over time. The English word *foot* has several current meanings; for example, the term can refer to the human body part and also to a historically more recent metaphorical meaning that references the part of an inanimate object which touches the ground and supports the object. Expressions for the second meaning include *the foot of the bed* and *the foot of the mountain*. The additional meaning indicates a change in the cognitive conceptualization of FOOT; the concept has been *extended* to include inanimate objects that share the human foot's conceptual *entailment* of SUPPORT.

Historical changes in meaning indicate changes in the cognitive conceptualization; ultimately, changes in conceptualization may indicate changes in experience perception, as a result of new experiences and/or the effect of changing cultural beliefs. Research on this type of historical change has important implications for CM theory and for cognitive-functional linguistics: if changing cultural beliefs in turn change conceptualization, then it follows that cultural models are isomorphic with cognition in producing conceptualizations of experience.

Yet, the vast majority of metaphor studies in CL have been designed as synchronic or "point-in-time" investigations. In such studies, the influence of culture is more difficult to discern because culture can take many years to have any appreciable effect on language. Present-day metaphoric expressions (i.e., linguistic expressions with metaphoric meanings, such as "His blood boiled", discussed previously) reflect the influence of historical cultural ideas that are no longer shared among speakers in the speech community, increasing the complexity of linguistic analysis. Though these older cultural ideas are no longer consciously acknowledged, their previous influence is still present in the structure and meaning of the present-day language linguistic form (Bybee, 2001, 2003). Therefore, time as a variable should be taken into account to provide a full analysis of a CM. Overall, historical study is uniquely positioned to reveal previous cultural ideas and their influence on present-day form and meaning.

There have been a few historical studies of CMs (see Chapter 2). Bertuol (2001) is a typical example. The study applies conceptual metaphor theory to the use of mathematical language in the poem, *The circle of the brain cannot be squared*, by Margaret Cavendish (1653). As a result of the analysis, the researcher discusses the poem's central CM, UNIVERSE IS MATHEMATICS. Bertuol concludes that mathematical concepts were highly influential in English thought, culture, and language of the period.

Discussions of cultural knowledge and its influence on language in studies like Bertuol's are a natural result of historical analysis because the data reveal more clearly the cultural knowledge that is no longer in force in present-day thought and language. However, such discussions assume that the contrast alone is sufficient to show a change in cultural knowledge over time. The problem with the assumption is that the sample (the

poem) does not actually show dynamic change in culture over time, but merely the static absence of synchronic (present-day) cultural knowledge. The method clearly shows a contrast in cultural models between the two time periods, but change in the model *over time* cannot be shown because data from intervening time periods are not analyzed.

Though the study is valid as a detailed investigation of a specific CM, the research design is synchronic, affording only a "snapshot" view of the time-bound culture in which the CM is situated. The compression of the time factor into a single poem published in 1653 obscures the effects of experience and culture over many decades which may have led up to the instantiation of the CM. Thus, in Bertuol's study design, general historical research was conflated with diachronic research—the concepts were viewed as interchangeable when in fact they are separate. The historical research covers any consideration of the past, including synchronic study designs, while diachronic research specifically denotes longitudinal, "across time" studies. Diachronic studies can show the changes in the form and meaning of linguistic expressions that result from the slow, historical shifts in cultural beliefs over many years (Bybee, 2003).

Given the goals of CL research to understand the human mind and the advantages that diachronic research brings to understanding the influence of culture on conceptual metaphor, adding time as a variable to the study of CM enhances the researcher's ability to understand variation in cognitive conceptualization. For example, synchronic studies show that that the two types of deictic orientation exist in the world's languages, but not how they developed. Diachronic study could delineate changes in experience and cultural values over time which led to the development of variations in present-day conceptual metaphors. The current study addresses this methodological issue by

employing a diachronic research design covering almost 500 years of the Modern English era. By this procedure, changes in conceptual metaphors that result from changes in cultural knowledge could be delineated more clearly.

To conclude, Chomskyan generative grammar theory introduced the study of the human mind as a legitimate topic of study in linguistics. However, the theory stopped short of incorporating all aspects of language for study, privileging language structure (i.e., core syntax, morphology, and phonology) over meaning (e.g., peripheral cultural knowledge and pragmatics). CL diverges significantly from the generative program by including meaning and pragmatics as central to the study of the human mind. Thus, the current study follows CL theory by accepting the principle of the central role of meaning in language analysis, and further assumes that meaning (and therefore conceptualization) cannot be fully accounted for until the time-bound, encyclopedic, non-autonomous knowledge of the language user is incorporated into the analysis. These principles guide the purpose, method, and analyses of the study.

Overview of the Study

The current study will investigate the CM of ANGER within a cognitive-functional perspective, via the analysis of language samples from compiled corpora of English texts written between A. D. 1500 and 1990. The goal of the study was to advance knowledge on the influence on the CM of a specific cultural model, called the Four Humors medical model. To investigate the question, metaphoric expressions of anger were collected from the historical period and analyzed for variations, over time, in the cognitive conceptualization of ANGER.

Dissertation Outline

The plan of this dissertation is as follows. Chapter 2 surveys the previous research literature that pertains to the study of cognition and culture in two metaphoric expressions of anger. Chapter 3 details the research methodology and analysis employed in the study. Chapter 4 discusses the results of the analysis of the historical CM of ANGER over time, including structure, meaning, and use, and also investigates the influence of the Four Humors cultural model on meaning. Chapter 5 relates the results to CM theory, the systematic study of language, teaching pedagogy, and future research.

CHAPTER II

Review of the Literature

This chapter sets the theoretical foundation of conceptual metaphor theory (CMT), discusses the roles of culture and historical time in the instantiation of metaphoric expressions in language, and reviews the previous research literature of investigations into the CM of ANGER. Considering the complexity of the topic of the current study, the chapter is divided into four sections. The first section is an overview of the basic tenets of Conceptual Metaphor Theory (CMT), as formulated by Lakoff and Johnson (1980, 1999). The second section contains a detailed analysis of the seminal synchronic study of the CM of ANGER (Lakoff & Kövecses, 1987; see also Lakoff, 1987); concepts from this study will inform both later sections of this chapter and the Results section in Chapter 4. The third section reviews previous research that is important to the study of the CM of ANGER, including cultural and diachronic studies. The chapter ends with a summary and conclusion concerning the implications of the literature review for the current study. Each of these topics will be treated in turn.

Introduction to Conceptual Metaphor Theory

Conceptual Metaphor Theory (CMT) has been in existence for over twenty-five years. The initial theory was developed by George Lakoff and Mark Johnson (1980), in their book entitled *Metaphors we live by*. In the work, the basic concepts and processes involved in CMT were set down for the first time, which include the following: a CM organizes thought and language systematically, originates in embodied realism, is unconscious and automatic, and is universal and ubiquitous. Section 2 describes each of these fundamental aspects briefly.

CM Organizes Thought and Language Systematically

As was discussed in the Introduction, CM is not a linguistic form; it is the organizing principle of the human mind, according to Lakoff and Johnson. CMs are the cognitive means by which human knowledge is stored, retrieved, and processed in the brain. The principle implies that CMs are required for the mind to function; they are characterized as the organizing *system* for the human mind (Lakoff & Johnson, 1999). The evidence for this organizing principle, presented by Lakoff and Johnson in their 1980 work, is that metaphoric expressions are organized into conceptual systems, with many expressions grouped together under a specific CM. The concept or group of concepts that is the basis for a particular system of metaphoric expressions is called a *conceptual metaphor*, or CM.

CM Classification

Each CM is given a name that reflects the concepts residing within it; one such metaphor, and the focus of the current study, is called ANGER IS A HOT FLUID IN A CONTAINER. The words in the name represent the complex system of concepts which

make up the CM. These concepts are said to *motivate* or *instantiate* particular metaphoric expressions in the metaphor system, for example, *His blood boiled*. The concrete physical experience of heated blood is mapped onto the abstract idea of ANGER. The mapping of the experiential *source* domain to the abstract *target* domain creates the CM, and the name of the CM denotes the mapping. By the process of cognitive mapping, a CM is instantiated systematically in metaphoric expressions.

CM Originates in Embodied Realism

How is abstract, conceptual thought created from physiological, perceptual functions? In Lakoff and Johnson's 1999 book, titled *Philosophy in the flesh*, they explain the connection between physiological functions and thought via *sensorimotor theory*. Sensorimotor theory, which developed in the field of cognitive science, states that physiological processes and movements, done frequently over many repetitions, create *sensorimotor representation*, defined by Newton (1993) as "an active memory trace of sensory and motor experience" (p. 267). These traces or "patterns" (M. Johnson, 1987) of concrete, physiological experience are used to structure abstract, conceptual thought in the mind. Thus, the basic process of CM instantiation is the mapping of a concrete, perceived, physiological experience onto an abstract, conceived, concept of knowledge or idea.

Embodied realism and sensorimotor theory are understandably very important to Lakoff and Johnson's theory of CM for two reasons. First, sensorimotor theory allows for the claim that there is a concrete, empirical, data-driven basis to their theory, which by implication, can be tested via scientific methods of inquiry. Second, embodied realism allows Lakoff and Johnson to make further claims which explain important

implications in their theory, and defend against potential weaknesses. These additional claims include that CM is unconscious and automatic and that it is universal across languages. The following sections consider these claims.

Primary and Complex Metaphor

There are two basic types of CMs: *primary* and *complex*. Primary metaphor is the most basic, originating from sensorimotor experience in the human body and resulting in a set of fundamental cognitive concepts which structure the mind and a person's perception of the world (Lakoff & Johnson, 1999). Grady (1997) originally proposed the construct of primary metaphor; he analyzed over 100 primary metaphors in English. An example is QUANTITY IS VERTICAL ELEVATION (also called MORE IS UP), forming the basis for metaphoric expressions such as *Violent crime is down for the second year in a row* (Grady, 1997, p. 285). Grady argues that this type of CM will be found across all languages and cultures due to its fundamental grounding in embodied experience (see section below, "CMs are universal," for related information). Other primary metaphors include CHANGE IS MOTION, STATES ARE LOCATIONS, and CAUSES ARE PHYSICAL FORCES.

However, Grady's theory overstates the case for the number and extent of primary metaphors. Some primary metaphors that he identified, such as BAD IS FOUL-SMELLING (p. 292), are based on cultural values rather than bodily experience. While the olfactory sense is a physically-grounded experience (Ibarrexte-Atuñano, 1993), intersubjective judgments of "bad" and "foul-smelling" are subjective, governed by individual tastes and cultural norms. Therefore, I argue that the primary metaphor as constituted is not grounded in physical experience, but maps the "bad" and "foul-smelling" judgments directly. The lack of direct, physical grounding eliminates BAD IS FOUL-SMELLING as a

potential primary metaphor. Similar problems are found in other primary metaphors, such as GOOD IS FORWARD (applying the analysis of deictic orientation discussed in Chapter 1), MORALLY GOOD IS HEALTHY, and, as will be shown later, CONTROL IS UP. Reanalyzing Grady's original list of 100 primary metaphors to include only those that are grounded directly in physical experience would delineate more clearly the influence of embodiment on conceptualization.

Primary metaphor, due to its status as the most basic CM type, forms the basis for the second type of CM, called *complex*. Complex CMs are composed of two or more primary metaphors plus cultural knowledge. Lakoff and Johnson (1999, p. 49) state that primary metaphors form complex metaphors by "the fitting together of small metaphorical 'pieces' into larger wholes. In the process, long-term connections are learned that coactivate a number of primary metaphorical mappings." Examples of complex metaphors include ANGER IS A HOT FLUID IN A CONTAINER, composed of several primary metaphors such as MORE IS UP and INTENSITY OF ACTIVITY IS HEAT. The HOT FLUID complex CM in turn instantiates metaphoric expressions of emotion, including *His anger went off the charts* and *Her anger boiled out of her*. Thus, complex CM are built on primary CM, and more complex CM are created from less-complex ones. In this way, CM have the structural flexibility to instantiate any cognitive conceptualization, regardless of complexity, in metaphoric expressions.

As CM increase in complexity, their content becomes more abstract and less grounded in embodied experience, allowing for the mapping of concrete experience to abstract concepts like emotion (Lakoff & Johnson, 1999). Due to their complexity and abstractness, complex metaphors are not necessarily found across different languages (in

contrast to primary metaphors) because some of the content of the metaphor does not originate in embodied experience, but in encyclopedic knowledge of the world, including concepts learned in formal schooling (Putnam, 1977) and cultural knowledge. Overall, primary and complex CM are cognitive tools employed for the purpose of expressing the full range of concrete experience and abstract ideas in a language.

CM Conceptualizes an Experiential Scene

Inherent in the principle of embodied realism and the constructs of primary and complex CMs is the notion of the conceptualized *scene*. The scene is a fundamental theoretical construct in CL; other major theories in CL also include the principle, including Fillmore's (1982) Frame Semantics, Langacker's (1987) Cognitive Grammar, Goldberg's (1995, 1998) Construction Grammar, and Fauconnier and Turner's (2002) Conceptual Blending Theory. All of these theories employ the scene construct in the same basic formulation: the scene provides the experiential input necessary for cognitive conceptualization to take place.

In CM theory specifically, the scene provides the content for a conceptual metaphor to be formed; the conceptualization may include a cognitive representation of the scene or a part of the scene itself (called an *image schema*), and/or representations of the relations between parts, aspects, or attributes of the scene. Conceptualizations are by definition neutral in terms of meaning, so that the conceptualization may be employed to encode many different semantic meanings in linguistic expressions, regardless of any cultural values implied in the meaning.

Not coincidentally, primary metaphors contain *primary scenes*. For example, Johnson (1999) studied the development of primary metaphor comprehension in young

children. One primary metaphor investigated was KNOWING IS SEEING. Johnson found that the conceptual metaphor develops in young children as they experience the physical world, in a way similar to adults, but with some differences that take into account the child's still-developing cognitive abilities. A young child who was asked by an adult, "What's in the box?", looked into the box and saw a toy inside. Johnson explained that, as experiences such as this one are repeated many times, a primary scene develops as a *schematic* cognitive structure (i.e., an abstract set of relations in the mind) of the experienced physical scene; the primary scene in turn produces the primary metaphor KNOWING IS SEEING. In this way, embodied experience provides conceptualizations of physical scenes which are fundamental to interpreting the world and learning language—these are primary scenes.

The scene construct was mentioned briefly in Chapter 1 in the discussion of Heine's (1997) description of deictic orientation types. Recall that deictic orientation is the result of a human being experiencing a specific scene in the physical world—in this case, two objects are within the person's visual sight. As the scene is experienced over and over again in the world of the experiencer, the scene becomes a schema, an abstract set of relations in the mind encoding the conceptual links between the perceiver and the perceived. Thus, a primary scene can conceptualize a CM such as KNOWING IS SEEING and also provide input for syntactic structures like deictic orientation. In both cases, the primary scene eventually forms a conceptualization, which is employed to instantiate the scene in thought and language. The steps, repeated embodied experience to schematic relations to primary and complex conceptualizations, show the basic process for forming all types of conceptualizations through primary and complex scenes.

However, as the discussion of deictic orientation showed, bodily experience is not enough to form a primary scene that can be expressed with a semantic meaning in language. The two types of deixis are inherently neutral in meaning (since conceptualizations are neutral for meaning), and there is no objective reason for choosing one over the other in a particular language. Therefore, cultural knowledge and values are employed to make the choice.

Applying this idea to primary CM, the ANGER IS HEAT CM discussed above employs cultural knowledge, as well. In a study of Chinese metaphors of ANGER, Yu (1995) found that while the metaphoric expressions incorporated many of the aspects of ANGER analyzed by Lakoff and Kövecses (1987), the conceptualization of heated liquid was not found; instead, the Chinese samples employed gas, rather than fluid, and also heat was not selected as a property of the gas. Yu states that the findings do not contradict the ANGER IS HEAT concept because, in the physical world, heat is *required* for a gas to be formed; when the gas cools, it becomes a liquid (Yu, 1995, p. 83). However, Yu's reasoning does not explain why heated fluid in the English CM does not turn into a gas—steam is generated, but the fluid maintains its liquid state.

The English CM contradicts embodied experience on this point, and therefore some other type of knowledge is selecting the HEAT property. Thus, different cultural models made separate choices for the English and Chinese primary CMs, just as culture selects deictic orientation in grammar. Kövecses (2005) argues in favor of this conclusion; his work is discussed in more detail in a later section of this chapter.

CM Is Unconscious and Automatic

Since thought-based conceptualizations are created by many repetitions of basic physiological processes over time, and these processes occur without the need for conscious thought, a logical implication is that CM are also instantiated unconsciously. Lakoff and Johnson (1999) call this the *cognitive unconscious*, a feature of the brain in which a single task performed by the conscious mind (such as the intent to speak one's own name) requires a vast number of invisible tasks and processes (termed *the hidden hand*), all of which occur "without noticeable effort below the level of consciousness" (Lakoff & Johnson, 1999, p. 11). The term *cognitive* in the construct is explained to mean any mental process or construction which may be studied empirically (p. 11). The implication is that CMs are created without conscious effort or thought by humans as they experience the world. More crucially, the human mind is organized by CM. The unconscious, invisible nature of CM is one of its signature features.

It also follows quite naturally from the analysis above that the instantiation of a CM is automatic. CMs are employed to form *conventional* metaphoric expressions, which are usually not recognized by the speaker as metaphoric at all. For example, the metaphoric expression *I caught a cold*, which instantiates the primary CM STATES ARE ACTIONS, is usually viewed by the speaker as an expression of literal fact; that is, the speaker became ill. However, it is clear that the "catching" action in the linguistic expression is an abstract concept rather than a concrete experience, and therefore maps a concrete source domain (physical ACTIONS) to an abstract target domain (STATE of health) to form the STATES ARE ACTIONS CM, which forms the basis for the metaphoric expression *I caught a cold*. There are many more common metaphoric expressions that

are the result of a source-target mapping operation and which are not recognized by speakers as a form of metaphor; these are termed *conventional* metaphoric expressions. Therefore, Lakoff and Johnson claim that these unconscious, automatic, invisible uses of CMs in language are evidence of the unconscious, automatic, invisible structuring of the human mind by CMs. Their conclusion leads to the last basic principle: the universality of CMs.

CM Is Universal

To review briefly the preceding discussion, primary CMs have the task of organizing knowledge in the human mind, are the result of common, everyday experience in the physical body, are applied unconsciously and automatically, and form conventional metaphoric expressions, then there is one more principle that is logically implied; namely, primary CMs are *universal* cognitive constructs for all homo sapiens as a species, and so the same primary CMs should be found in every language. In contrast, complex CMs are usually language-specific and so are found within a particular language or cultural group. The crucial importance of the theory to understanding language, thought, and the human mind is immediately obvious when considering the universality principle: the physical nature common to the human species provides a shared experience even at the level of the individual. Moreover, if all humans share primary CMs, then the CMs of different language groups can be studied and compared simply by collecting samples of metaphoric expressions from speakers and reconstructing the conceptual metaphors which motivate those expressions. Universality raises the importance of CM to the level of a powerful theoretical construct for understanding the human mind across languages and cultures. The current study accepts the universality principle, but (as the

previous discussion has argued) applies the principle equally to cultural knowledge at the level of cognitive conceptualization of embodied experience by primary scenes. I argue that cultural knowledge is isomorphic with embodied experience in the development of cognitive structuring in the mind.

Summary

To summarize the preceding section, in the theoretical model of CMT, perceptual systems of the body are connected intimately to conceptual systems of the mind, creating a universal and ubiquitous theoretical "space" whereby the mutual effects of the mind and the body can be investigated empirically. The body and the mind form a powerful system of comprehension and communication for the human species, which can be studied in detail by analyzing readily available language data, particularly metaphoric expressions. Thus, empirical and systematic language study is viewed to have the potential to discover important structures and processes of the mind through language. The possibilities for research study are virtually endless and of great importance within the body/mind system which the CMT model sets up.

These considerations lead to an important theoretical question; namely, "Does human perception of the world (i.e., embodied realism) account for all aspects of primary CM?" The construct of the primary scene and its perception by an experiencer argue that the answer may be "No" because encoding the conceptualization in a linguistic expression requires selecting a specific perspective on the scene (e.g., single-file deictic orientation) that instantiates a particular syntactic structure and a semantic meaning (which when combined, create a form-meaning pair) that are not neutral with regard to cultural knowledge. I argue that cultural knowledge is *required* to make the choice of

perspective for the same reason that CL privileges meaning over syntax: communication of meaning is the primary goal of language. Thus, in order to communicate effectively, the form/meaning pair selected by the speaker will include shared cultural knowledge of the speaker and hearer.

If this analysis is correct, cultural knowledge operates at the level of cognitive conceptualization, and universality is limited in its extent in all CMs. Thus, primary CMs incorporate both an experiential component and a cultural component. The experiential component perceives and conceptualizes the scene in the physical world, but the basis for interpreting the scene (e.g., whether an object faces toward or away from the perceiver; whether HEAT is the primary property of ANGER) is supplied by the cultural component. Neutral perception of the scene is not enough to express the conceptualization in thought or language; the meaning and significance of the scene must also be encoded, and cultural knowledge fulfills this function. In the end, both embodied experience and cultural knowledge are necessary for forming primary CMs, and cultural knowledge is therefore necessary for cognitive conceptualization. This hypothesis in the current study, though contrary to current Conceptual Metaphor theory, is consistent with the CL principle of *non-autonomous* language, discussed in Chapter 1, in which experience in the world and social/cultural identity are necessary and inseparable aspects of meaning. The current study was designed to investigate the hypothesis.

The following section reviews previous research in embodied realism and culture, including historical studies. Through the review, the major concepts discussed in the previous section will be delineated in more detail.

Review of the Literature

This section first reviews Lakoff and Kövecses' (1987) seminal study on the CM of ANGER in American English; then, later studies of emotion metaphor, both synchronic and diachronic, which are important for understanding the roles of embodied realism, culture, and time in CM, are discussed.

Lakoff and Kövecses (1987)

Major principles

The major tenets of the CM of ANGER include the following. First, there is an underlying general complex metaphor, named THE PHYSIOLOGICAL EFFECTS OF AN EMOTION STAND FOR THE EMOTION. The conceptualization serves as the basic structure for a large number of metaphoric expressions which instantiate ANGER based on the physiological effects that the emotion has on a person. The conceptual principle therefore motivates the expression of metaphors of emotion which are based in embodied experience.

Second, there are several types of conceptualized bodily experience that form the metaphoric basis of the linguistic forms. These types include BODY HEAT, INTERNAL PRESSURE, SKIN REDNESS, AGITATION, and IMPAIRED VISUAL ACUITY. Several important points about these terms need to be related here. According to Lakoff and Kövecses, the first two types form the basis for the third type, since body heat and internal pressure are assumed to lead to skin redness. Also, the concept of SKIN REDNESS includes specifically the face and neck of the person experiencing anger (their original name, which included this information, has been shortened for the purpose of brevity; IMPAIRED VISUAL ACUITY is also a shortened version of the original version, INTERFERENCE WITH ACCURATE

PERCEPTION). Finally, AGITATION specifically describes the agitation of the body, for example, when a person shakes their fists as an expression of anger. In Lakoff and Kövecses' view, these five conceptualizations form the embodied, experiential basis for the CM of ANGER.

Selected examples of metaphoric expressions instantiating the five basic conceptualizations are shown in Figure 1, with the lexical item(s) marking the instantiated conceptualization in italics (Note: all examples are taken from Lakoff and Kövecses, 1987).

Figure 1. The conceptualization of ANGER in American English.

BODY HEAT
Billy's a *hothead*.
They were having a *heated argument*.
INTERNAL PRESSURE
When I found out, I almost *burst a blood vessel*.
He almost had a *hemorrhage*.
SKIN REDNESS
She was *scarlet with rage*.
He got *red with anger*.
AGITATION
I was *hopping mad*.
He was *quivering with rage*.
IMPAIRED VISUAL ACUITY
I was beginning to *see red*.
I was so mad I *couldn't see straight*.

The metaphoric expressions map the source domain of physical experience onto the target domain of ANGER. The effect is a verbal expression of anger which any English speaker would immediately recognize in speaking or writing. In this way, embodied experience is encoded in cognitive conceptualizations that in turn motivate metaphoric expressions in language; thus, there is a cognitive link between concrete embodied experience and abstract emotion.

The expressions support CMT in two ways. First, Lakoff and Kövecses claim that the metaphoric expressions serve as evidence for THE PHYSIOLOGICAL EFFECTS OF AN EMOTION STAND FOR THE EMOTION conceptualization. In addition, the expressions which encode the conceptualization are highly *elaborated* (i.e., have related variations), to cover special situations in communication. The elaborations provide details that support the five basic conceptualizations of the body discussed above—BODY HEAT, INTERNAL PRESSURE, SKIN REDNESS, AGITATION, and IMPAIRED VISUAL ACUITY.

Sub-variations of the CM of ANGER

The analysis of the metaphoric expressions leads to the primary CM of ANGER in Lakoff and Kövecses' system, named ANGER IS HEAT. HEAT has two sub-CM; one for fluids as the source domain, called ANGER IS THE HEAT OF A FLUID IN A CONTAINER, and one for solids as the source, named ANGER IS FIRE. The first one is seen by the researchers as the more basic of the two because it is more highly elaborated; it will be discussed in detail below.

The FLUID CM

The ANGER IS THE HEAT OF A FLUID IN A CONTAINER CM (hereafter, FLUID), is formed from two other CMs; THE BODY IS A CONTAINER FOR EMOTION and ANGER IS HEAT. HEAT OF A FLUID IN A CONTAINER is the source domain and ANGER is the target domain in metaphoric expressions. Metaphoric expressions for the resulting FLUID CM include:

> You make my *blood boil*.
> I had reached the *boiling point*.

These are clearly related to the CM of ANGER. However, Lakoff and Kövecses also list several other metaphoric expressions, which seem to be related to a different, unidentified CM:

Simmer down!
Let him *stew*.

Finally, they include a sample that is described as a "historically derived instance" (p. 198) of the FLUID CM:

She was *seething with rage*.

These particular samples clearly instantiate the ANGER IS HEAT CM, but they also appear to go beyond it. The *simmer* and *stew* samples in particular seem to instantiate a "cooking" CM of some kind, a concept that is not within the FLUID CM. In addition, it is unclear why a conceptualization of the human body would require a mapping of a cooking pot; one could just as easily say "Cool down" and stay within the human body source domain.

In Lakoff's (1987) book, *Women, fire, and dangerous things*, the divergent nature of these samples is explained by stating that "Although both of these are cooking terms, cooking per se plays no metaphorical role in these cases. It just happens to be a case where there is a hot fluid in a container. This is typical of lexical elaborations" (Lakoff, 1987, p. 384). *Lexical elaboration* is the term used by Lakoff to explain how new variants of a CM are created which cover special situations of use of the CM; replacing a word with a different one extends the metaphoric meaning, adding new details and connections in the CM. As a result, the variations lead to new metaphoric expressions. Overall, Lakoff claims that changing lexical items in the FLUID CM creates a new elaboration and new metaphoric expressions that happen to employ cooking terms. The purpose of these elaborations is to take advantage of semantic connections that are available in the cooking terms not available in other words. Hence, *stew* is selected in order to employ the idea of anger continuing over an extended period of time.

Elaborations of the FLUID *CM*

Recall that elaborations of the CM (i.e., productive variations) may be created to cover special situations. In the FLUID CM, these variants include the addition of a heat scale (or INTENSITY) and the production of steam as a result of the heat and pressure in the CONTAINER. Examples of these elaborations are shown in Figure 2.

Figure 2. Elaborations of the FLUID CM.

WHEN THE INTENSITY OF ANGER INCREASES, THE FLUID RISES
His pent-up anger *welled up* inside him.
We got a *rise* out of him.
My anger kept *building up* inside of me.
INTENSE ANGER PRODUCES STEAM
She got all *steamed up*.
I was *fuming*.
INTENSE ANGER PRODUCES PRESSURE ON THE CONTAINER
He was *bursting with anger*.
I could barely *contain my rage*.

PRESSURE increases eventually lead to the destruction of the CONTAINER (e.g., EXPLOSION) as a result of increasing heat, steam, and pressure:

Figure 3. Elaborations of CONTAINER destruction in the FLUID CM.

WHEN ANGER BECOMES TOO INTENSE, THE PERSON EXPLODES
When I told him, he just *exploded*.
She *blew up* at me.
WHEN A PERSON EXPLODES, PARTS OF HIM GO UP IN THE AIR
I *blew my top*.
He *hit the ceiling*.
I *went through the roof*.
WHEN A PERSON EXPLODES, WHAT WAS INSIDE HIM COMES OUT
His anger finally *came out*.
Smoke was *pouring out of his ears*.
She was *having kittens*.
My mother will *have a cow* when I tell her.

However, the INTENSE ANGER PRODUCES PRESSURE ON THE CONTAINER variant (Figure 2, above) has two elaborations which avoid destruction of the CONTAINER. The first elaboration controls PRESSURE by suppressing its release:

Figure 4. Elaborations of PRESSURE suppression in the FLUID CM.

I *suppressed* my anger.
He managed to keep his anger *bottled up* inside him.

The second elaboration controls PRESSURE through its gradual release:

Figure 5. Elaborations of PRESSURE release in the FLUID CM.

ANGER CAN BE LET OUT UNDER CONTROL
He *let out* his anger.
I *gave vent* to my anger.
Channel your anger into something constructive.
He *took out* his anger on me.

The two variants of PRESSURE are interesting, especially *I gave vent to my anger*, because *vent* is a verb that is commonly used in a historical metaphoric expression in English (an archaic expression today, according to the *Oxford English Dictionary Online*). The typical form of the expression is as follows:

I *vented* my spleen.

The question is whether the samples given by Lakoff and Kövecses for their elaborations are instantiated by the HOT FLUID CM or by a different CM that is historically older than the present-day variants of ANGER IS HEAT. Since Lakoff and Kövecses conducted a synchronic study, they did not consider this question. The issue will be discussed further in Chapter 4 of the current study.

The ANGER Prototype Scenario

Lakoff and Kövecses' prototype scenario provides an overall view of the way anger is expressed in English-speaking culture, as conceptualized by the ANGER IS HEAT

CM. The basis of the scenario is a conceptualized *scene* (see previous discussion in this chapter) in which anger is prototypically expressed, using the concepts found in the CM to determine the parameters of the scene and its outcome. There are five stages in the scenario, beginning with a social event that causes a person to feel anger, and ending with a reciprocating act of revenge by the *offended* person against the *offending* person. The five stages are as follows.

Figure 6. The five stages of the Anger Prototype Scenario.

Stage 1: offending event
Stage 2: anger (physically visible to another person)
Stage 3: attempt at control
Stage 4: loss of control
Stage 5: act of retribution

These stages are assumed to apply implicitly for metaphoric expressions which are motivated by the ANGER IS HEAT CM.

Lakoff and Kövecses provide explanatory details for each of these stages. In Stage 1, the offending event is an intentional act of wrongdoing by the offender, such that the offender is guilty and the offended person has done nothing to warrant the offense. The offending act creates anger in the offended person. In Stage 2, the anger continually increases on the intensity scale, and effects of the increase are felt in the body. The effects include those discussed previously—body heat, internal pressure, and agitation of the body. The increasing intensity also leads to an attempt to control the anger because of social norms for controlling anger and a desire to limit the emotion's physically and psychically damaging effects, both for the angry person and others in the scene. In Stage 3, the person performs actions to control the anger. In Stage 4, the person fails to control the anger because the intensity has become too great; at that point, anger is expressed

visibly in the body and in the person's behavior (e.g., shaking body, facial expression, verbal expressions), and also leads to a desire for revenge. Finally, in Stage 5, the angry person takes retribution against the one who caused the offense in the first place. After the act of retribution is completed, the anger level drops to the low end (typically zero) of the intensity scale.

The stages are situated in a conceptualized *scene*, in which a person goes through a series of prescribed steps in the course of expressing anger physically and verbally. The scene is the result of experience in the world, in which people view others (and themselves) experiencing and expressing anger. After many iterations, the scene becomes schematized and is conceptualized as a series of relations between an event that causes anger and the expression of the anger. Interestingly, there are actually two scenes in the anger scenario: the anger scene is *profiled* (i.e., in the foreground of the conceptualization) in a *base* (i.e., backgrounded) context in which another event occurs that causes the anger scene. This second, causal scene is found in Stage 1 of the anger scenario. The conceptualization with profile and base is more complex than an expression of anger; a causal event must occur first to provide the context for anger to be expressed appropriately. The question is, what is the background event, and how does it relate to the anger scenario? The question is important because the anger scenario cannot take place without the background event, following Lakoff and Kövecses' analysis of the scenario. However, they do not discuss this aspect of the scene, except in their description of Stage 1. Since the samples are limited to one sentence separated from the specific communicative and social contexts, analyzing this aspect of the scene is

speculative. The implications of the base scene for the current research will be discussed in the next section.

Atypical Cases of ANGER

Lakoff and Kövecses state that other variants of the CM of ANGER are found in English. However, in their view these variants for social situations and conceptual instantiations are atypical, due to differences with both the characteristics of the CM of ANGER and the prototype scenario. The researchers provide a list of twenty types of ANGER that have these differences. They also state that the defining characteristic of all of the non-prototypical cases is that "[t]here appear to be no necessary and sufficient conditions that will fit all these cases" (p. 217). In other words, the non-prototypical cases vary from the prototypical cases in significant ways, and no identifiable set of properties can define all of the non-prototypical cases as a group.

Lakoff and Kövecses are right about the lack of one set of features for the non-prototypical cases; however, close analysis of these cases reveals several important and interesting characteristics which have important implications for the CM of ANGER and CL theory. I will discuss Lakoff and Kövecses' analysis of these cases, in order to show that the non-prototypical cases share important similarities that indicate that the cases may be systematically instantiated by another CM. Based on my analysis, I divided 12 of the atypical cases into two distinct (but overlapping) groups.

CONTROLLED RESPONSE OVER TIME

Of the twenty non-prototypical cases, nine appear to be related to each other by possessing the same four characteristics. The cases are listed below.

Figure 7. Nine non-prototypical cases of ANGER.

Redirected anger
Controlled response
Constructive use
Successful suppression
Controlled reduction
Slow burn
Nursing a grudge
Cool anger
Cold anger

Each of these cases is described by Lakoff and Kövecses, and the descriptions are similar on several conceptual dimensions. First, unlike Stages 2 and 4 in the prototype scenario, each case describes the CONTROL of anger as having been successful. For example, *controlled response* involves staying in control of the anger while taking non-violent, conscious retribution (for Lakoff and Kövecses, the absence of violence apparently constitutes the presence of CONTROL, though the discussion in their paper only implies the point). Note that the *controlled response* category includes as an example the metaphoric expression *He vented his anger on her*, which has similarities to I *gave vent to my anger*, discussed earlier in the ANGER CAN BE LET OUT UNDER CONTROL elaboration. The use of related samples in both the prototypical and non-prototypical elaborations raises the question of the true status of the metaphoric expressions using the verb *vent*. This issue will be discussed further at the end of this chapter.

Second, in contrast to the CM of ANGER, in each case INTENSITY either remains at the same level (i.e., does not increase) or decreases as a result of controlling the anger. For example, in *controlled reduction*, anger intensity is reduced by the conscious effort of the offended person. Third, physiological effects do not manifest themselves visibly. An example is *cool anger*. In that type, the offended person controls the anger such that

physiological symptoms and effects of anger are not visibly manifested. Finally, all of the cases exhibit the characteristics discussed above for TIME, instead of displaying them immediately as the result of an offending event, as in the prototype scenario. For example, *nursing a grudge* spreads CONTROL over an extended period of time; similarly, *slow burn* spreads a constant level of INTENSITY over time. In sum, each of the nine cases exhibits the elaborations of CONTROL and INTENSITY, with few (or zero) signs of visible physiological effects of anger, and these factors extend over TIME. I call this group of cases CONTROLLED RESPONSE OVER TIME.

INTENSE RESPONSE OVER TIME

The time factor also applies to another, smaller group of the non-prototypical cases. There are an additional three cases in the list that specifically include extended time; the names of the cases are as follows.

Insatiable anger
Frustrated anger
Wrath

These types extend over TIME in the same way that the CONTROLLED RESPONSE OVER TIME do, with INTENSITY at a constant level, but CONTROL is no longer present as the person is performing acts of retribution over the extended period of time (though visible ANGER is not necessarily present, as in the CONTROLLED RESPONSE group). As an example, Lakoff and Kövecses (1987) state that for *insatiable anger*, "the intensity of the anger stays above zero and the anger continues to exist" (p. 214). Similarly, for *frustration* and *wrath*, the intensity also remains above zero and extends over time; Lakoff and Kövecses characterize *wrath* this way: "The intensity of the offense is very great and many acts of retribution are required in order to create balance. The intensity of the anger is well

above the limit and the anger lasts a long time" (p. 216). With all three of these cases, anger is at such a high level of intensity that repeated acts of retribution over an extended period of time are required reduce the intensity level. Due to the significant elaborations of INTENSITY and TIME, I term the group of three cases INTENSE RESPONSE OVER TIME.

Conclusions

My brief analysis (based solely on the samples and descriptions provided by Lakoff and Kövecses) shows that TIME, INTENSITY, and the lack of physiological effects apply to 12 of the 20 atypical cases in their list; CONTROL was found in nine of the 12 (NOTE I eliminated the dimension of CONTROL from the INTENSE RESPONSE OVER TIME group to allow for acts of retribution; therefore, I define CONTROL as having the property of MANIPULATION, to allow conscious, premeditated, non-violent retribution). In sum, the same four factors are present and/or manipulated in all 12 cases. The analysis indicates that there may be a systematic relationship between the four factors. The question is whether the atypical cases are unrelated to each other (i.e., the similarities are coincidental) or indicate the presence of a complex CM.

If the same CM is involved in the instantiation of the 12 cases, it is different from ANGER IS HEAT. The characteristics found in ANGER IS HEAT, including BODY HEAT, INTERNAL PRESSURE, SKIN REDNESS, AGITATION, and IMPAIRED VISUAL ACUITY do not apply to the 12 cases. The sample sentences provided by Lakoff and Kövecses for the atypical cases bear this out. In *cold anger*, the sample sentence is *Sally gave me an icy stare*. The characteristics of the primary HEAT CM are not present (though the researchers argue for the presence of INTERNAL PRESSURE, asserting that the offended person must make a great effort to control the anger. However, explicit evidence for

pressure is not present in the sample). Does the lack of CM of ANGER features serve as evidence for classifying these cases as minor variants of the HEAT CM (as Lakoff and Kövecses argue), major dimensions of the domain of ANGER, or part of a different CM altogether? The question turns on whether the atypical cases are systematic in instantiating the characteristics they display; if so, then they may be instantiated by a CM. For their part, Lakoff and Kövecses do not discuss the issue of systematicity in the atypical cases. The current study investigated this question.

Finally, the fact that the atypical cases do not enact Stages 2, 4, or 5 in the anger scenario implies that the cognitive conceptualization of the scene has made different systematic choices, compared to the HOT FLUID metaphors in Lakoff and Kövecses' (1987) analysis of the scenario. The question is why is the person successful in controlling the anger, when the anger scenario states that this is not possible? In their discussion of the prototype scenario, Lakoff and Kövecses state that

> The course of anger depicted in the prototype scenario is by no means the only course anger can take. In claiming that the scenario is prototypical we are claiming that according to our cultural theory of anger, this is the normal course for anger to take. Deviations of many kinds are both recognized as existing and recognized as being noteworthy and *not the norm* (pp. 211-212 [italics added]).

They are right to state that the non-prototypical cases are deviations from the HOT ANGER CM, and evidence is given to show that the scenario is the expected response to anger,

but their comments do not specifically address why the non-prototypical cases are in fact "not the norm."

For example, the application of the CONTROL feature in Stages 2 and 4 in the prototypical cases appears similar to the application of deictic orientation in experiential scenes: the presence of CONTROL is possibly a result of cultural knowledge selecting the CONTROL feature from among various dimensions in the CM of ANGER. Thus, in both Stages 2 and 4, the person is able to control the anger, suppressing visible physical effects in many cases and in all cases maintaining CONTROL by not engaging in retribution. The answer is unclear at this point, but the parallels to Heine's (1997) description of deictic orientation are interesting. The current study investigated the question of the systematic application of CONTROL in the non-prototypical metaphor of ANGER, *He vented his spleen*.

CONTROL also recalls a specific issue concerning the *scene*, involving the presupposed event that causes anger; recall that Lakoff and Kövecses' ANGER metaphors include the presupposed causal event in Stage 1 of the anger prototype scenario. The question is whether *He vented his spleen* includes the presupposed event. This question is important because it relates to primary metaphors, especially CAUSES ARE PHYSICAL FORCES. If the primary metaphor in the metaphoric expression instantiates a physical force to cause anger, then bodily experience is the basis of the CM; if the cause is not a physical force, cultural knowledge instantiates the CM. Primary metaphor theory states that any primary metaphor is the result of physical experience only; the same principle can logically be applied to primary scenes because the scene motives the primary metaphor. Therefore, the question had important theoretical implications for the current study.

Finally, systematicity is an important issue in the study of CM for another reason. Recall from Chapter 1 that CL theorists have claimed that the systematic patterns employed in language are evidence of cognitive processes. In CM theory, Deignan (2006) points out that Lakoff was persuaded "that metaphor is central to abstract thought" when he found that there were systematic relations that linked different linguistic forms; other CM researchers make similar claims (Deignan, 2006, p. 107). Deignan concludes that,

> Given this importance placed on language as evidence for the theory, it does not seem unreasonable for a descriptive linguist to turn the relationship around: to look to the theory for a possible account of the patterns that he or she observes in naturally-occurring language (p. 108).

The current study has adopted Deignan's philosophical view that theory should be applied to data, to see if the proposed relationship describes the data accurately. If so, then the theory is useful for describing the relationship between language and cognitive processes; if not, the theory may be in need of revision.

The next section reviews additional synchronic and diachronic research studies that relate to the CM of ANGER and cultural knowledge. The two types are reviewed in turn.

Synchronic Studies of CM and Culture

The purpose of this section is to review studies of CM in present-day, synchronic research, in light of Lakoff and Kövecses' (1987) analysis of the CM of ANGER. Though the current study employs a diachronic design, there is an important reason for analyzing

point-in-time studies: to delineate the issues that should be addressed in studying the separate roles of bodily experience and cultural knowledge in forming cognitive concepts. The section reviews studies of bodily experience that also found important influences from cultural knowledge.

Several synchronic studies which were intended to study bodily experience found evidence that cultural knowledge was an important component of the conceptualization. For example, Matsuki (1995), studying anger metaphors in Japanese, found that the metaphoric expressions employed the same embodied conceptual metaphor described by Lakoff and Kövecses—ANGER IS HEAT. In addition, the study found specific evidence for ANGER IS A HOT FLUID IN A CONTAINER, including the CONTAINER image schema, HEAT, PRESSURE on the fluid, and visible physiological effects (skin redness, bodily agitation, and interference with visual perception). Yet, Matsuki also noted some differences; for example, the CONTAINER in the Japanese metaphors is the stomach (*belly*), not the human body; also, the Japanese word for *belly* (*hara*) is used when anger *rises* to the head (*atama*); the researcher states that the substance that comprises *hara* is unclear since the stomach cannot rise physically to the head. Finally, Matsuki found differences between the anger prototype scenario described by Lakoff and Kövecses and the scenario found in Japanese; native-speaking Japanese informants stated that they would not lose control of their anger as the scenario dictates (a similar result was found in the atypical metaphors in the Lakoff and Kövecses (1987) study; see the discussion earlier in this chapter). Matsuki stated that the differences in Japanese are the result of "individual idiosyncrasies" (1995, p. 149); he concluded that the American English conceptualization of ANGER is "partially applicable to Japanese anger" (p. 150). The Japanese conceptual

metaphor of ANGER exhibits the characteristics of universality and intersubjectivity that Lakoff and Kövecses found for American ANGER CM and also characteristics of shared cultural knowledge.

Yu (1995), discussed briefly in the previous section, presented results for Chinese metaphors of ANGER which came to similar conclusions—some aspects of the samples follow the Lakoff and Kövecses' model, and other aspects incorporate Chinese cultural knowledge, particularly medical practices. For example, though the metaphoric expressions of anger in Chinese conceptualized HEAT, PRESSURE, and visible physiological effects, gas was instantiated, rather than the fluid found in the English metaphors. In addition, the Chinese metaphors employed more internal organs than the English metaphors. Yu attributes the use of gas in the CM to the physical properties of gas (discussed in the previous section); the use of internal organs is explained by cultural beliefs, specifically traditional Chinese medical practices. As a result, "The underlying cognitive models based on the fundamental theories of Chinese medicine has led to a cultural emphasis in China of sensitivity to the physiological effects of emotions on the internal organs. This, in turn, has influenced the way Chinese people talk about emotions" (Yu, 1995, p. 85). This result is similar to Geeraerts and Grondelaers' (1995)study, which found evidence for the influence of Renaissance-period medical beliefs on the conceptualization of ANGER in English and Dutch (see the "Historical Studies" section, below). Despite this finding for the effect of cultural knowledge on conceptualization, Yu concludes that the Chinese anger metaphors reflect the same universal embodied experience found in English.

Other studies also found evidence for cultural beliefs within the CM of ANGER, including entire CMs based on cultural knowledge. Maalej (2004) investigated Tunisian Arabic. The result of the analysis found three types of embodiment: 1) physiological embodiment; 2) culturally tainted embodiment; and, 3) culturally specific embodiment (hereafter, CSE). The first type is the same as Lakoff and Johnson's embodied realism; the other two are variants which include increasing influence from shared cultural knowledge, with culturally specific embodiment displaying the most influence from culture. Maalej concludes from the analysis that the embodiment principle needs to be broadened to include the two new variants, allowing non-human forms of embodiment (e.g., a sheep's stomach as a source domain mapped onto human anger, the target domain) and inanimate forms of embodiment (e.g., a dust storm mapped onto human anger). This formulation is a significant departure from Lakoff and Johnson's original theory.

The problem inherent in Maalej's proposal for broadening the embodiment principle is that his definition of embodiment is not grounded in *human* experience. In particular, *culturally specific embodiment* (CSE) allows for metaphors which instantiate non-human forms of embodied experience (Maalej, 2004, pp. 66-67). All of the CSE examples provided in the study map a source domain of a non-human physiological body part (e.g., a sheep's stomach) or an inanimate entity (e.g., a dust storm) onto a target domain of a human emotion. The human physiological basis of experience in the world is completely detached from the embodiment principle, destroying the empirical grounding of CMs. Calling the CSE mapping a form of embodiment stretches the conceptual metaphor construct severely.

An extended discussion of the problem is found in Lakoff and Turner (1989). In their book, *More than cool reason: A field guide to poetic metaphor*, the authors identify factors that constrain the mapping of a cognitive concept to another, and the question "Can a metaphor exist between any two things?" is specifically discussed. The answer is no: "But this phenomenon—our wide-ranging ability to find ways to metaphorically link two linguistic expressions—does not mean that metaphor is completely unconstrained, that anything can map onto anything any old way" (p. 200). One example to support the contention is the metaphoric expression *Death is a magician*; Lakoff and Turner show that *magician* performs an action which causes death, but *magician* does not map onto the dying person's last breath, an action which is the result of death, not the cause. After analyzing several examples, they conclude that "[t]hough wide-ranging metaphorical interpretations are possible, they are far from arbitrary...[i]t is not the case that anything maps onto anything" (p. 203).

If embodied realism is broadened to include non-human source domains like a sheep's stomach and a dust storm (neither of which can be experienced physiologically by a human), then embodiment as a construct can theoretically include any concrete physical object—an airplane or the Moon (Lakoff & Kövecses, 1987). Embodiment would be extended to everything and anything *in an arbitrary fashion*, undermining the theory as a principled account of how a certain source domain is mapped with a certain target domain. Ultimately, if the theory cannot explain why particular mappings occur, then its usefulness in research is effectively nil. The issue points to the effective limits of any theory—no theoretical principle explains every phenomenon; there are always "outliers" that do not fit into a construct. Thus, CSE is not the result of conceptualizing

about human experience in the world, and can be eliminated from consideration as CM. The Maalej (2004) study is important for delineating the limits of culture on conceptualization; CM theory must limit embodiment to human experience of the world, in order for the theory to have empirical significance.

Several investigations concluded that CMs are instantiated by a complex mix of multiple factors, including culture. Barcelona and Soriano (2004) studied anger metaphors in Spanish and English. The authors found eight metaphors of anger that both languages share. There were some differences; Spanish does not conceptualize "steaming" as a physical effect of anger (thus, a language-specific submapping), and similarly English does not instantiate "frying" (p. 301). The paper recommends a multidisciplinary approach, employing "cultural, neural, psychological and linguistic accounts" (p. 307) in order to better understand the interaction between language and cognition. MacArthur (2005) collected metaphoric expressions of horse riding, a human embodied activity. The author argues that "common experience," whether directly experiential or vicarious, does not account for the high prevalence of horse riding metaphoric expressions; rather, the metaphor was spread by the upper classes of society, who were the primary horse riders and also influential in setting social trends. Social transmission and propagation of the CM is therefore the result of both experiential and social factors. Similar to Barcelona and Soriano, MacArthur recommends taking into account multiple factors when analyzing CMs. Cienki (1999), in a study of two Russian words for honesty, concluded that the different conceptualizations found in each word are possibly evidence of "general patterns" in Russian culture "which organize or link up 'families' of related cultural models" and so "can provide coherence to a shared

worldview" (p. 200). Thus, cultural models provide organizing principles and associations between concepts to foster cognitive structuring in the mind. Again, like the authors discussed previously, Cienki suggests studying CM in a variety of ways to determine the full range of influences on instantiation. All of these studies accept the influence of culture in CM as one factor among several and recommend multidisciplinary research designs.

Finally, Emanatian (1999) takes Cienki's (1999) analysis of families of cultural models a bit further, suggesting an embodiment/culture continuum or scale. The study investigated Chagga, a Bantu language, and found that cultural models are an important, *though highly variable*, factor in metaphors of sex and eating. The study is the only one found during the literature review phase that concludes that the separate influences of embodiment and culture vary in their significance from CM to CM; all of the other studies assume that one of the two factors dominates the CM under study. As a result of the analysis, Emanatian suggests that each CM should be studied separately as a unique instantiation of multiple cognitive, cultural, and linguistic factors. The Emanation study shows that the relationship between embodied experience and cultural knowledge is complex and idiosyncratic for different CMs.

Theories of Shared Cultural Knowledge

This section describes two theories of shared knowledge which have implications for the current study. The first study is from psychology, and the second is from linguistics; each will be discussed in turn. First, Herbert H. Clark (1996), a psychologist, discusses the *coordination* that takes place during communication between two people. Coordination is a mutual activity that keeps the communication from breaking down due

to misunderstanding; the process involves both parties mutually speaking and listening to utterances but also mutually building meaning: "there must be coordination between what speakers mean and what addressees take them to mean" (p. 325). What is needed to coordinate meaning is a *coordination device* that helps determine what the meaning of an utterance is likely to be. Clark uses the example of the *Schelling game* to illustrate the concept of the coordination device. In the Schelling game, two people are shown a picture of three balls—a basketball, a squash ball, and a tennis ball. The people (named June and Ken) are instructed to choose one of the balls, and each is told that a second person in a different room will also be asked to choose a ball. If both people select the same ball, both win a prize; if they select different balls, they win nothing. Clark discusses the outcome of the game and its relation to communication.

> June might assume, for example, that she and Ken will both see the basketball's large size as the clue, focal point, or key that would allow them to coordinate their expectations and would therefore choose the basketball…if Ken made the same assumption, he would make the same Schelling choice, and they would co-ordinate. They would have treated this assumed commonality of thought—the large size of the basketball—as a co-ordination device (1996, p. 326).

The effective communication of meaning therefore requires the use of a *key* to understanding that the speaker and the hearer mutually agree is required to understand the utterance.

However, there is a problem with coordination devices: how do the speaker and hearer determine which key is necessary for understanding a particular utterance? There are many potential coordination devices for an utterance, so the possibility of choosing different keys is high. Clark argues that the principle of *joint salience* governs the selection of the appropriate coordination device.

> *Principle of joint salience*: For the participants in a co-ordination problem, the optimal coordination device is the one that is most salient in the participants' common ground (Clark, 1996, p. 327).

Common ground is the knowledge that both the speaker and hearer share; that is, "the sum of their mutual knowledge, mutual beliefs, and mutual suppositions at the moment (p. 327). The coordination device for the meaning of an utterance is chosen from the shared social knowledge of the speaker and hearer; in other words, joint salience for the key to meaning is determined from the participants' common ground.

The use of common ground to determine the key to meaning has been discussed by linguists, as well. Among these, Green (1995) described the processes that allow a hearer to determine the meaning of an ambiguous lexical item or utterance. She argues that ambiguity resolution is important to discourse interpretation (and vice-versa) because the same process governs both. In communication, polysemy (i.e., different meanings for the same word) causes difficulties for both ambiguity resolution and discourse interpretation. Green states that *rationality* is a significant constraint on the resolution of meaning of polysemous words because "what would really be irrational would be using a word to refer to anything except what we estimate our intended audience is likely to take it to refer to, because it would be self-defeating" (1995, p. 11). Similar to Clark, Green

proposes that ambiguity resolution depends on the shared knowledge of the speaker and hearer; she names this principle *normal belief*. The principle states that

> …the relation *normally-believe* holds for a speech community and a proposition P when people believe that it is normal (i.e., unremarkable to be expected) in that community to believe P and to believe that everyone in that community believes that it is normal in that community to believe P (p. 11).

Such beliefs are usually unmarked in the utterances of members of the speech community; for example, as Green points out, though not all members of a community may believe in a god, "members of that society treat one another as believing in a god except when there is reason to impute the contrary belief to someone…" (p. 12). The result is that utterances among members of the community assume the normal beliefs of the community, and these beliefs are employed to interpret the intended meaning of a polysemous word in an utterance and to aid discourse interpretation in general.

To summarize, the common ground of unmarked cultural knowledge and normal beliefs account for the ability of the speaker and hearer to jointly select a salient coordination device which allows for the accurate interpretation of utterances (Clark, 1996), including ambiguous utterances (Green, 1995). Cognitive conceptualization is thus a process for categorizing and contextualizing physical experience and cultural knowledge for the purpose of creating a comprehensible interpretation of meaning within a particular speech community. The next section reviews historical studies of conceptual metaphor and shared cultural common ground.

Historical Studies of CM and Culture

In Chapter 1, Bertuol (2001) was presented as an example of *historical* research of CMs; several other studies have been done along these lines (Csábi, 2001; Goldwasser, 2005; d, 2004; Wiseman, 2007). However, as the discussion of the Bertuol study showed, synchronic study of historical language data collapses the culture variable into a "point-in-time" that does not show the changes in form and meaning over time that led up to the samples under study. Therefore, historical-synchronic studies, such as those listed above, will not be reviewed (except for Geeraerts and Grondelaers (1995), which is important for theoretical reasons); instead, in this section *diachronic* studies that can delineate changes in conceptualization over time are the focus of the literature review.

Geeraerts and Grondelaers (1995) is the counterpart to the Yu (1995) study for Western European languages. The researchers conducted an exploratory study in English and Dutch in response to work by Kövecses (1990), who supported Lakoff and Johnson's embodiment theory for metaphors of emotion. Geeraerts and Grondelaers provided non-linguistic historical data from art and medicine to support their arguments. The researchers concluded from their limited investigation that historical cultural beliefs in medical treatment called the Four Humors model, may have had an important influence on metaphor instantiation in the two languages. Thus, in findings that parallel Yu (1995), cultural beliefs and practices concerning the human body were important sources for instantiating the metaphoric expressions.

In addition, the study also provided two major reasons why the Four Humors explanation should be accepted: First, the fluids as the *motivator* for anger is a more parsimonious explanation when the humoral account is considered. For example, in

metaphoric expressions such as *he was filled with joy* and *she could not contain her joy*, Geeraerts and Grondelaers question how the expression combines with ANGER IS HEAT to yield a fluid; a solid or gas which fills the CONTAINER is also a logical possibility. The humoral model does have the fluid property, and the model may provide fluid for the metaphoric expressions.

Second, the humoral account makes better sense of the samples which do not seem to have a physiological basis. As an example, Geeraerts and Grondelaers cite as one case that feelings of love are associated with heat in the Four Humors, but physiological heat is not associated with sexual desire; example metaphoric expressions include *burning devotion* and *warm feelings*. Yet, these expressions do not mean that the person feels "hot": "...it is physiologically unlikely that persons in love have a permanently raised skin temperature..." (p. 168). The implication is that the Four Humors model explains the presence of the HEAT property in cases where embodied physiological effects are absent. Geeraerts and Grondelaers conclude by noting the limitations of the study, which included its exploratory scope and synchronic design. New studies were recommended, particularly diachronic designs, to test the study findings and corroborate them.

To explore further the findings and implications of Geeraerts and Grondelaers (1995) concerning the possible effect of the Four Humors on CM, I conducted a study of anger metaphors (Mischler, in press) in the nineteenth century. Specifically, the years 1844 to 1863 were chosen for the study, a time when the Four Humors was still being practiced by lay (non-expert) treatment of medical conditions, according to medical historians (Nutton, 1993). In the study, metaphoric expressions of the spleen (a source

domain employed historically to express emotion in English, according to the *Oxford English Dictionary Online*) were collected from two popular magazines, *Blackwood's Edinburgh Journal* and *Littel's Living Age*. Keyword searches for the word *spleen* were conducted in digitized versions of the magazines available at two Web sites, *The Internet Library of Early Journals* and *The Nineteenth Century in Print*, respectively.

The study found that the anger metaphors of the spleen were quite different in their instantiated properties, compared to the ANGER CM described by Lakoff and Kövecses (1987). In the spleen metaphors, the CONTAINER is the organ rather than the human body. Like the earlier studies, the container is under pressure, and there is fluid in the container; however, the fluid does not include the HEAT property. In addition, in the spleen samples anger is often expressed suddenly and without warning because the visible physical effects of anger, such as skin redness and bodily agitation, are absent. Finally, overt behavior associated with the spleen metaphor has severe emotional and psychological consequences, including depression, and may lead to extreme violence and the commission of suicide. These results show that spleen metaphors are different in significant respects from Lakoff and Kövecses' (1987) ANGER CM and have features similar to the description of the spleen in the Four Humors cultural model. The study concluded that "culture affects conceptualization of experience" (Mischler, in press, p. 21), which provides support for Geeraerts and Grondelaers' (1995) proposal concerning the influence of culture and the Four Humors model on conceptual metaphor.

The two studies described above were historical in design but not specifically diachronic; neither study investigated change in conceptualization over time. Two recent studies have employed diachronic designs. First, Gevaert (2002) reconstructed the

historical conceptual domain of ANGER in Old English in a longitudinal study design which employed a frequency analysis of words denoting anger. The data, collected from the Toronto corpus, were categorized into three historical periods. The three periods were chosen for three reasons: 1) to follow the periods used in the Helsinki corpus (which have status as a research standard, according to Gevaert); 2) to spread the data more evenly for analysis; 3) and to account for "cultural evolution" (p. 285), by which Gevaert refers to the most dominant culture of a historical period. For example, the first period (Before 850 A.D.) was dominated by the old Germanic culture, and the second period (850-950) was primarily influenced by Latinate culture. The three periods are Before 850 A.D., 850-950, the third is 950-1050, and a later, additional analysis investigated briefly the conceptual domain of ANGER in Middle English, from 1200-1450.

The analysis showed that the historical periods were marked by some fluctuations in the frequency (called *tokens*) and number of different words (called *types*) of ANGER words related to HEAT. In the first historical period, two words (i.e., *hatheort*, *hygewælm*) comprised 1.58% of all words for ANGER; in the second period, the *tokens* increased to 12.81%, and the *types* also increased, from two in the first period to seven in the second period (e.g., *hatheort*, *hathige*, *blæse*, *ghyrstan*; *hygewælm* from the first period was not found). Gevaert concludes that in the second period, "...the HEAT-domain gains importance spectacularly due to Latin (and biblical) influence" (p. 293), an indication of the effect of cultural knowledge on the ANGER IS HEAT conceptualization.

In the third period (A. D. 950-1050), tokens decreased to 6.23%, and types decreased to five (*hathige* and *blæse* from the second period were not found; *ontendan* replaced *ghyrstan*). Interestingly, in the Middle English period, the word *anger* first

appeared, and SHARP was added as a new conceptualization, which Gevaert says “fits in nicely with the Old English conceptualisation of ANGER as something which hurts...” (p. 293). In addition, the years from 1350 to 1450 showed a significant increase in French loan words, especially those introducing new cognitive concepts; words added to the English lexicon included *choleric*, *melancolie*, and *boilen*, all of which are related to the Four Humors model. Gevaert concludes that the conceptualization of ANGER is generally stable, but the Middle English period was characterized by “...drastic change, apparently under the influence of the humoural theory" (Gevaert, 2002, p. 294). The study therefore indicates, like Yu (1995) and Geeraerts and Grondelaers (1995), that cultural beliefs about the human body and medical practice (in this case, the Four Humors model) influenced significant changes in the conceptualization of ANGER during the late Middle Ages.

Gevaert’s finding concerning fluctuations in the frequency of the heat conceptualization over time are noteworthy in light of current CL theory. Kövecses (Kövecses, 2005) summarizes the implications.

> This is an extremely important finding because it bears directly on the issue of universality of metaphorical conceptualization across time. If the conceptualization of anger in terms of heat is a mechanical and or automatic consequence of our real physiological processes in anger, this fluctuation should not occur. It cannot be the case that people’s physiological characteristics change in anger every 100 or 200 years or so (p. 105).

Kövecses rightly points out that bodily experience does not change over time; therefore, another factor (or factors) is influencing the diachronic changes in the HEAT conceptualization. In a discussion of causes of variation in CMs, Kövecses provides an explanation of the reasons for the changes found in the Gevaert study. "I believe the answer is that universal physiological features provide only a *potential* basis for metaphorical conceptualization – without mechanically constraining what the specific metaphors for anger will be" (p. 248). The universal potential, by implication, can be selectively instantiated in a specific CM, providing conceptual space for culture to have a role in conceptualization. The next question is, how far does culture's role extend? Can a CM consist solely of cultural knowledge? Kövecses provides an answer a few pages later: "As a matter of fact, it also seems possible that universal physical or biological embodiment is entirely ignored in conceptualization" (p. 251). To support this statement, he cites Lutz (a study published in 1988) who analyzed *song*, the Ifaluk word for *anger*. Kövecses states that the conceptualization of ANGER in the word did not include any of the characteristics of the ANGER IS A HOT FLUID IN A CONTAINER CM. Instead, *song* was conceptualized by its social aspects, especially concerning how anger is resolved in social situations. Kövecses commented on Lutz's analysis as follows.

> Although the Ifaluk may well have very similar physiological processes in anger to the English and Chinese, this fact does not necessarily lead them to conceptualize *song* as pressure in a container…Does this mean that *song* is an abstract concept not motivated by bodily experience? Yes, it does, because it is not universal bodily experience that motivates it. Its motivation

> derives from the particular social-cultural practice of the Ifaluk (p. 251).

Kövecses provides further examples of languages which show a cultural basis for the TIME CM. Yet, despite his analysis of Gevaerts, Lutz, and others indicating a fundamental role for culture in conceptualization, in the last chapter of the book he accepts the primacy of embodied experience in conceptualization, at least for some metaphors:

> My goal in this book is to offer a view a view of metaphor that can deal successfully with the fact that some metaphors are potentially universal and the fact that some metaphors vary cross-culturally and within culture (pp. 292-293).

The immediate question suggested by Kövecses' conclusion is, on what basis will a particular CM be deemed "universal"? As the review of the synchronic studies in this chapter of Japanese, Chinese, Tunisian Arabic, Spanish, Russian, and Chagga have shown, emotion metaphor employs significant cultural knowledge. Kövecses' own review of Gevaert and Lutz came to the same conclusions.

To answer the question concerning which metaphors are universal, Kövecses proposes, as one case, the CM of ANGER (specifically, THE ANGRY PERSON IS A PRESSURIZED CONTAINER) is "potentially universal or near universal," because it is based in physiological experience and has been found cross-linguistically in a diverse set of languages (p. 64). Kövecses does acknowledge the primary/complex distinction for the potentially universal group, but it is not crucial in his view: "In particular, these metaphors are 'simple' or 'primary' metaphors and/or complex metaphors that are based

in universal human experiences" (p. 64); thus, in his view, both primary and complex metaphors can be potentially universal. The implication for the role of culture is theoretically interesting: if primary metaphors change over time as a result of cultural change, then "potentially universal" is not a valid characterization of any CM, since all CMs are composed of at least one primary CM. Because Kövecses' THE ANGRY PERSON IS A PRESSURIZED CONTAINER CM is of the complex type, the possibility is more likely (from Lakoff and Johnson's viewpoint) that cultural knowledge influences the conceptualization. The larger issue is, therefore, the possibility of change in primary metaphor. To date, no study has investigated diachronic changes in primary metaphor.

Gevaert's diachronic study indicated that cultural values change over time, in turn changing the frequency of use of the conceptualization and its content (meaning). If CMs constantly change as a result of cultural change, when, if ever, would a CM display universal characteristics? All CMs, constantly situated in a cultural milieu, may consistently obscure or selectively ignore some or all of their embodied characteristics; some CMs may do this relatively more or less than others, but universal cultural experience must affect all CMs in some way, if it affects any of them. Determining that a metaphor is potentially universal seems an impossible task, at least empirically.

This difficulty explains why studies in other languages do not corroborate the results from English concerning universality. Universal aspects of embodiment have been found across many languages, but cultural aspects also are found—in fact, I suspect that no CM studied in previous research was completely devoid of cultural experience, if the non-autonomous nature of language that CL professes is to be taken seriously. Overall, "potentially universal" does not characterize the relationship between embodied

experience and cultural experience in a way that accounts for both current theory and empirical research.

In sum, Gevaert's study showed the importance of studying CMs diachronically, and also pointed out some important issues that are difficult to account for within current CM theory. Two other recent diachronic studies also studied CMs over time. The results provide insights for theory and for the current study.

Like Geeraert's and Grondelaer's use of non-linguistic data for metaphor analysis, Gevaert's frequency analysis is also interesting for its implications for research methods. In CM studies, frequency analysis has not generally been employed very often, possibly as a result of the widespread use of the introspection method for collecting and analyzing language data (see Chapter 3 for more information on introspection). However, as previously stated, frequency of use has an important theoretical implication; that is, changes in frequency indicate a change in cultural beliefs or values which also signals a change in the conceptualization.

A second recent diachronic study, which specifically investigated CM (Koivisto-Alanko & Tissari, (2006), supported the conclusion by Gevaert concerning change in semantic meaning over time, and added another important aspect, change in CM meaning over time. The researchers investigated the REASON and EMOTION domains by analyzing metaphoric expressions employing the words *love, fear, wit, reason, and mind*. The words were searched in four corpora of English; two were historical collections, the *Corpus of Early English Sampler* and the *Helsinki Corpus of English Texts*; two modern-day collections included were the *Freiburg-Brown Corpus* and the *Freiburg-Lancaster-Oslo-Bergen (FLOB) Corpus*. The purpose of the study was to investigate the

relationship between REASON and EMOTION in CM because, according to the authors, some researchers in previous synchronic studies argued that these concepts are similar, and others view them as divergent. The researchers conducted a diachronic study to investigate the issue.

The total tokens collected for the five words were 2296 for *love*, 882 for *fear*, 1124 for *reason*, 1096 for *mind*, and 181 for *wit*. The analysis showed that Lakoff and Johnson's (1980) *ontological metaphor*, in which an abstract concept (the target) is mapped by a physical entity (the source), was the basic CM employed in the data. Specifically, for the five words studied, ENTITY was the most general source domain, and subdomains within it included CONTAINER, INSTRUMENT/TOOL/WEAPON, OBSTACLE, and VALUABLE COMMODITY. A second ENTITY was the HUMAN BODY; subdomains included THE CONTAINER FOR EMOTIONS and REASON. The CM identified in the analysis were LOVE IS A VALUABLE COMMODITY, THE MIND IS A CONTAINER, EMOTIONS ARE FLUIDS IN A CONTAINER, several FORCE metaphors; in addition, the use of personification for abstract concepts was found in HUMAN BODY metaphors, and quantification was employed in COMMODITY metaphors.

The results showed that the CONTAINER image schema, BODY, and FORCE/CONTROL were all used historically to map both REASON and EMOTION; conversely, BODY is used exclusively for THE CONTAINER OF EMOTIONS. Moreover, FORCE/CONTROL is a continuum with REASON on the control side and EMOTIONS like LOVE and FEAR on the force side; REASON controls the extent to which the emotions can "surge" (p. 209). Overall, in CM for REASON and EMOTION the researchers found some marked differences

(e.g., the FORCE/CONTROL continuum), and also some similarities (e.g., subdomains such as CONTAINER and FORCE/CONTROL are shared).

The study also found that the metaphoric meanings of the CM change over time. The authors discuss two types of change: 1) metaphor use to denote change in the meaning of the expression, and 2) change in CM to denote cultural change. The first type, change in the meaning of the expression, was found in the metaphors for WIT. In the early modern English period, WIT (the abstract target domain) was associated with MENTAL ACTIVITY IS MANIPULATION (the concrete source domain), then later WIT was associated by personification with A LEARNED/ESTEEMED PERSON, and finally WIT became associated with the present-day meaning of "imaginative intelligence in the expression of speech and writing" (Koivisto-Alanko & Tissari, p. 210), indicating a change in the cognitive conceptualization of WIT over time.

The authors argue for two major points concerning the results of the study. First, diachronic analysis of a concept can delineate variations and changes in semantic meaning over time, as shown above in the expressions employing WIT. Second, CM change over time, and the changes reflecting evolutionary changes in cultural values. For example, the authors state that REASON decreased in its cultural value over time, indicated by its less frequent use in metaphor and the restriction of its use to the philosophical text genre. Another example of cultural change was found in the domain of FEAR. FEAR changed from possessing a positive connotation in the Early Modern English period to a negative value in present-day metaphoric expressions, indicating that "emotions are evaluated differently in different periods" (p. 210), even within the same speech community. In sum, high/low and positive/negative values are assigned to concepts by

the speech community using the concept, and these valuations constitute part of shared cultural knowledge.

The results of the two diachronic studies of CM, Gevaert (2002) and Koivisto-Alanko and Tissari (2006), indicate that the use of a cognitive concept over time may affect its meaning, and that evolving changes in cultural values may affect the conceptualization of a CM. The exploratory study by Geeraerts and Grondelaers (1995) discussed the possibility of these relationships, and the later studies by Mischler (in press), Gevaerts (2002), and Koivisto-Alanko and Tissari (2006) have provided details which support Geeraerts and Grondelaers' proposal. However, as mentioned previously, no study has investigated change over time in ANGER metaphor, which is the theoretical foundation of embodied metaphor in CM theory, according to Lakoff and Johnson (1999). Thus, if ANGER CM, which are grounded fundamentally in embodied experience in conceptual metaphor theory (CMT), change in response to changes in cultural beliefs and values over time, that would indicate that cultural knowledge is an important factor in conceptualization generally and in CMT specifically. In that case, cultural knowledge is employed to select culturally-licensed dimensions of a CM for encoding in the semantic meaning of metaphoric expressions, in the same way that cultural knowledge selects culturally-licensed dimensions of deixis and encodes it in the syntax of linguistic expressions. The current study investigated this question.

Summary

Overall, both the synchronic and diachronic studies concluded that conceptual metaphor is motivated by bodily experience, yet cultural knowledge was found to be an important factor in motivating the metaphoric expressions in each case. Lakoff and

Kövecses' (1987) study indicated that cultural and historical factors may influence the CM of ANGER, as well as the atypical cases analyzed in their study. In addition, in several other studies, including Yu (1995), Geeraerts and Grondelaers (1995), Gevaert (2002), and Mischler (in press), cultural knowledge of the human body specifically from the field of medicine (especially the Four Humors model for English) contributed important aspects of the conceptualization of the body and emotion. A full investigation of the Four Humors influence on CM has not been conducted; the Geeraerts and Grondelaers' (1995) and Mischler (in press) studies were exploratory and historical, not diachronic; Gevaert's (2002) diachronic study looked at the conceptual domain of ANGER via individual lexical items, not the CM of ANGER in metaphoric expressions; and, Koivisto-Alanko and Tissari (2006) investigated EMOTION CM, not ANGER specifically. Therefore, no previous study of the CM of ANGER has investigated change over time (which has important implications for the universality of CMs and the fundamental principles of CMT), nor frequency of use of CM and changes in conceptualization over time. Considering the importance of the CM of ANGER both theoretically and historically to CMT, these gaps in the research need to be addressed.

Moreover, the research literature follows a theoretical assumption that universal metaphors are possible (e.g., Kövecses' (2005) argument for "potentially universal" metaphors), but research studies continue to find cultural models inextricably entwined with embodiment, including the studies by Cienki (1999), Emanatian (1999), and Maalej (2004). Thus, the relationship between embodied experience and cultural knowledge is still unclear, due to the marked differences between current theory and research results.

Finally, several of the studies recommend multidisciplinary research designs in order to more fully capture the influence of cultural models on CMs, including Barcelona and Soriano (2004), Cienki (1999), and MacArthur (2005). The conclusions of the latter study concerning the historical influence of social groups on metaphor spread in society echo Sweetser's (1990) more general assertion that diachronic culture and synchronic language are connected in tangible ways. However, cultural and historical influences are difficult to study in present-day data, as Chapter 1 discussed. Multidisciplinary, longitudinal study designs are needed to delineate the complex relationship between bodily experience in the world and cultural knowledge.

The current study filled the research gap discussed above by studying the CM of ANGER in a diachronic design to investigate whether a cultural model such as the Four Humors systematically instantiates the complex CM; whether the cultural model is associated with changes in the conceptualization of the CM and the associated primary metaphors over time (and associated to scenes within the primary metaphors); and, how the changes affect variation in historical and present-day metaphoric expressions. The study method for investigating these aspects of CM is discussed in Chapter 3.

CHAPTER III

Methodology

This chapter will discuss the research design and method for the current study. The chapter is divided into five parts: research questions, major method issues, definitions of key concepts, the study methodology (including materials and data collection), and data analysis. Each section will be discussed in turn.

Research questions

The research questions were developed from the conclusions of the literature review, discussed in Chapter 2.

1. Are the blood metaphor and the spleen metaphor part of the CM of ANGER, or are they in different CMs?
2. What motivates the conceptualization in each type of metaphor? Is it bodily experience, cultural knowledge, a combination of these, or some other source?
3. Does the conceptualization of ANGER vary over time through the use of cultural models?
4. Does scientific knowledge (and advancement in that knowledge) influence the cognitive conceptualization and variation in it?

These questions will be discussed in Chapter 5 (Discussion of the study results).

Major methodological issues

Before detailing the study method, I would like to briefly discuss two issues inherent in designing the research methodology for the current study. These issues are the use of non-linguistic data to aid the analysis of linguistic data, and the use of text corpora for collecting both linguistic and non-linguistic data. I will discuss each of these issues below.

The Empirical Study of Language and Culture

In recent years, linguists have specifically considered the empirical implications for studying cultural aspects of a language. The context of many of these discussions has been the study of the *linguistic relativity hypothesis*, the proposal that a specific language influences the way speakers of the language think and view the world. The LRH was first proposed in the 1940s by Benjamin Lee Whorf, and has been employed in several different research fields, especially psychology and in ethnographic studies of primary colors in different languages. However, the issues involved in the hypothesis are instructive for the empirical study of language and culture. Two researchers are discussed below, along with the implications for the current study method.

Lucy (1996), a psychologist studying the relationship between the linguistic structure of language and cultural norms, argues that non-linguistic data, such as research on shared cultural knowledge in a speech community, must be analyzed in order to properly interpret cultural beliefs in linguistic data. He criticizes as inadequate the reliance on linguistic data alone to investigate the connections between syntax and culture. He calls this “linguacentrism”, the reliance on the researcher’s own linguistic

and cultural competence to analyze language data. The solution is to investigate explicitly the connections between language and culture.

> An adequate study of the relation between language and thought should, by contrast, provide clear evidence of a correlation of language system with a pattern of non-linguistic belief and behavior – individual or institutional…from a methodological point of view, such [linguistic] materials cannot be persuasive by themselves...(Lucy, 1996, pp. 44, brackets mine).

Lucy discusses a variety of studies in which the language-culture connection is implied but not investigated, or simply ignored. He argues strongly in the article that methods which rely solely on linguistic data to understand the relationship between language and culture are inadequate.

Enfield (2000), while concurring with Lucy that non-linguistic data are useful in research, counterargues that Lucy assumes that language and culture can be separated effectively in order to study them. Enfield states, "…it is difficult, if not impossible, to isolate anything cognitive or cultural which is not already imbued with language at a profound level" (Enfield, 2000, p. 126), and language itself is the main data employed for the study of language and culture, further establishing the inseparability of linguistic form and culture belief. Enfield argues for the use of linguistic data as the primary material for the study of language and culture, adding that "it is unrealistic to demand that studies concerned with the language-culture-thought relationship should seek exclusively to demonstrate 'correlation of a language system with a pattern of non-linguistic belief and behavior' (p. 149); however (slightly revising Lucy's terminology), Enfield agrees with

Lucy that the analysis must be done in a way that is "non-linguocentric" (p. 150). Overall, the major difference between Lucy's and Enfield's positions is the role of non-linguistic data in linguistic analysis.

To address this important issue, the current study employed both types of data because some aspects of culture are not easily discerned in language data, especially when the cultural model under study is not part of the research analyst's own language competence and cultural knowledge. Familiarity with cultural values is especially problem for historical studies which investigate cultural beliefs that are not currently shared or known by the researcher, which result in speculative analyses and conclusions. I agree with Enfield that separating language, thought, and culture is difficult (and this conclusion also follows the *non-autonomous* language principle); however, I do not agree that the task is impossible or undesirable; analyses that can do no more than speculate on the nature of a relationship are of limited usefulness. Therefore, in the current study, in order to interpret the language data with increased accuracy and to provide empirically useful conclusions, non-linguistic background data were collected and used to aid the analysis of the linguistic data. The non-linguistic data added important details to the analysis of the metaphoric expressions that would not have been possible using the linguistic data alone, as Chapter 4 will show.

"Outside" Data for CL Research

The research tradition in CL also supports the use of information in addition to linguistic data. Lakoff and Johnson, in numerous articles and books, have employed evidence from studies in physiology, psychology, neurology, and psycholinguistics to argue that the results from those research areas provide an "existence proof" (see Lakoff

& Johnson, 1999, p. 38) for the plausibility of CM theory. Extending this position, Fesmire (1994), in explicating the theoretical basis of cognitive linguistics as a field, discusses the necessity of taking into account the situational context in metaphor research. He states, "A theory of metaphor must be, in effect, *ecological* or,...*pragmatic*—it must always view human organisms situated in their social and physical environments" (Fesmire, 1994, pp. 152-153). CL has long recognized the value of employing corroborating evidence from other fields to support CL research results and conclusions.

Therefore, non-linguistic background data can serve as a parallel means of support when describing and accounting for the multiple perspectives that the ecology principle suggests; cognitive linguists have not offered non-linguistic cultural data in studies of CM, but its inclusion is in line with CL research principles. In the current study, non-linguistic data are important for understanding the role of culture in a particular data sample, as well as the influence culture has over diachronic time to change the semantic meaning of a metaphoric expression and the CM that motivates the expression. Without non-linguistic cultural data, understanding historical culture and delineating its influence on language is extremely difficult and leads to speculations, not conclusions, on the relationship between language and culture. For the reasons discussed above, non-linguistic data were collected for the current study.

The types of data gathered included medical treatises of the Four Humors medical model written by medical experts who practiced the model during the European Renaissance period (when the model was most popular in English-speaking culture), and cultural data (such as personal diaries, scientific treatises, songs, and artwork) depicting

the practice of the model by lay medical consumers between A. D. 1500 and 1990. The Four Humors model was selected following the conclusions of Geeraerts and Grondelaers (1995), which indicate that the model may explain important features of the ANGER CM in English (see Chapter 2 for details).

A brief overview of the use of the non-linguistic data are given here, with the details of the procedures provided in the Method section. The two non-linguistic data types were used to interpret the metaphoric expressions collected in the current study in two ways. First, the historical medical treatises were read to develop a *composite model* of the Four Humors theory as it was described at the time by medical doctors and physiologists in the 17th century. The major principles found in the treatises (on which all of the experts agreed) became the composite model, and the model was used to delineate features of the Four Humors in the metaphoric expressions collected for study. By this procedure, the linguistic metaphor data could be interpreted for the features of the Four Humors that medical doctors of the period communicated to their patients.

Second, the historical sources of lay practice, such as diaries, artwork, and music were used to collect examples of the ways in which lay medical consumers used the Four Humors medical model to treat their own health conditions. Like the expert medical treatises, the lay practitioner examples also were used to delineate the practice of the Four Humors of the historical period in the collected metaphorical expressions. By combining both expert and lay knowledge of the Four Humors, a more accurate account of the major features of the model was developed and used to interpret the linguistic metaphor data. In sum, the research design included two research studies in parallel tracks: 1) the main study of historical metaphoric expressions, and 2) an ancillary study of the historical non-

linguistic data. The specific procedures enacted for two studies are described in the Method section (see later in this chapter).

Text Corpora

The second important methodological issue involves *text corpora*. In Cognitive Linguistics, the most common analysis technique for gathering language data for analysis is *introspection*. In this method, the researcher, using her own competence in the language under study, creates data samples from scratch that employ the form and meaning features that are the target of the study. Due to the complexity of creating valid examples, the data samples are almost always single sentences, which preclude the study of extended discourse (e.g., paragraphs in writing; conversation in speaking); moreover, cultural models are difficult to study because the typical situational context of the form is not included and must be inferred. Therefore, generalizing introspective analysis across speakers and languages is difficult empirically because the data samples reflect the knowledge and usage of the researcher rather than the larger speech community. These weaknesses have usually limited research in Cognitive Linguistics to word-level and sentence-level analyses and to the implications for conceptualization, through an appeal to universal bodily experience. The procedure invariably reduces to inference the contributions that situational context and cultural models bring to the conceptualization. These weaknesses of introspection have led to discussions in the CL field concerning the limitations of the method for data analysis and interpretation (Croft, 1998; Gibbs, 2006), as well as the practical limits of CL methodology for the study of the human mind (See Sandra, 1999, for an extended critique).

Recent innovations in computer-based language corpora have led to new methodologies that address the limitations of the introspection method. Some CL researchers employ *compiled corpora* of language data in their investigations (Stefanowitsch & Gries, 2006; Tummers, Heylen, & Geeraerts, 2005). A compiled corpus uses the general principles of scientific research to randomly select texts in the target language to create a collection of natural language texts that are *representative* of the form, meaning, and use of language in the larger speech community. Through the systematic compilation of a corpus, the data samples collected from the corpus for a research study reflect a wide variety of text modes (e.g., written, spoken), registers (e.g., formal, informal), and genres (e.g., newspapers, research articles, speeches). As Biber, et al. (1994) note, "The general goal has thus been to represent as wide a range of variation as possible" (p. 4). Biber, Conrad and Reppen (1998) further demonstrated that analyzing texts from only one or two registers or genres leads to inaccurate generalizations concerning the use of words and grammatical structures in language. They state, "…a corpus restricted to any one register will not represent language use in other registers" (pp. 34). In contrast, compiled corpora, which are specifically designed to be representative of language use across registers and genres, afford a scientifically valid view of the language as it was used in various ways in a historical period—across texts, genres, native speakers, registers, and communicative functions.

In addition, the frequency of use of a linguistic expression can also be quantified (because the total number of words in a compiled corpus can be calculated), and various statistical measures can therefore be applied. In the current study, two compiled corpora were employed to view changes in metaphor form, meaning, and frequency of use over

time. The results of the analysis of language use are more easily generalized to the behavior of native speakers, due to the use of corpora which are highly representative of the historical language form-meaning pairs under study.

Finally, the particular corpora selected provide contextual data to investigate the contributions of cultural knowledge to conceptualization. Corpus research methodology has been criticized for focusing on short passages (often word strings of 80 characters or less) that limit the amount of situational context that can be employed in the linguistic analysis (Hunston, 2002). The current study addresses this issue by selecting corpora and corpus analysis systems that include complete contextual data. This procedure allowed for a more accurate discourse analysis of the meaning of each data sample as well for delineating the context and the cultural beliefs within which a sample is used.

The use of compiled corpora to conduct both quantitative and qualitative analyses is, at a philosophical level, the norm in corpus studies (Biber, D., Conrad, S., & Reppen, 1998). However, according to Partington (2004), few corpus researchers have employed standard discourse analysis procedures; as well, discourse analysts do not generally do statistical analysis in discourse studies (Partington, 2004, p. 12). As a result, quantitative and qualitative analyses were not usually employed in the same corpus study. Recently, a new research paradigm, Corpus-assisted Discourse Studies (CADS), has been proposed to fill the methodological gap (Partington, Morley, & Haarman, 2004). The studies in Partington, et al. were designed to fit between the quantitative and qualitative method poles, attempting to combine the advantages of each. For cognitive linguistics, the approach addresses the theoretical assumption that language is comprised of form-meaning pairs—form is subject to objective measurement, but meaning often is not (and

so discourse analysis has been a popular option for studies in semantics). The CADS approach provides a methodological solution for the study of form-meaning pairs in CL, including metaphor—Partington (2006) conducted a CADS study of metaphor and simile, demonstrating the potential of the approach for metaphor research (though the study did not investigate CM specifically). In the current study, CADS was chosen as the overall methodological approach to the study of conceptual metaphor.

In sum, the methodological issues concerning the use of non-linguistic data and text corpora in linguistic analyses are complex. However, both methodologies were found to be useful for the goals of the current study. The details of the procedures to employ these two methods are given in the Method section, later in this chapter.

The Definition and Structure of Metaphor

Metaphoric Expression

The metaphoric expressions in the study are a specific type of linguistic structure found in the writings of native speakers of English during the 490-year historical period under study. The expressions selected mapped the human spleen and blood as *source domains* to a wide variety of *target domains*. The two source domains were selected because they motivate the metaphoric expressions discussed in Lakoff and Kövecses' (1987) study of ANGER, which is the target domain selected for the current study (discussed in Chapter 2). Specifically, the metaphoric expressions collected were *He vented his spleen* and *His blood boiled*. The keywords used to search for the metaphoric expressions in the corpora are the underlined words (see above). The target domain of ANGER could be represented lexically in the metaphoric expression or implied by the situational context. For example, *He vented his spleen* in a context in which the subject

(i.e., *He*) is clearly angry instantiates the target domain of ANGER without representing it in words; conversely, *He vented his rage* explicitly identifies the target domain of ANGER with the word *rage*. The definition specifically allows for collecting variations in the target domain over time for the keywords, and so delineates changes in conceptualization as scientific knowledge and cultural beliefs change.

Related Concepts

Other concepts used in the analysis include conceptual metaphor, primary metaphor, primary scene, complex metaphor, and conceptualization. All of these were discussed in Chapters 1 and 2; for the purposes of the current study, they will be defined more formally.

Conceptual metaphor

A CM is a cognitive structure in the human mind which is employed to structure human knowledge of any type. According to cognitive-functional theory, CM are the basic organizing system of human cognition, and therefore have a crucial role in perceiving, interpreting, and storing experience and knowledge in the mind.

Primary metaphor

Primary metaphor is the most basic type of CM, which is a product of direct bodily experience in the world. Primary metaphors develop out of sensorimotor experience of many kinds, including bodily motion, internal physiological processes (e.g., blood circulation, breathing, digestion), and external processes of perception (e.g., sight, hearing) and activities (e.g., walking, moving the limbs, talking). An example of a primary metaphor is MORE IS UP.

Primary scene

The primary scene is the basic, physical experience of the body which produces primary metaphor. Recall from Chapter 2 the example from Johnson (1999) of the primary metaphor KNOWING IS SEEING. A young child was asked, "What's in the box?" and sees a toy inside. Repetition of the physical experience produces a schema (the primary scene), which then produces the KNOWING IS SEEING primary metaphor. The primary scene is the fundamental cognitive component of primary metaphor and allows the child to interpret the physical world and to learn her or his first language.

Complex metaphor

Complex metaphor is a type of CM which is composed of two or more primary metaphors (and primary scenes). Grady (1997) demonstrated that complex metaphors can be analyzed, via a procedure called *decomposition*, to derive the primary metaphors that comprise the complex metaphor. As a result, basic CM combine in complex ways through experience in the world to create more complex CM for the purposes of interpreting the world and expressing meaning in language. In addition, CM can include cultural knowledge that is not gained via bodily experience. Lakoff and Johnson (1999) claim that as a CM becomes more complex, cultural knowledge becomes a more influential factor in motivating the CM.

Conceptualization

The process of developing CM from bodily experience is termed conceptualization. For primary metaphors, the process employs bodily experience exclusively. For complex metaphors, a wider variety of knowledge is available to form the CM.

Frame

In Charles Fillmore's (1982) *Frame Semantics*, he develops a theory for identifying the cognitive concepts which are evoked by a lexical item. The cognitive concept is the *frame*. A frame includes a wide variety of encyclopedic knowledge associated with the word, including semantic meaning, relations which define the interaction between knowledge, situations for use of the word, and *scripts* which describe experiential situations in which the word is employed. An example is the prototype scenario of anger (discussed in Chapter 2), which is a script for the social situation in which an anger event takes place. The frame concept will be applied in Chapter 5 to analyze the collected language data for the content of cognitive conceptualizations.

As was discussed in the previous section, two separate but related research studies were undertaken. First, an ancillary study of non-linguistic, historical background data were conducted to gather information about the Renaissance-era Four Humors medical model, information on the cultural practice of the Four Humors over the 490-year study period, and non-metaphorical instances of the keywords from the compiled corpora. Second, the main study of historical metaphoric expressions was conducted; data from the ancillary study was employed to interpret the data samples in the main study. The design of each study is detailed in the Method section, below.

Method

The Ancillary Study of Historical Non-linguistic Data

Data Collection

Four types of information were collected for the historical study, following the discussion of metaphor research methodology in the preceding section. Recall that the

study of culture in language may be conducted using language data, historical background data, or both. I chose to use both types because metaphoric expressions occur infrequently, resulting in a low number of samples that may not provide a complete picture of the effect of culture on language. The historical background data were added to increase the breadth, depth, and accuracy of the analysis in the ancillary study of the Four Humors, in order to likewise increase these qualities in the main study of metaphor.

The four types of information collected for the ancillary study were 1) historical sources on the Four Humors scientific theory (16^{th} and 17^{th} centuries); 2) data on Four Humors cultural practices (16^{th} to 20^{th} centuries); 3) information on historical scientific advances in human physiology; and 4) linguistic samples from corpus data samples that explicitly mention the Four Humors model. Each of these types will be discussed in turn below. After the descriptions, the collected data are discussed in one century time frames to develop the composite model and view changes in the Four Humors model over time.

Historical sources on the Four Humors scientific theory

The information concerning the scientific theory focuses on the historical period between 1500 and 1700 A. D., when the Four Humors model was an important influence in medical practice and culture in Western society (see the previous section for the reasons for selecting the Four Humors model for the current study). The scientific and cultural importance of the theory at the time was on par with the model's standing during its first golden age in classical Greece, the original source of the theory. Nutton (1995) states that for the Greeks, the humoral system was "capable of almost infinite variation, unfalsifiable on its own terms, and often corresponding to the facts of observation" (p.

25). The same can be said for the greatly expanded model developed by Renaissance thinkers, who also increased the model's explanatory power.

The method for selecting the historical source texts included the following procedural steps. First, experts who described important elements of the model were the subject of a library search of secondary historical sources, to cull the fundamental principles which guided the theory and its application by lay medical consumers during the two-century period. Annotated bibliographies of historical Four Humors texts by Draper (1945) and Babb (1951) served as a starting point for the library search. Candidate texts were obtained either from the Newberry Library in Chicago in paper form or in an electronic facsimile version from Early English Books Online (EEBO). Documents selected for the study were chosen for their detailed descriptions of the Four Humors and their popularity among a wide variety of readers, in order to select texts that had an influence on lay practitioners of the model. In sum, the documents were chosen for their ability to influence the cultural knowledge and values of a broad section of English-speaking society.

The specific criteria for selecting culturally-significant documents included the following: each text 1) was written in English for a general (non-professional) audience; 2) was reprinted at least twice, for a minimum of three printings; and 3) included discussion of the basic tenets of the Four Humors model. The first criterion was further delineated by the following sub-criterion: the text did not use any Latin words or phrases (a sign that the text was written for experts, not lay people). The third criterion also had a sub-criterion: specific information was provided in the text on the fundamental principles

of the model: natural heat, the four humors, the four qualities, the four elements, and the four principle organs.

In all, 31 texts which were published during the two-century period were analyzed as candidates for the ancillary study; of those, four were categorized as professional books, and eight others had fewer than three editions; these were eliminated. However, one book which did not meet the second criterion (less than three printings) was placed on the list of texts used in the study, due to its detailed discussion of the Four Humors model. Finally, two texts which met the first two criteria were eliminated for lack of agreement with the other sources on key points in the model; for example, one text did not accept the principle of the operation of the four qualities (wet/dry, hot/cold) on the four humors. The procedure identified 18 historical source texts for the study. Compilations of the data collected from the sources include a brief annotated bibliography of the selected texts in Appendix C, and a table of the selected texts with summary data on the Four Humors basic principles discussed in each text is shown in Appendix D. Finally, Appendix E provides a detailed description of the composite Four Humors model developed from the selected sources.

General data on the selected texts showed that all were original works in English or translations to English. All of the documents were authored and/or published in England, but other countries in Europe contributed authors, including France, Spain, Denmark, and Italy. The oldest text was published in 1542, and the latest was a book reprint, published in 1698. (Note: one text included was a 1582 edition of Bartholomew de Glanville's *De proprietatibus rerum*, originally written in Latin in 1360. Though the original work is not a product of the historical period under study, the text was selected

due to its position of authority for the Renaissance Four Humors authors, who often used de Glanville's work as source material for their own Four Humors treatises).

The authors included physicians writing medical treatment texts for laymen, academics discussing different aspects of the known universe and the practical effects on human life and health (e.g., the influence of the stars and planets on childbearing), and religious authors writing about the relationship between the human body and spiritual life. Moreover, all of the books discuss the Four Humors in enough detail to delineate the primary features of the model. There is some disagreement among the writers on certain details, such as recommended treatments for a specific illness, yet all agree on the basic tenets of the model. Overall, the texts selected represent a composite view of the Four Humors model as it was generally constituted and practiced by physicians, clergy, and lay practitioners during the English Renaissance.

Historical data on Four Humors cultural practices

The second type of historical data collected for the ancillary study was information on specific cultural practices in English-speaking society that were initiated by shared cultural knowledge of the Four Humors scientific theory. This type of data showed that the Four Humors had penetrated society to the point of becoming a culturally-licensed social practice among lay medical consumers. Acceptance of the model by people who are not medical experts would suggest that the theory influenced not only expert theories but also the values, activities, and language of the general population. Thus, historical cultural data provided evidence of the influence of the Four Humors medical model on society, and such influence included the use of language about physical and emotional health in metaphoric expressions of anger.

The procedure for collecting the cultural data were as follows. I traveled to the Newberry Library twice in the summer and fall of 2006 to consult the library's collection on the Renaissance and Modern English periods (i.e., 16th through 20th centuries). The holdings include medical books employing the Four Humors model; scientific treatises which applied the model to a specific, contemporary issue or problem; theological sermons; personal diaries and correspondence; fictional novels, poems, and plays; and, artwork and songs. Specific works from each of these cultural sources were analyzed for descriptions of Four Humors cultural practices in the everyday life experience of lay people.

Historical data on advances in human physiology

The third type of data collected concerned the changes in knowledge of the human body and its physiological processes over time. This type of data were important because the CM of ANGER contains many concepts about the body and the way it works. Secondary library research was conducted to collect data on important scientific advances during the 490 year period under study. One major advance related to human physiology for each of the five centuries was chosen, for a total of five. The scientific advances were selected by conducting secondary research in the field of the history of medicine to determine which advances were considered by medical historians to be the most influential on scientific knowledge of the period. The five major advances were placed on a timeline and compared to metaphor data samples from the same period to investigate if there were changes in language meaning or use that corresponded with the timing of the scientific advance. The purpose of the procedure was to view changes in language

that result from changes in lay knowledge of scientific knowledge of the body, indicating a possible change in cultural knowledge.

Non-metaphorical data samples referencing the Four Humors model

Finally, the fourth type of data collected for the ancillary study were non-metaphoric linguistic expressions found in the Penn-Helsinki and ARCHER compiled corpora. The data were collected while conducting the keyword searches of the corpora for the main CM of ANGER study (see Chapter 3 on the study methodology). The non-metaphorical language samples were collected from the pool of keyword samples, so they do employ the keywords *blood*, *boil*, *vent*, and *spleen*, yet the meaning of the word or phrase in the specific situational context is not a source-target mapping of the human body and emotion, but simply describes the practice of the Four Humors medical model. These data samples were used to provide further evidence of the cultural values and practices of the model during the historical period under study (see Chapter 4).

Data Analysis

The data collected for the ancillary study were analyzed for two main purposes: 1) the 18 historical sources on the Four Humors model were used to create a composite model of the Renaissance Four Humors model; the model was compared to the metaphoric expressions collected in the main study to view changes in the conceptualization of the Four Humors over time; 2) the other three data types (historical cultural practices, scientific advances, and non-metaphorical corpus data samples) were compared to the metaphoric expressions collected in the main study to investigate the effect of cultural change on conceptualization; thus, as cultural practices and scientific knowledge changed over time, the effect of the changes on the content of the CM of

ANGER was delineated. The results of the analysis of the ancillary study are presented in Chapter 4.

The Main Study of Historical Metaphoric Expressions

Materials

Two compiled text corpora of historical English texts were selected for the study; the corpora included the Penn-Helsinki Parsed Corpus of Early Modern English (PPCEME) and A Representative Corpus of Historical English Registers (ARCHER). The PPCEME is a 1.8 million word compilation of texts from a wide variety of genres, dated between 1500 and 1720 A. D.; it is distributed on CD-ROM by the University of Pennsylvania. ARCHER is a 1.9 million word corpus, including texts between 1650 and 1990; it is housed in a computer database located at Northern Arizona University. Details on the types of texts and the word counts are available in Appendix A for the Penn-Helsinki corpus and in Appendix B for the ARCHER corpus.

In addition to the two corpora described above, two other computerized text collections were employed to provide additional keyword samples. The Modern English Collection of the University of Virginia Electronic Text Center was searched for the 1500-1899 period, and the Making of America collection of 19th century British and American magazines at Cornell University. The purpose of the additional examples was to explicate in more detail particular features found in the Penn-Helsinki and ARCHER corpora.

Data

Based on the discussion of the literature review in Chapter 2, I suggest that the specific nature of the atypical cases needs to be examined because the evidence I

presented in Chapter 2 points to the possibility of a different structure for the CM of ANGER. To investigate the question, the current study collected samples of two metaphoric expressions in natural language data from compiled, historical corpora. The expressions chosen are given in the examples below.

A. His blood boiled with rage.

B. He vented his spleen on the unfortunate man.

Sample A (called in this study the *blood metaphor*) instantiates the CM of ANGER, as analyzed by Lakoff and Kövecses (1987). Sample B represents the atypical ANGER group CONTROLLED RESPONSE OVER TIME, discussed above (called the *spleen metaphor*). The underlined portions indicate the basic metaphoric expression. These two cases have been shown in Lakoff and Kövecses' analysis and my own to have characteristics which are markedly different in comparison. The blood metaphor possesses the characteristics of the CONTAINER image schema of the human body, PRESSURE, HEAT, fluid, and visible physiological symptoms; the spleen metaphor employs the spleen organ as the CONTAINER, is unclear on PRESSURE (though CONTROL may include PRESSURE as an entailment, according to Lakoff and Kövecses), has fluid but not HEAT, and no visible physiological symptoms. Lakoff and Kövecses propose that the spleen metaphor is an extension of the CM of ANGER; however, the differences between the two samples are substantial enough to warrant investigating the possible existence of a second CM, or a *domain matrix* (a group of interrelated CM) in which the blood and spleen metaphors are *dimensions*; see Croft, 1993; Langacker, 1987). The data collected and analyzed for the current study explored this question.

As mentioned previously, the metaphoric expression for *spleen* shown above *implies* the target domain of ANGER, rather than refers to the target explicitly through the use of a lexical item. The use of an inferred target domain is a common but problematic practice in CM research. An implied target is a relatively easy search strategy in compiled corpora because all metaphoric expressions contain lexical items pertaining to the source domain (Stefanowitsch, 2006b), and identifying the words that are used in a particular source domain generally results in a shorter list of lexical items than the list for the target domain. However, since the target is not represented by a lexical item, there are two problematic issues for research methodology: 1) the search procedure requires an exhaustive list of source domain words in order to identify every instance of a metaphor that is relevant to the target domain; and, 2) the researcher must rely on his own competence in the language under study to determine the content and meaning of the metaphor and the target domain, a problem that Enfield (2002) and Lucy (1996) state must be mediated in research studies of culture and language. These weaknesses were addressed in the design of the current study.

For the reasons given above, Stefanowitsch (Stefanowitsch, 2006a) suggested that research designs that employ compiled corpora should search for instances of a metaphor in which both the source and target domains are lexicalized; he calls this type of metaphor a *metaphorical pattern*. This class of metaphoric expression is easier to analyze than those with implied targets, but generally, there are fewer instances of the metaphorical pattern type than the implied target type, and fewer cases may affect the results of the analysis. Since metaphor is a relatively rare phenomenon in texts (and text

corpora), reducing the number of samples collected may also affect the ability to generalize the study results.

Considering these issues for the current study, the list of source domain lexical items was limited to four keywords—*vent-*, *spleen*, *blood*, and *boil-*. The two words with the dash (-) denote verbs which have variable suffixes; the other two words are nouns. These are the items that comprise the A and B samples of the metaphoric expressions (see previous discussion) chosen for the current study. The number of lexical items to be searched in the corpora are small, simplifying the search procedure, and the items pertain specifically to the target domain of ANGER under study. Though the items selected will not result in an exhaustive collection of metaphoric expressions for the domain (as Stefanowitsch, 2006a pointed out), the purpose of the current study is to investigate change in the CM over time, not to compile a complete accounting of the words used in the target domain. Therefore, the procedure employed is both useful and efficient for the current study.

One consequence of the above keyword search procedure is that several cases involving metaphorical use of the keywords ultimately were not analyzed. This decision was made in order to focus on the uses of the keywords which related directly to the CM of ANGER. A previous study used a similar procedure, Koivisto-Alanko and Tissari (2006), which was discussed in the literature review, analyzed only the cases of their selected keywords (i.e., *fear, love, mind, reason,* and *wit*) which related directly to REASON and EMOTION. The procedure was followed in order to investigate the researchers' specific research questions, and "This means we have deliberately left out some central metaphors that did not fit within the scope of this study" (p. 194). Since the

current study also focused on a particular CM, I employed a procedure similar to Koivisto-Alanko and Tissari's and analyzed only the keyword cases for *vent-*, *spleen*, *blood*, and *boil-* which clearly instantiated the CM of ANGER. By doing so, I expected that the keyword cases which were analyzed would be useful ones for investigating the research questions.

Data Collection

The keyword cases were collected from natural language sources in English, preserved in their original discourse context, during the time period between 1500 AD and 1990 A.D. The use of the two compiled corpora allowed for the analysis of changes in the CM of ANGER for the entire modern English period. In addition, to analyze the data in greater detail, non-linguistic background data—on the Four Humors medical model, cultural practices associated with the model, and historical scientific advances that may have brought about changes in cultural beliefs regarding the Four Humors —were collected and analyzed to aid the analysis of the metaphor data and the CM (see the ancillary study in the previous section). Finally, in certain cases, the two additional corpora (described in the previous section) were searched to provide more examples of particular features of the metaphoric expressions.

Data Analysis

Four steps were involved in the data analysis procedure: 1) classification of the data; 2) identifying instances of metaphoric expressions; 3) calculating frequency of use statistics for the metaphor cases; and, 4) analysis of both the metaphoric and non-metaphoric cases to investigate the research questions. Each of these steps will be discussed in detail below.

For the first step, the keyword instances were classified according to the date of publication and placed in chronological order by corpus (i.e., either the Penn-Helsinki or ARCHER). Second, the keyword instances were read in their original context in order to determine which cases constituted metaphorical expressions. Recall that, in this study, a linguistic expression is considered an instance of a metaphoric expression if a concrete source domain concept (e.g., CONTAINER) is mapped onto a target domain of emotion (e.g., ANGER). The target domain could be referred to explicitly by a word or implied by the context; applying this definition to the collected cases, both *His anger boiled up* and *His blood boiled* were considered instances of metaphoric expressions. Cases which instantiated emotions other than ANGER were also used to investigate the conceptual relationships between emotions.

There were two situations in which the identification of metaphoric expressions became difficult: cases in which the target domain was not referred to explicitly in a word or phrase (i.e., an implicit target; see Chapter 3 for more information), and cases in which the interpretation of discourse context determines the correct reading. Correct reading was often difficult because determining what is an emotion and what is not is sometimes not clear, or the boundaries between different emotions overlap (Koivisto-Alanko & Tissari, 2006). Four samples from the collected data will be discussed to illustrate these two problems in the metaphor identification process employed in the study. First, a clear case of a metaphoric expression, from a news report in the Penn-Helsinki corpus, is shown below.

A. And indeed men's spirits were so sharpened upon it, that we all looked on it as a very great happiness that the people did not vent their fury upon the papists about the town. (1724)

Case A is clearly a metaphorical expression; the structure employs the same one described in the model discussed previously (i.e., *He vented his rage*), and the human body source domain (CONTAINER) releases the emotion target domain (ANGER).

In contrast, Case B is a clear case of a non-metaphorical meaning from a 16th century medical text:

B. …and this Arteir carieth blood from the Hart to the Lungs, the which Blood is vaporous , that is tried and left of the Harte, and is brought by this Artery to the Lunges, to geue hym nutriment. (1548)

The structure of the sample does not employ the model, and more significantly the source domain (blood) is not mapped to an abstract target domain, but is discussed in terms of other concrete entities—the physical location of blood in the human arteries and its role to nourish the lungs. Based on the analysis, the A and B cases are classified as metaphorical and non-metaphorical expressions, respectively.

As mentioned previously, some cases were difficult to classify because the target domain was implied, or the context of the expression was difficult to interpret accurately. Case C shows an implied target.

C. He was forced to retire to vent his groans, where he fell down on a carpet, and lay struggling a long time, and only breathing now and then - Oh Imoinda! (1688)

Here, the structure of the model is present, and the CONTAINER source domain is employed, but the EMOTION target domain is implied rather than expressed explicitly. The context was then analyzed to provide material for accurate interpretation. The man exhibits behaviors (i.e., reclining in bed, groaning, repeating a woman's name), which point to despair over a lost love, so the case was classified as a metaphorical expression of SADNESS.

Finally, some cases were difficult to classify because the context of the expression was unclear. Case D below is an example.

D. …but of all Creatures I hold that Wife a most vnmatched
treasure, That can vnto her fortunes fixe her pleasure, And not
vnto her Blood, this is like wedlocke, The feast of marriage is not
Lust but Loue, And care of the estate, when I please Blood,
Meerely I sing,… (1630)

The model structure is present (*I please blood*), and the source domain is the ACTION of serving; however, the target domain is implied. In the context of marriage and love, *blood* in this case appears to refer to sexual desire personified as the one the speaker serves. The key analysis question then becomes, is sexual desire an EMOTION, and/or does it overlap with emotion categories (Koivisto-Alanko & Tissari, 2006)? In this case, the answer was "Yes" because sexual desire overlaps with LOVE, and the word *love* appears in the sample, corroborating that the emotion was the intended target domain (though the speaker is contrasting the differences between love and sexual desire in the sample). In addition, CM researchers have noted the use of personification in linguistic metaphor (Lakoff & Johnson, 1980; Lakoff & Turner, 1989; Koivisto-Alanko & Tissari,

2006). Overall, based on the evidence, Case C was classified as a metaphorical expression. To summarize, the procedure described above was employed to identify the cases which were metaphorical expressions of EMOTION; the remainder were classified as non-metaphorical cases (NOTE: a few cases were classified as metaphorical but did not instantiate EMOTION, and these were eliminated from the analysis; see the previous section on *Data* for further discussion of this procedure).

In the third step of the data analysis, some statistics on frequency of use of the keywords were generated. Frequency of use was identified in Chapter 2 as an important factor for the study of the CM of ANGER; recall that Gevaert's study of the conceptual domain of anger showed that changes in the frequency of use of a lexical item may indicate a change in the cultural value of the concept associated with the word. To study this factor in the current study, the frequency of use of the four keywords in metaphorical expressions was counted and tracked over time. Raw frequency counts were normalized to the rate of occurrence per one million words of running text, in order to allow for comparisons between historical periods. The formula, from Biber (2006), is as follows:

$$\frac{\text{raw frequency}}{\text{total words in corpus}} \times 1{,}000{,}000$$

The Normalized Frequency Rate (NFR) for each historical period indicated the frequency of occurrence of the metaphorical use of a keyword during the period, which is in turn a measure of the relative importance of the expression in the language at that time.

In order to calculate the NFR accurately for the two corpora, some metaphorical samples were eliminated from the dataset. The reason is that the two corpora overlap between 1650 and 1720; including all of the metaphoric samples from both corpora would skew the NFR calculation. To resolve the overlap, the Penn-Helsinki samples

from 1700-1720 (three total cases) were eliminated, and the ARCHER samples between 1650 and 1699 were also eliminated (seven total cases). The procedure created a defined period for the collected metaphor data from each corpus: the Penn-Helsinki data covered 1500 to 1699 A.D., and the ARCHER corpus data covered 1700 to 1990 A.D. The eliminated samples were not included in the calculation of the NFR; however, they were retained for the purpose of delineating the structure of the CM of ANGER.

For the two additional corpora (The Modern English Collection of the University of Virginia Electronic Text Center and the Cornell University Making of America collection), frequency statistics could not be generated because these two collections do not have track the total number of words in the collection or in individual documents. These corpora were used only to aid the analysis of particular features of samples found in the Penn-Helsinki and ARCHER corpora.

Finally, in the fourth step of the analysis, two types of analysis were employed for the samples of metaphoric expressions. First, the raw frequency counts and the NFR were analyzed to study the changes in the frequency of use of the metaphoric expressions; combining this data with specific date that a keyword began to be used and/or fell out of use showed the "arc" of the historical use of a keyword in a metaphoric expression. The analysis, presented in 50-year increments (or *cells*) from 1500 to 1990 A. D., delineated correlations between frequency of use and the rise and fall in popularity of the Four Humors model in English-speaking society.

The second type of analysis was discourse analyses of the metaphoric expressions, including the samples eliminated from the frequency analysis; the purpose was to reconstruct the conceptualization of anger for each 50-year period. Specific

aspects of conceptualization analyzed included the primary scene that is the basis of the CM, as well as the primary metaphor that instantiates the expression. Additional samples of particular features, collected from the Modern English Collection of the University of Virginia Electronic Text Center (for the 1500-1849 period) and the Making of America corpus of 19th century British and American popular magazines at Cornell University (for the 1850-1899 period) were used to aid in the analysis of particular features of the metaphor samples collected from the Penn-Helsinki and ARCHER corpora. These samples are presented and discussed when appropriate to the discussion of the study results. The results of the frequency of use and discourse analyses of the historical metaphoric expressions are presented in Chapter 4.

Summary

The chapter presented an overview of the major methodological issues that impinged on the design of the current study, definitions of key concepts, the research questions, and the study methodology, including materials, data collection, and the data analysis procedures. The method was carried out for the ancillary study of historical background data and the main study of historical metaphoric expressions; the results of both the ancillary study and the main study are presented in Chapter 4.

CHAPTER IV

Results

Chapter 3 discussed the importance of incorporating non-linguistic historical and cultural data into the current study in order to interpret the metaphor data more accurately. This chapter contains the results of two investigations conducted for the research project: the ancillary study of the historical Four Humors cultural model and the main study of diachronic metaphoric expressions of ANGER. The purpose of the analysis in this chapter is two-fold:

1. To develop a composite model of major principles of the Four Humors model in its theory and practice during the historical period under study.
2. To use the composite model to aid in the delineating major principles of the Four Humors in the metaphor data collected from the historical corpora.

Chapter 2 showed that Lakoff and Kövecses' (1987) analysis of the CM of ANGER had left unresolved some aspects of the CM's conceptualization. As well, it was noted that Lakoff and Kövecses acknowledged that a historical influence may have affected the instantiation of the CM, at least in the case of *simmer* (in the frame of COOKING). Putting these conclusions together, an investigation of the CM of ANGER in historical metaphoric expressions can contribute to a deeper understanding of conceptualization and help to understand the influence of diachronic effects on synchronic language. Moreover,

historical study would delineate more clearly the effect of cultural models, such as the Four Humors, on cognition and language. Historical study offers important insights into the relationship between cognition, language, and culture.

The information from the ancillary research project was used to aid the analysis of the metaphoric expression data collected in the main study of the CM of ANGER (see Chapter 5 for the results of the CM study). The organization of the current chapter is as follows. First, I will describe the sources used to collect the historical data, and the types of data collected. Second, the collected data will be discussed in detail in one-century time frames (1500-1599, 1600-1699, etc.) to place the data in historical context. By this procedure, a composite model of the historical Four Humors model will be developed that can be used to analyze the metaphoric expression data in the main study of the CM of ANGER. At the end of the chapter I will summarize the findings of the ancillary study and discuss the implications for the main study methodology.

The Ancillary Study of the Four Humors Cultural Model

General Principles of the Four Humors

Before discussing the ancillary study data across the five-century historical period, two general features of the 18 historical Four Humors source texts need to be discussed: their common purpose and their cultural assumptions.

The self-care focus

One interesting characteristic of all of the 18 Four Humors model texts (see discussion above) is their common purpose as *self-care* books. Unlike professional works for scholars, the books were written for lay people to use in diagnosing and treating their own health needs and dealing with other important life issues. The medical

books in the group all have a self-treatment focus. Of the non-medical books, several focus on a specific topic of human life that employed the Four Humors as a method for providing insight on the topic. For example, Huarte's (1698) *Examen de ingenios* ("Examination of Wits"), argues that the Four Humors model can be used to determine the best career path for an individual, based on an examination of the person's temperament (as defined by the model). Huarte later gives specific advice to women on what kind of man to marry in order to have intelligent children, and to parents on foods that affect the intelligence and memory of a child (Interestingly, Huarte recommended fish for this purpose, as many medical authorities do today, yet for a different reason which fits the humoral theory).

In another book, by Dariot (1598) on astrology, the Four Humors is employed to show how to interpret the meaning of the position and movements of the stars and planets to predict an individual's future prospects in work and marriage. The work also takes the Four Humors one step further: in an appended article called *Mathematicall Phisicke*, the reader is shown how to diagnose and treat disease by using astrological charts of the stars and planets in combination with the Four Humors model. The charts were used to determine which times of a specific day and month were best for specific humoral medical treatments. These works show that, during the Renaissance, scholars applied the Four Humors model to areas of knowledge outside of medicine in order to advise lay people on important life issues, including career planning, raising healthy children, determining one's future potential for success, and timing medical treatment for best effect. Thus, the principles of the model were accepted by society as reflecting the realities of daily life as they knew it, and the system was viewed as an insightful and

practical body of knowledge. For these reasons, the model was applied in sophisticated ways to current issues of the historical period. In sum, the 18 sources cast the Four Humors as an integral part of Renaissance "pop culture."

Cultural assumptions

Another common feature of the historical texts of the time deserves special mention for its close relationship to the Four Humors. A cultural model of great influence in the Renaissance was called the *macrocosmos/microcosmos* theory; Cuff (1640) uses the terms *the great world and the lesser world frames*. The great world is the universe, including the Earth, and the lesser world is humankind, including the physical body. The model attempted to show that a human being is a microcosm, or an imitative reflection, of the macrocosmic universe. To illustrate the relationship between the two worlds, Cuff created an analogy between the Sun and the human heart (Note: spelling, punctuation, and italics are preserved from the original text):

> And as in the midst of heaven there is seituated the *Sunne*, that enlighteneth all things with his raies, & cherisheth the world, and the things therein contayned with his life-keeping *heat* : for the heart of man, the fountayne of *life* and *heat*, hath assigned to it by *Nature*, the middle part of our body for his habitation, from whence proceedeth *life* and *heat*, unto all parts of the body, (as it were unto Rivers) whereby they be preserved and enabled to perform their naturall and proper functions (Cuff, 1640, p. 3).

The macrocosm/microcosm model is an extended analogy that established relational correspondences between the Universe and man. In Christian theology, both worlds were

created by God; therefore, in the Renaissance mind, it was logical to believe that, as the work of one creator, both worlds must have been imbued with similar characteristics. The correspondences between the macrocosmos and the microcosmos explained man's role in the universe and the natural processes and consequences of life brought about by the influence of the greater world.

The macrocosm/microcosm model was extended to the Four Humors model. Cuff, a fellow of Merton College in Oxford whose book (quoted above) concerns the Four Humors as it applies to different ages of human life (e.g., infancy, adolescence, middle age, old age), used the macrocosm/microcosm model to show other Universe/human similarities that are related to the Four Humors model of health. For example, mortality was defined as the continual loss of heat and energy, both in the natural world and in man, as a result of the aging process. Thus, the Renaissance view was that man *embodied* known characteristics of the Universe, and therefore, principles found in the natural world should also apply to human life.

The intimate relationship between the macrocosm and the microcosm led to some important consequences for the Four Humors model. For one, the microcosm is significantly affected by events in the macrocosm; that is, the universe and earth control and dominate human life. This view led naturally to studying the movements of the planets and stars, weather and climate, and geographical location to explain health, disease, intelligence, career prospects, and good or bad fortune in the life of an individual. For example, Burton (1932/1621) lists three major types of causes for melancholy (a disease in the Four Humors model which causes sadness, depression, and madness): supernatural (e.g., God and witches), natural (e.g., astronomical events and

negative life events), and the body (e.g., disease, poor diet, lack of sleep). These categories theoretically include an infinite variety of specific causes of health, illness, and psychological conditions. The human body was in essence in intimate *union* with the larger universe—that is, the body was a moment-by-moment, one-way *reflection* of the inherent characteristics, energy, and motions of the universe. Thus, if an event in the larger world caused some sort of "imbalance" in that world, the lesser world would be affected by that imbalance (see Appendix E, "The concept of *balance* in the Four Humors" for more information on this important humoral concept).

Thus, human life (the lesser world) in all aspects was a direct result of the processes and events in the greater world. For these reasons, the macrocosm/microcosm view was combined with the Four Humors model to create a more powerful and insightful model of human life. Combining the macrocosm/microcosm model with the Four Humors created a *unified theory of human development* that explained how and why an individual had certain body characteristics, personality traits, mental and emotional behaviors, skills and abilities, and/or was fortunate or unfortunate in life. The unified model was powerful in explaining life events and also practical for making short- and long-term decisions.

One other significant feature of the unified theory was that it was an open system; that is, the system could be entered at any level or point to determine both the cause and result of any life event. For example, a recent change in seasons, a weather pattern, or a star constellation (the greater world) could presage life events that could affect health and fortune (the lesser world); actions of many sorts could be undertaken to prevent the recent event from adversely affecting the person. Conversely, a person's current medical

condition (the lesser world), such as insomnia, can be attributed to several possible causes, such as diet, another illness, personality type, the current season of the year, a recent astronomical event (e.g., a passing comet), or the person's spiritual condition (e.g., sin). Each of the possible causes would be considered by a doctor or by the patient (in self-care), and each would be eliminated in turn by employing the unified model until one cause was identified, and then a treatment would be prescribed. If a single cause could not be determined, two or more could be treated simultaneously. The unified model could be entered at any level, from changes in the cosmos down to changes in physical symptoms, to aid doctors, clergy, and lay practitioners to identify any cause of human happiness or suffering, and prescribe a course of therapeutic action with a high degree of confidence.

The self-care focus, the influence of the unified model, and the open nature of the model have been discussed in detail for several reasons. First, the self-care purpose of the historical texts demonstrates that the model was known and practiced by lay medical consumers as well as trained doctors. This fact alone speaks to the wide dissemination of the Four Humors model at different levels of Western society, and implies the potential role of the model in influencing metaphoric language. Second, the unified model had a direct effect on the Four Humors: describing the latter model often invoked the former, either explicitly or implicitly; therefore, the two models are inextricably intertwined and must be studied as a single theory. Finally, the open nature of the unified model created a system that was both easy to use by lay practitioners and complex enough to be applied to any area of human life. These characteristics implicate the reasons why the system was so popular during the Renaissance: the model was satisfyingly insightful, easy to use, and

applicable to a wide variety of life concerns. In sum, the unified model was positioned at the historical intersection of the Four Humors, scientific advances in fields such as astronomy and biology (as well as the invention of the printing press), and increasing lay interest in controlling personal success and happiness, thus becoming a widely-shared model of values and practices in early Modern English popular culture.

Ancillary Study Data and Analysis

This section combines three of the types of historical sources to describe the Four Humors model as it was constituted across the five centuries under study in the main CM of ANGER study. The collected information is presented for each century in the following order: 1) scientific advance; 2) cultural practices; and 3) non-metaphorical corpus data samples that explicitly reference the Four Humors model. As stated earlier in the chapter, the purpose is to develop a view of the model in each time period and to delineate changes in the Four Humors model over time that may have influenced metaphoric expressions and the CM of ANGER. Each century, with accompanying data from the ancillary historical study, is discussed in turn below.

Recall from Chapter 3 on the study method that five major scientific advances in human physiology were selected to track the effect of scientific knowledge on metaphoric expressions. The five advances were identified by consulting present-day medical historians on the history of Western medicine. The advances selected for the current study are shown below in Figure 8.

Figure 8. Five major scientific advances in human physiology, A.D. 1500-1990

1500-1599: Scientific anatomy (Andreas Vesalius, 1543)
1600-1699: Blood circulation (William Harvey, 1628)
1700-1799: Symptom localization (Giambattista Morgagni, 1761)
1800-1899: Tissue cell pathology (Rudolph Virchow, 1858)
1900-1990: Medical school standards (Abraham Flexner, 1910)

The rest of the chapter is organized by century in chronological order; each 100-year period includes a detailed description of the major scientific advance in human physiology, data from the study of the unified model cultural practices, and non-metaphorical corpus samples, followed by a discussion the effects of science and cultural knowledge on linguistic expression of the period in question. The summary section at the end of the chapter discusses several conclusions from the analysis of the historical data.

The sixteenth century: The rise of scientific anatomy (1543)

The human body was traditionally seen as sacred; in many cultures, including the Greek originators of the Four Humors, doctors and scientists could not study the body in detail due to the ancient cultural prohibition against dissection. As a result, anatomical studies were conducted on other animals, such as dogs, in order to understand physiology in general. The knowledge gained from animal studies were then applied (by analogy) to human physiology.

The most well-known of the early Western anatomists was Galen, who lived in the second century A.D. His numerous studies of dogs, apes, and other animals were read by many doctors and other experts in his own time, and the knowledge was handed down from generation to generation with little revision or investigation due to the cultural practice of regarding learned authorities (such as Galen) as the final word on an academic topic. Eventually, Galen's work was largely forgotten during the Dark Ages. Then, in

the Renaissance, Galen's works were rediscovered, translated from the original Latin to European languages, published and disseminated widely. Wear (1995) reports that in the 16th century alone, separate editions of Galen's writings were printed some 590 times (p. 253). Galen's views on human physiological processes influenced medical theory, practice, and physician education greatly during the late Middle Ages and the Renaissance. Thus, Galen had a significant influence on the Renaissance Four Humors theory, more than 1,200 years after his death.

The rediscovery of Galen's ideas coincided with another significant change in medical research: the long-standing prohibition against human dissection started to change. By 1482, when the Pope formally granted permission for dissections of executed criminals to advance science, the practice had already begun in several smaller states and kingdoms (Porter, 2002). The study of human anatomy through the direct dissection of human corpses had a major impact on medical theory; many of Galen's views on physiology, based as they were on studies of non-human animals, were refuted or significantly revised.

The first and most significant of the refutation studies was by Andreas Vesalius. He took full advantage of the recent acceptance of human dissection and conducted systematic studies of human cadavers, in order to write the first true human anatomy textbook, *De Humani Corporis Fabrica* (*On the Fabric of the Human Body*), published in 1543. Wear (1995) states that "the book marks a turning point in the medical view of the structure of the body" (p. 275). One of the main goals of the work was to investigate, using a scientific method, Galen's views of the human body and its physiological

processes. In this effort, the book was a great success, and the work had several other important effects on medicine and science in general.

The influence of the book on medicine as a science included the establishment of anatomy as the foundation of medical knowledge, the correction of many erroneous ideas about the body (due to the long-term reliance on Galen's 2nd-century A. D. dissection work on animals), and changes in the methods of investigation—turning away from analogical reasoning and toward direct observation of physiological phenomena. Ultimately, this last change led to a significant decrease in the influence of second-hand, learned authorities (such as Galen), and increasing emphasis on first-hand, visual inspection of physiological specimens and empirical methods in science.

Vesalius accepted many of Galen's views of the humoral model, including the production of blood from chyle in the liver. However, Vesalius rejected many other Galenic ideas, including the existence of two systems of blood vessels, one beginning in the liver and the other in the heart. The effect of this correction is not obvious, but it would help inform the later discovery of the circulation of the blood (see below). Overall, the many corrections of Galen, which Vesalius demonstrated in his work, marked the beginning of the scientific refutation of the Four Humors model, a process which would take another 400 years to complete.

Concerning evidence for the active practice of the Four Humors in the culture of the mid-16th century, very little in the way of written data are available. The printing press was still a new invention, and books written for laymen were few and very expensive. Andrew Boorde's book *Dyetary of health* (1542) was written for non-experts and self-care purposes, and showed that the model was used by lay medical consumers,

yet the book was probably read only by the literate upper classes. The issue here is whether the Four Humors was known by enough laymen to influence common cultural practice and language use. The cultural evidence for the active practice of the model (that was found during the ancillary study) principally comes from artistic works of the period.

Klibansky, Panofsky, and Saxl (1964) displays an extensive collection of 15th and 16th century artistic works which incorporate principles of the Four Humors to demonstrate to non-experts the basic tenets of the model. There are over 100 images in the collection, from many different artists, countries, and languages in Europe. The use of pictorial representations would facilitate the dissemination of the model to those members of society who were not educated and could not read.

For a specific example, Roob (2005) includes an image of the period by Thurneysser, painted in 1574. The four fluids are each represented in one quadrant of a rectangle; in each quadrant, one part of an image of a person is displayed. For example, in one quadrant a young woman's clothed leg is shown; in another, the left side of an older man's chest and head are displayed. The four quadrants join to form a single, composite human being which possesses the major characteristics of the four fluids and of human life—youth and age, male and female. The zodiac birth signs are also placed systematically in each quadrant, to show the relationship between the Four Humors and astrology. Images such as these served as teaching tools for the Four Humors across a society, and showed the active discourse and practical use of the model during the time of Vesalius's work in the 16th century.

Linguistic evidence for the active use of the Four Humors in the 16th century includes the following samples from a medical text in the Penn-Helsinki corpus, written by Thomas Vicary, a physician who wrote medical treatment texts.

> These are the places of the humors: the blood in the Lyuer, Choler in the chest of gal, Melancolie to the Splen, Flegme to the Lunges and the Iunctures, the watery superfluities to the Reynes and the Vesike. (1548).

The descriptions of the four humors, blood, yellow bile (*choler*), black bile (*melancolie*) and phlegm (*Flegme*) and their locations in the four major organs—liver (*Lyuer*), the gall bladder (gal), the spleen (*Splen*) and lungs (*lunges*)—fit a typical Four Humors view of the human body, though there were minor disagreements among medical experts at the time concerning which human organs comprised the four organs in the model. A few believed that the brain or the stomach was the fourth organ, not the lungs; for those experts, phlegm originated in the brain or the stomach. (see Appendix D for a comparison of the Four Humors medical experts on the principles each professed).

Below is another example from the Penn-Helsinki corpus, written by William Clowes, a surgeon:

> First as I said , euacuation going before, to diminish the humors sore abounding, it was therfore thought most meete to begin with blood letting in the middle vain on the left arme, & I did then take from ech of them vii. or viij. ounces of blood. The next day following they were also well purged with this purgation, R.

Diasenae z. j. ss. Sirr. fumariae, z. j. Aquae scabiosae, z. iij. Misce.

and herewith they were purged. (1596)

The text displays several types of treatments popular in the unified model, including *bloodletting* (the opening of a vein to remove excess bodily fluid, usually blood), evacuation (i.e., *purgation*), and the use of several medicinal plants. At this point in time, Vesalius' scientific work on anatomy did not have any discernible effect on the knowledge and practice of the unified model.

The seventeenth century: The circulation of the blood (1628)

The discovery of the circulation of the blood had a profound effect on scientific understanding of the body. Ackerknecht (1982) calls Harvey's (1958/1628) work "the greatest physiological advance of the seventeenth century, and perhaps all times..." (p. 113). The discovery was called *circulation* because of the circular motion of the blood, in a one-way path around the body. Important parts of the Renaissance Four Humors theory were refuted by the scientific advance, including Galen's view that bodily fluid flowed upward from the intestines through the liver and heart to the brain. Harvey had a significant impact on many aspects of human physiology, though the effect was not immediate. Ackerknecht (1982) reports that opposition to Harvey's circulation theory was strong; Harvey himself published a series of papers answering the counterarguments of his critics, including several written in response to John Riolan, an anatomist and pathologist. The full effect of Harvey's work would not be realized for many years.

Evidence for cultural practices of the unified model in this period includes a growing number of scientific treatises written for laymen who analyzed a plant or other natural substance according to its humoral qualities. One example is a pamphlet written

by “C. T.” (1615) entitled, *An advice how to plant tobacco in England.* The purpose of the work was to discuss in detail the virtues of the tobacco plant and its medical uses; after these advantages were established, an extended account of the method for planting and cultivating the plant was described.

The unified model was employed as an analytical tool for describing the advantages and uses of tobacco. C. T. gives several reasons for the popular use of tobacco among the Indians in South American and also the Spanish, and some of these reasons are directly related to the model. For one, the plant “opens the body, and lets out heat by the pores.” This is important in the Four Humors because closed pores lead to overheating and the attendant medical problems, including illnesses associated with the gall bladder and its hot and dry humor. Also, tobacco is useful for drying excess moisture. The characteristic is useful for unified model medicine because an overabundance of moisture was seen as damaging to health, just as excess heat was injurious. A third reason advanced by C. T. for using the tobacco plant was that it cured dropsie (humoral fluid seeping out of the heart, thought to be a cause of heart failure). These statements are also evidence that laymen bought and used the pamphlet for the self-treatment of illness within the unified model. In addition, the pamphlet lends support to the active use of the unified model during the historical period of Harvey’s study of circulation.

Further evidence of the use of the unified model in practical science includes another treatise written by Henry Stubbe (1662) called *The Indian nectar, or, a discourse concerning chocolata*. Cacao nuts had been recently imported from the New World (Brazil), and Stubbe performed an analysis, using principles in the unified model,

concerning the uses of chocolate as a "healthful drink." Many medical terms are used, such as the proper "dose" to be taken, and referring to chocolate as a "compound." In addition, Stubbe makes use of unified model terminology when describing the health effects of chocolate:

> "…it yields good nourishment to the body, it helps to digest the ill humours, voiding the excrements by sweat, and urine: and I say, it is no where more necessary then [sic] in the *Indies*, which are moist, and apt to create lassitudes, their bodies there being, together with their Stomachs, full of Phlegm, and superfluous moisture, which are concocted by the heat of *Chocolata* into good Blood…" (pp. 85-86).

Scientific research of the 17th century actively employed the unified model to investigate practical issues in everyday life, including the health effects of new plants like tobacco and cacao nut.

Finally, data samples from the Penn-Helsinki corpus also corroborate the active use of the unified model. "Letting blood" is the common term for *cupping*, the unified model practice of removing excess humor as a treatment for various illnesses. The sample shows the active use of the practice by laymen.

> …and yesterday morning I sent fore a curgen at Bischops Castell, that let Mrs. Wallcot blud, and he pricke my arme twis, but it would not blled; and I would not try the third time. (1633)

Another example of blood letting shows the relationship between the cultural practice and specific illnesses treated via the unified model.

> Now for that his Ulcers were many, and subiect to a hotte distemper, for that cause hee might the better admitte bloud letting, being also a man of a growne age, therefore I tooke the more quantity thereof. (1602)

In the sample, the author, a medical doctor, uses blood letting to alleviate the symptoms of ulcers, which included "a hotte distemper."

To summarize this section, Harvey's discovery of blood circulation was a major advance in physiology (and a major blow to the unified model), yet there was no immediate effect on the practice of the unified model among doctors and lay medical consumers.

The eighteenth century: The localization of symptoms

A major scientific advance was the publication of *De sebidus et causis morborum (On the Sites and Causes of Disease)* by Giambattista Morgagni (1960/1761), a five-volume work which advanced the theory of local, clinical symptoms of disease, rejecting the holistic, global view of bodily changes described in the unified model. The work summarized the results of 700 human autopsies including analysis by microscope (a recent invention); the number of autopsies allowed for allowed for generalizing the results for the field of human physiology. Specifically, Morgagni's results "...demonstrated that diseases are located in specific organs, that disease symptoms tally with anatomical lesions, and that pathological organ changes are responsible for most disease manifestations" (Porter, 1995, p. 410). The immediate effect was the corroboration of Vesalius' earlier work in anatomy with the addition of finding the sites of disease not in fluids but in bodily tissues. The work also heralded the growing use of

the microscope for physiological study, ultimately leading to Virchow's seminal study on cell pathology (see the next section). Morgagni's study showed that the unified theory was near the end of its run as a viable description of human body processes.

Yet, the unified model was still practiced among doctors and lay medical practitioners alike during the period. Cultural evidence for the continuing practice of the unified model includes a field guide used by physicians when treating illness, a book-length poem written, and popular drinking songs published anonymously in the 1770s, and linguistic data from the ARCHER corpus. These are discussed in turn.

The field guide, titled in English *The pocket dictionary of medicine, midwifery, and surgery* by Matthew Wilson (1787), gives brief descriptions of treatments for disease. For example, the treatment for rheumatism was given as follows.

> Bleed, & give a mercuri vomit – Sweat [with] Gum Guiai…if no inflammation, rub in [or?] Flesh Brush -- Volatile or Saponaceous Linement (no page number).

The treatment includes several techniques developed in the unified model, including cupping (bleeding) and vomiting (a "purgation" procedure to evacuate illness-causing material from the body), as well as checking for inflammation, or heated fluid, which resulted in fever. Wilson also recommends taking cold baths of salt water, in order to reduce the incidence and severity of fever; a cold treatment to counteract hot fever that follows the unified model principle of counteracting the illness-causing effects of one of the four qualities with its opposite (see Appendix E for related information: "The concept of *balance* in the Four Humors").

The poem, called *The Spleen*, by Matthew Green (M. Green, 1936/1737), listed in verse many types of activities which affect the balancing (see Appendix E for more detail on the concept of *balance* in the unified model) of black bile. Activities which Green recommended for promoting positive balance included food without excessive seasoning, exercise, merriment, entertainment (including plays and concerts), reading, social places like coffee-houses, social events (including the company of women), and an outgoing personality. Conversely, Green's list of activities which cause imbalance included lawsuits, gambling, "passion" (i.e., extreme emotion), party politics (including "reforming schemes"), financial ventures, fanaticism of any kind, and superstition. These lists show that health was viewed as a reflection of a person's total life and activity, in agreement with the unified theory, and also that non-professional lay practitioners were aware of the importance of balancing the humors for physical and mental well-being.

The drinking songs, from a tavern songbook published by William Jackson (1770), includes several which allude to principles of the unified model. For example, one song refers to symptoms of melancholy.

> Whilst from our eyes fair nymph
> You guess the Secret passions of our mind
> My heavy eyes you say confess
> A heart to love and Grief inclin'd.

"Heavy eyes" refers to sadness, both symptoms of melancholy; the last line ("Grief") also refers to the condition.

Another song refers to the principle in the unified model to prescribe treatments (including activities) which counteract the effects of melancholy.

Mirth and Humour do unite us

Joyful songs will merry make us

Melancholy will Forsake us.

Though to the contemporary mind “making merry” seems less a prescription than everyday common sense to ward off sadness, historically such activity was a formal medical principle. As was discussed in the previous section on the unified model, the model had multiple levels, including the human body, the physical world, the heavens (stars, planets, and celestial events like passing comets), and the spiritual world. Part of the human body was a person’s current temperament; if a negative view of the world and life was experienced by the person, then sickness and mental disease was the medical result. The sample above shows that melancholy (i.e., excess black bile) was removed by laughter and having fun (*merry make us*). Recall that Matthew Green’s poem *The spleen*, discussed previously, also stated that merriment restored the humoral balance.

Finally, language samples from the ARCHER corpus include the following from a private diary, dated 1720.

Mar. 14. After some vellications & preludes the Gout seiz'd

upon my right foot in the bones of the Tarsus. I let blood &

found it very much inflam'd, & laid a Caustic upon the part,

drinking much water & sugar & juice of lemon, fasting, & taking

aloes every day. I made a crucial incision & caus'd an issue

when the Caustic was laid.

In the unified model, blood letting was used for many different types of physical symptoms, since heated blood brought on illnesses of many kinds. The drinking of water

with sugar and lemon juice was meant to cool the blood and the gout. Fasting was used to purge foods in the diet that may have caused the inflammation. In sum, there is evidence for the cultural practice of the unified model in the 18th century period.

The nineteenth century: The role of cells in disease (1858)

In the early 19th century, medicine was enjoying the fruits of the many scientific advances of the 17th and 18th centuries, including the development of the microscope, discussed in the previous section. However, the Four Humors was still actively used in medical practice and in scientific theories of human physiological processes. Ackerknecht (1982) discusses the concept of *dyscrasia* in the humoral model. Dyscrasia was one of the original principles developed in the Hippocratic school over 2,000 years before, which stated that imbalance was the cause of disease. The concept was still in use among pathological anatomists (investigating disease via dissection), including Carl Rokitansky of the New Vienna school. The New Vienna school was known for its objective accounts of disease, eschewing the influence by any particular theory; yet, in 1846, Rokitansky published a book entitled the *Handbook of General Pathological Anatomy*, which argued that dyscrasia in bodily fluids was the cause of disease. Thus, physiologists of the day were still influenced by humoralist principles.

Rudolph Virchow of Berlin advanced a new view which refuted the dyscrasia theory, as well as humoralism as a scientific model of human physiology. There were two major forums through which Virchow proposed his theory. First, he wrote a review of Rokitansky's book which "completely demolished" the dyscrasia theory, and Rokitansky as a result was forced to delete the theory from later editions of his book (Ackerknecht, 1982, p. 166). Second, in 1858, Virchow's book, *Cellular Pathology*, was

published, which again denied that bodily fluids were the central cause of disease; his theory, for the first time, placed health and disease at the level of tissue cells.

Virchow used many examples of cells from microscope investigations, as well as discussions of known illnesses, to support his view. For example, the dyscrasia view would predict that disease persists, as Virchow states, "in the blood itself"; that is, bodily fluid is a substance that can propagate disease independently without the help of other parts of the body. One of Virchow's arguments to refute this prediction involved the effects of alcohol on the blood. It was accepted fact at the time that drunkenness was not a permanent condition, but required additional and regular intake of alcohol to be maintained; Virchow argued against the humoral view of permanent dyscrasias in the blood on this basis. He counterargued that "*every dyscrasia is dependent upon a permanent supply of noxious ingredients from certain sources*" (Virchow, 1940/1858, p. 131, italics mine). Virchow thus argued that the "local origins" to account for a disease are found in the bodily tissue and organs. With similar arguments, he convincingly refuted the dyscrasia view, and with it, the last remnants of the unified model. Virchow's research and writing changed scientific research and medical practice significantly in the second half of the 19th century.

The evidence for the active practice of the Four Humors model during this time includes a list of physician's fees and services, and also language samples. First, the fee list, published by the Portsmouth, New Hampshire Medical Society in 1806 (Estes & Goodman, 1986, pp. 30-33). The list shows treatments commonly used in the Four Humors model, such as bleeding (the removal of excess blood); making a seton (a drain for fluid below the skin); paracentesis (the removal of fluid from the chest or abdomen);

trepanning (opening the skull to relieve fluid pressure on the brain); and the glyster syringe (for administering an enema, which treated constipation but also Four Humors stomach ailments).

Second, language samples from a popular magazine of the nineteenth century, *Little's Living Age* (from the Making of America corpus at Cornell University) show the practice of unified model was active. The sample below was written before Virchow's book was published.

> …who can venture to doubt that 'enlargements of the liver,' 'affectations of the spleen,' 'hypochondria, jaundice, and gout,' with sundry other maladies less admissible into our pages, will be effectually softened down, washed away, and expelled. Who can be surprised that during the ten years that these wonder-working waters have been flowing, the city (!) of Homburg has greatly improved… (1852, Volume 32, Issue 403, p. 257)

The passage makes reference to the effect of hot mineral springs on "affectations of the spleen." In the unified model, diseases were treated with substances which were believed to have the opposite qualities of those that cause the disease. For example, symptoms which were the result of black bile (the cold and dry humor), hot and wet treatments were applied. Therefore, the hot springs of Homburg were viewed as an effective treatment. The passage was written before Virchow's book was published, so his discovery has not begun to affect language use.

Another passage from *Living Age* later in the century, after Virchow's discovery, also alludes to the continuing value of the unified theory in the nineteenth century.

> And he who had been so exactly easy and affable to all men that his face and countenance was always present and vacant to his company, and held any cloudiness and less pleasantness of the visage a kind of rudeness or incivility, became on a sudden less communicable, and then very sad, pale, and exceedingly affected with the spleen. (1877, Volume 131, Issue 1696, p. 196)

The sample implicates a medical relationship between the spleen and sadness. The connection between the organ and physical/mental health is clear, and the signs of illness described follow the tenets of the unified model: low social activity, depression, and a change in skin color. In sum, the medical society fee schedule and the language samples show that 19th century medical treatment and cultural practice actively applied unified theory methods, despite Virchow's recent discovery that disease originates in cell tissue.

The twentieth century: U.S. medical education standards (1910)

Medical training for doctors in the United States in the early 20th century was in a state of flux. In the latter half of the 19th century, state medical boards were being established to create and enforce high standards of medical practice and also ethical behavior for medical professionals. Apprenticeship was still the common means of gaining training in the field; however, the quality of the graduates was highly variable. Careers in medicine were booming as the country's population grew, creating new opportunities for the profession. Non-profit medical schools, such as Johns Hopkins and Harvard, had been established in the early part of the 19th century, and provided a quality education. In the latter half of that century, some of the new schools which opened to meet the rising demand were for-profit institutions, but these usually had low standards

for both admissions and graduation and poor teaching facilities. Thus, the issue of educational training quickly became an important topic for the medical community. Ludmerer (1985) states that "...after 1900 a broad consensus began to appear in the medical profession regarding the desirability of improving medical education" (p. 168). This consensus coincided with the rise of scientific research in medicine in the 19th century, which was and is based on first-hand observation, rather than relying on second-hand models such as the Four Humors. The American Medical Association, which was created 50 years earlier, devised a plan for dealing with the increasing problems of medical education.

In 1904, the AMA created an internal group, called the Council on Medical Education, to study educational reform. The council in turn proposed to conduct a nationwide survey of all 162 medical schools currently existing in the U.S. After a preliminary survey in 1906 confirmed the need for a detailed investigation, the Council requested that the Carnegie Foundation for the Advancement of Teaching perform an independent effort. The Foundation hired Abraham Flexner, an educator who had developed a detailed philosophy of education which included a concrete, experiential (i.e., "learn by doing") component. In 1908-1909, Flexner traveled to all 168 medical schools currently operating to gather information. The final report he wrote to summarize the findings is called the *Flexner Report* (Flexner, 1910).

The *Report* covers a wide array of issues in medical schools, above and beyond the classroom pedagogy. Part I includes historical information on medical education in the States, coursework, standards for school finance, the effect of "medical sects" (such as homeopathy and osteopathy) on training, the role of state medical boards and

postgraduate schools, and the issues of training for women and African-Americans. Part II is a listing of all 168 schools surveyed, organized by state. The Appendix contains a table summarizing the collected information for each school. Flexner's conclusions concerning the state of medical education include the importance of teaching the principles of scientific inquiry, the advantages of original research in the school, the necessity of hands-on learning, the requirement of proper credentials for the teaching faculty and minimum educational standards for admitted students, and the problems posed by the "medical sects." The original report is 346 pages long and covers each topic in detail. The *Report* was influential in the years immediately following its publication; standards for medical school education were instituted and enforced in the States through state licensing of schools (Beck, 2004). A recent article which surveyed the original 168 schools (Hiatt & Stockton, 2003) found that 12 had closed or merged with other institutions within a decade of the report, and 26 more closed or merged within two decades (p. 37).

The issue of medical sects is of interest for the current study. Flexner discusses this topic in Chapter 10 of the *Report*. The "sects" he refers to are the three main theoretical perspectives then currently in vogue among doctors. These include allopathy ("regular medicine"), homeopathy, and osteopathy. However, these last two are descendants of earlier sects which had existed in the 19th century. These older sects were established due to two problems of medicine in the early half of the 1800s: the lack of clinical training for new medical students, and the public rebellion against regular medicine's use of humoral practices that came to be viewed as extreme, such as bloodletting and purging. These two problems caused the lay public in the 19th century to

distrust doctors and to turn to new systems which promised effective treatment without the use of extreme measures (Rothstein, 1972).

Though homeopathy and osteopathy were the last remnants of the alternative sects, some medical schools still taught some of the old systems, including the Thomsonian and eclectic sects. These two were *botanical* sects, in that they promoted the use of herbs and other plants for maintaining health and treating illness. The major principles of Thomsonian medicine rested on the preservation of heat in the body and the elimination of coldness, similar to the unified model's four qualities. Eclectic medicine depended on medicines which were *emetics* used to induce vomiting, and *cathartics* to empty the bowels; both of these were also components of the older humoral system. Thus, some medical colleges of the early 20th century included instruction in the medical sects which employed elements of the Four Humors. When the *Flexner Report* was enacted by the AMA to reorganize medical education, these theoretical systems were no longer permissible in the teaching colleges. As a result, after 1910 the Four Humors was finally eliminated from both medical practice and the training of physicians in the United States.

A newspaper story from the New York Times provides cultural evidence for cultural knowledge of the unified model in the 20th century. The story reports that a Cambridge University professor, Barcroft (no first name given), "is at present analyzing 'the spleen' where people are popularly supposed to keep their bad tempers" (December 19, 1925, p. 10). The reference to the societal belief is an indication of the value of the unified model in popular culture of the time; however, direct evidence for the practice of the model was not found in any source for the historical period. In addition, the

statement does not indicate any evidence of knowledge of the blood and heart as sources of anger and desire; all negative emotions are attributed to the spleen, which is a significant divergence from the view of the historical unified model. Thus, awareness of the model has decreased since the 1850s and what remains reflects broad themes concerning the relationship between the human body and emotions, rather than detailed medical and cultural knowledge.

Summary

There are several implications of the analysis of the historical texts. Overall, the major identifying features of the Four Humors model include the systematic, all-inclusive categorization of phenomena that are external to the body as well as internal; the close, causal connections between these two realms of experience; and, the explanatory power of the model to explain any event, whether supernatural, natural, physical, or psychological across the human life span. Thus, the systematic and inclusive nature of the model creates a *unified theory of human development*, tying together all known realms of the macrocosm/microcosm as understood in the early Renaissance.

Second, the Four Humors was insightful and powerful as an explanatory tool. Modern characterizations of the theory tend to summarize its major parts and to gloss over the details. Though the review in this chapter does not claim to be exhaustive, in the historical texts there is a great depth of thought and explication of the model. As a result, the system was able to explain and provide advice for all important life issues, including healthy lifestyles, mental health, considerations of career choices and marriage partners, child-rearing, and the effects of cataclysmic events on the quality of life. The Four

Humors was seen by the historical writers not only as a scientific theory, but a practical reflection of reality, useful for making short- and long-term personal life decisions.

As a result, some authors combined the Four Humors with other theories, such as astrology and mathematics, to create specialized decision-making systems that shared in the practical explanatory power of the unified model. In practice, the theory was straightforward, adaptable, and useful in Renaissance society. The number of publications on the topic in the 16th and 17th centuries testifies to the high cultural value ascribed to the Four Humors, and implies the wide distribution of information about the system in different levels of society, further suggesting that the unified model influenced language and the cognitive conceptualization of the human body.

Third, the Four Humors included concepts that parallel those found in Lakoff and Kövecses' (1987) folk theory of human physiology. Heat, pressure, and visible body symptoms (skin redness, agitation) were all found in the descriptions of the major tenets of the Four Humors, especially in the four temperaments. The sanguine and choleric types in particular showed important parallels with the folk theory. For example, sanguine people were described as passionate and show emotion easily, though they also controlled the negative effects of anger well. Choler was described as heating the blood, leading to sweating, skin redness, anger, and violence, and the lack of control over emotion is apparent in the descriptions of the choleric personality. The melancholy type was also described in ways that were similar to Lakoff and Kövecses' non-prototypical anger cases, particularly the concepts of low heat, fluid pressure, and the ability to maintain emotional control through the periodic release of black bile. These apparent similarities between the Four Humors and Lakoff and Kövecses' theory informed the

research questions and the design of the current study on anger metaphors in historical culture. Therefore, the connection between these conclusions and the non-prototypical cases of ANGER discussed by Lakoff and Kövecses (including "*He vented his anger*" and "*He vented his spleen*") needs to be explored.

Finally, the data gathered for the ancillary study showed that the unified model was actively practiced by lay medical consumers during the historical period, at least up to the beginning of the 20th century. The scientific advances that refuted important parts of the model did not seem to have much effect on lay practice. The evidence suggests that the unified model was an important influence on medical self-treatment by non-experts, and its effect may have stretched beyond medicine into metaphoric language, and eventually to cognitive conceptualization. This issue is the investigative goal of the main study of the CM of ANGER; the results of that study are presented in the next section.

The Main Study of Diachronic Metaphors of ANGER

The current chapter discusses the results of the main study of the CM of ANGER. The metaphoric expressions collected from the Penn-Helsinki and ARCHER corpora will be analyzed over the course of the five-century historical period. The findings from the previous chapter, on the ancillary study of historical data, will be employed to aid the interpretation of the metaphoric expressions.

The section is organized in sub-sections. First, the keyword data collection results are summarized. Second, the frequency tables of the metaphor samples are presented and the results across the historical period are discussed. Third, changes in the structure, meaning, and use of the metaphoric expressions for each 50-year period are analyzed. In addition, the frequency over time is compared to the five central scientific advances

(identified in Chapter 4), in order to investigate the relationship between changing knowledge of the human body and its physiological processes (both expert and lay knowledge) and metaphor. Finally, the results are summarized in the chapter summary.

Data Collection Results

The keyword search results are provided in Table 1, followed by a brief discussion of the procedure.

Table 1. Keyword data collection results

Corpus	Total Keywords	Total EMOTION Metaphors	Overlap cases	Unclear cases	Total cases for analysis
Penn-H	308	27	3	0	24
ARCHER	86	34	7	2	25
Totals	394	61	10	2	49

A total of 61 metaphor samples were collected from the corpora (see Appendix F and Appendix G for a listing of the samples). However, several had to be eliminated in order to calculate the NFR. Recall from Chapter 3 that the two corpora overlap between the years 1650 and 1720; using all of the data collected in this period would artificially inflate the NFR calculations for the 1650-1699 and 1700-1749 periods. To eliminate the overlap, a total of 10 cases were deleted from the two corpora: three cases from the Penn-Helsinki dated between 1700 and 1720, and seven cases from ARCHER dated between 1650 and 1699 (see Appendix H for a list of the deleted samples); a total of 51 cases remained. After the elimination of the overlap cases, the Penn-Helsinki covers the years 1500 to 1699, and ARCHER covers 1700 to 1990; in addition, the NFR column shows the rate of occurrence per 1.0 million words for the total number of keyword samples collected in one corpus in a 50-year period. Finally, two cases were eliminated because the structure and contextual meaning did not clearly instantiate a conceptualization of

ANGER or EMOTION, leaving a total of 49 metaphoric expressions for analysis. Table 1 summarizes the results of the data collection procedure for the keyword metaphor data.

Frequency of Use Results

Table 2 summarizes the EMOTION metaphor frequencies for the keywords for each 50-year time period between 1500 and 1990. The raw frequency (total instances per period) is also converted to the Normalized Frequency Rate (NFR) of one instance per 1.0 million words of running text in each corpus, to provide a means to compare time periods. The last year that a keyword appeared in a corpus is shown in parentheses.

Table 2

Metaphor frequency counts, total and by keyword, A. D. 1500-1990.

Year Range	*vent-*	*spleen*	*blood*	*boil-*	Raw Frequency	NFR*
1500-1549	0	0	0	0	0	0.0
1550-1599	0	0	2	0	2	1.1
1600-1649	1	3	4	1	9	5.0
1650-1699	2	2	5	1 (1696)	10	5.5
1700-1749	1	4 (1736)	2	0	7	4.1
1750-1799	4	0	3	0	7	4.1
1800-1849	1	0	4 (1847)	0	5	2.9
1850-1899	2 (1854)	0	0	3	5	2.9
1900-1949	0	0	0	1	1	0.5
1900-1990	0	0	0	3 (1969)	3	1.7
TOTAL	11	9	20	9	49	XXX

Notes

* NFR = Normalized Frequency Rate (See Chapter 3 for details).

Several general historical trends are immediately apparent in Table 2. First, the raw frequency of the metaphoric expressions increases over time during the 1500-1699 period, from zero cases in 1500-1549, four in 1550-1599, to a high of 10 cases in 1600-1649. The high point of the raw frequency data thus occurs during the 17th century, which was also the high point in popularity of the unified model, in terms of the number of books published on the topic (see Chapter 4). From 1700 onward, the raw frequency decreases over time, from seven cases in the 18th century to five in the 19th century, then a low of one case in 1900-1949, and a small increase to three in the 1950 to 1990 period; interestingly, all four cases in the 20th century were for the keyword *boil-*. Reflecting the raw frequency data, the NFR begins at 0.0 between 1500 and 1549, increases to 1.1 between 1550 and 1599, increases to 5.0 in 1600-1649 and then reaches a high of 5.5 in the 1600-1699 period. From that point, the NFR gradually decreases, to 4.1 in the 18th century, 2.9 in the 19th century, and finally to a low of 0.5 from 1900 to 1949. In the last 50-year increment (1950 to 1990), the NFR increased to 1.7 due to the increase in raw frequency to three cases. Since the selected corpora are representative of English usage during the historical period under study, the trends indicate the general patterns of use in metaphoric expressions of the keywords by native speakers during the 490-year historical period.

In addition, the use of each of the keywords varies in raw frequency over time; however, each keyword exhibits a different pattern. For example, *spleen* occurs nine times between 1600 and 1749 (the last case dated 1736), an average rate of three occurrences per 50 years, across a span of 150 years. Conversely, *blood* occurs the most often (22 times between 1500 and 1849, the last case in 1847), about 3.5 times per 50

years and spanning almost 300 years. The keyword *vent-* occurs half as often as *blood* (11 cases), and spanned slightly more than 250 years of use, and the last case (1854) occurs within seven years of the last case for blood. *Boil-* is the most idiosyncratic, with zero cases in the 16th century, two in the 17th, and zero between 1700 and 1849. Then, *boil* reappears in the 1850-1899 period and is the only keyword with cases in the 20th century (four total), and a total of nine between 1850 and 1990 (82% of the total cases for the keyword). As a result, *boil* has the latest occurring case, dated 1969, and its longest span of consecutive years of occurrence is 140 (between 1850 and 1990), the shortest total span of any of the keywords.

A comparison of the raw frequencies and the normalized rates with the scientific dates of the scientific advances in human physiology research (discussed in the previous section) showed that the use of metaphoric expressions for ANGER varies in concert with some of the scientific advances. For example, *boil* drops out after 1696, 68 years after Harvey's 1628 discovery of the circulation of the blood. *Spleen* drops out of use in 1736, within 25 years of Morgagni's 1761 book on the localized origins of disease within bodily tissue. *Blood* and *spleen* drop out after 1847 and 1854, respectively, within 11 years and 4 years, respectively, of Virchow's 1858 book demonstrating that cell tissue was the locus of disease. A causal relationship cannot be shown with the available data, yet the proximity of the drop in use of three keywords to the time in which a major scientific advance is made known indicates that a correlation between keyword use and scientific advance is plausible. However, the reemergence of *boil* in the 1850-1899 period, 250 years after it dropped out, does not correlate with the historical scientific

advances. The close analysis of specific cases (see the following section) provided more insight on the behavior of *boil* and the possible reasons for its use.

In sum, the raw frequencies, normalized rates, and the year of the last case for each keyword shows that the use of the keywords coincides with the rise in popularity of the unified model in the 16th and 17th centuries, and also with the publication of scientific advances that refuted important aspects of the model in the 18th and 19th centuries, especially Virchow's book in 1858 (when the use of two of the four keywords ended). The next section provides a detailed discourse analysis of selected cases across the historical period, to show the structure, meaning, and use of the keywords in metaphorical expressions.

Data Samples and Analysis

Discourse analysis of selected cases is presented in order of the date of occurrence, in chronological order, in each 50-year period shown in Table 1. The purpose of the procedure was to investigate the specific syntactic structures, meanings, and uses of the keywords in metaphorical expressions. The results explain some of the idiosyncratic use patterns noted in the frequency results, and also delineate changes in the framing of the keywords over time, indicating changes in the cognitive conceptualization of the CM of ANGER.

Before presenting the results of the discourse analysis, I should note here that the "typical" forms of the ANGER metaphors (Lakoff & Johnson, 1980, 1999; Lakoff & Kövecses, 1987; see Chapter 2 for discussion) either do not occur in the corpora or employ a meaning that does not map to the target domain of ANGER. Thus, *He vented his spleen* did not occur in either the P-H or ARCHER over the 490 year study period; *His*

blood boiled was not found in the P-H, but it occurred twice in ARCHER. One of these two samples, dated 1665, was eliminated to resolve the overlap between the corpora; however, discourse analysis of the case was performed. The case does not use the typical grammatical structure, and the reference is to sexual desire, not anger.

> I observed so many excellencies that my blood began to boyl, and my flesh was all of a flame. For her hair which naturally curled, and was plaited, was of a bright flaxen, each hair in the sun glittered like a thread of Gold.

Interestingly, here the speaker's skin is described as on fire, and the boiling of blood does result in any outward show of anger or violence, unlike the anger CM described by Lakoff & Kövecses (1987). In sum, only one case (discussed later in this chapter) of the 49 cases analyzed in the study employed the form/meaning pattern of *His blood boiled*; none were found for *He vented his spleen*.

The result denotes the general trend of the collected keyword samples: the metaphors employed by the keywords take many different grammatical forms, and the exact meaning of a case must be derived from the specific situational context. In addition, the result is an indication of the value of corpus data collection and analysis—what is considered "typical" in form and meaning by present-day researchers in linguistics is not necessarily typical historically, and synchronic speakers may ascribe a *stereotypical* form and meaning to a historical use. Thus, the non-linguistic background data were helpful in understanding the meaning and pragmatic use of the metaphors. Moreover, the result indicates that compiled corpora of actual use are better guides to the

typical form and meaning for historical native speakers than present-day native speakers. These conclusions will be discussed in more detail in Chapter 5.

In the discourse analysis below, additional corpora were searched when the P-H and ARCHER did not provide relevant examples (discussed in the Method chapter). The Modern English Collection of the University of Virginia Electronic Text Center was searched for the 1500-1849 period, and the Making of America collection of 19th century British and American magazines at Cornell University was used for the 1850-1899 period. The corpus of origin is identified with the samples shown in the analysis.

1500 to 1549

One metaphorical use of the keyword *blood* was found in the P-H during the period, in a translation of Vulgate Latin Old Testament by William Tyndale published in 1530. The case is shown below (As with all cases that are not included for analysis in the main study, the case below is not numbered).

> And what he sayd: What hast thou done? The voyce of thy
> brother's bloud cryeth vnto me out of the erth.

The case is metaphorical because the model structure is present, ANGER is instantiated (through a desire for VENGEANCE), and personification is used as a device to communicate a metaphorical meaning (see Method section on data analysis). However, since this is a direct translation from Latin, the use of the metaphor is not indigenous to native English use of the time; therefore, the case was eliminated. Thus, Table 1 shows zero uses of the four keywords in metaphorical English use during the period.

The lack of native English metaphorical cases in the Penn-Helsinki corpus is interesting, and requires some additional analysis to understand the possible reasons.

Non-metaphorical uses of the keywords *blood* and *spleen* did occur, and these cases do refer to the practice of the unified model. One of these cases (shown below) was presented previously, from a medical text by Vicary from 1548.

> These are the places of the humors: the blood in the Lyuer, Choler in the chest of gal, Melancolie to the Splen, Flegme to the Lunges and the Iunctures, the watery superfluities to the Reynes and the Vesike.

Vicary was a medical doctor who wrote books on medical diagnosis and treatment, primarily for use by physicians and other experts. The book quoted above was one of the 31 historical sources considered for the ancillary study discussed previously; the work was eliminated because it was not written for lay medical practitioners. In the sample of Vicary's book in the P-H corpus, *vent-* and *boil* were not found, *spleen* was found three times, and *blood* totals 27 occurrences, comprising 30 of the 44 non-metaphorical cases found in the keyword search of the P-H corpus.

The *blood* cases in Vicary discussed or referenced HEAT but *boil* is not employed in any of these cases; the following sample describing the heart is typical.

> …and the cause of this hollowness is this, for to keepe the bloud for his nourishing, and the ayre to abate and temper the great heate that he is in, the which is kept in his concauities.

As was discussed in the previous section, in the unified model the heart was the source of the body's natural heat, and blood, which had the qualities of heat and wetness, was stored in the heart, accounting for the heart's high level of heat in the model. These principles explain the reference to heat in the sample. In addition, Vicary's work is on

physical illness, accounting for the references to the physiological blood and spleen. In sum, the P-H cases show numerous and explicit evidence of the unified model, but metaphorical cases of the keywords are not present. Also, the lack of *vent-* and *boil-* in the P-H needs to be accounted for, which requires more data.

Although the P-H did not have any metaphorical uses of the keywords in the 50-year period, a search of the University of Virginia Electronic Text collection for the 1500-1549 period resulted in several cases of the metaphorical use of *vent-*. The sample below is from John Calvin's *Institutes of the Christian Religion*, published in 1536; three total samples were found. In this case, ANGER is the target domain.

> Since some feeling of shame restrains them from daring to belch forth their blasphemies against heaven, that they may give the freer vent to their rage, they pretend to pick a quarrel with us.

In addition, in Niccolo Machiavelli's 1531 *Discourses on the First Ten Books of Titus Livius*, a total of thirteen examples of metaphorical *vent-* were found, including the one below.

> …all the Plebs departing from Rome, all of which (things) alarm only those who read of them; I say, that every City ought to have their own means with which its People can give vent to their ambitions,…

Here, *vent-* is mapped to ambition, a character trait, rather than an emotion.

In all, 16 samples of *vent-* from the two authors were found in the Virginia Electronic Text collection for the 1500-1549 period, targeting anger, ambition, lust, and other emotions and desires. Since the Virginia database does not contain word counts,

calculating the NFR for these cases is not possible; however, the cases show the active use of the keywords for metaphoric expressions, by a clergyman and a philosopher. Uses by non-experts were not found in the period.

Similarly, *boil-* metaphors in the Virginia collection targeted a range of emotions; all 10 were found in Calvin's *Institutes*, including the sample below.

> …our conscience can have no rest at all, no peace with God, no confidence or security, but is continually trembling, fluctuating, boiling, and distracted; dreads, hates, and shuns the presence of God.

Interestingly, in this case an abstract concept, the conscience, is boiling, which is not typical in Lakoff and Kövecses' (1987) data or in the current study data. In addition, the sample targets several emotions, including fear, hatred, and shame, a wider range of emotion than described by Lakoff and Kövecses, but more common in the present study. In sum, *vent-* and *blood-* showed the same characteristics: both were present in the 1500-1549 period in the Virginia collection, and both were used to target a range of emotions, including anger, lust, fear, as well as personality traits like ambition, and the human body is referenced (though, interestingly, the spleen and blood are not referenced in the Virginia E-text samples). The range of references and targets in the metaphor samples is broad and variable, unlike the limited and generally fixed range of the typical forms of the metaphors described by present-day researchers. Overall, the uses of the keywords in this period are dynamic and variable, rather than static and fixed.

At this point, a reasonable question concerns how widespread the anger metaphors were at this time. The lack of *vent-* and *boil-* samples in the P-H corpus and the relatively small number of anger metaphors in the Virginia E-text database indicate that the use of the forms in English at that time were restricted. The P-H is a representative compilation of English use, and so the lack of metaphor samples indicates that they were not widespread in English in the 1500-1549 period and limited to scholarly discourse. In addition, since only two expert authors in the Virginia collection used the metaphors, then they may have been part of these authors' writing styles, rather than a general linguistic form. These factors may account for the lack of anger metaphors during the period, in both the P-H and the Virginia texts.

1550-1599

A total of three metaphor samples were found in this period in the P-H; all are for *blood*. However, only one sample indirectly references the unified model. Example (1) is a reference to the calming effect that a loved one has on the subject's emotional state.

(1) To heare hir name spoken doth euen comfort my blood.

The unified model is referenced implicitly in the sample because blood brought healthful emotions such as love and fondness. The other two samples both employ the keyword as a metonymic reference to the human body and to death, as shown in (2).

(2) But it may be lawfull ynough for wicked men, that thursted the blud of all the senate & all good men, to seeke our wrak, whom they haue seene defend the good & saue the Senate.

The sample targets bloodlust mapped to the source domain of blood, metonymically referencing death, in the same way that a predatory animal has bloodlust after a kill, and

so continues to kill. Therefore, the HUNTING frame is the base of the metaphor, and the profile is the predator's KILL (i.e., good men).

In (3), death is also profiled, but the frame is JUSTICE, and blood metonymically refers to the dead body of the murdered man.

(3) I beseech you, consider of me; my Blood will ask Vengeance, if I be unjustly condemn'd.

Through personification, the subject's blood cries for justice against his killer, a common theme in this historical period and the next. Overall, the three samples in the 1550-1599 period involve only one of the four keywords, with references to the desire for vengeance (also entailing ANGER), death, the predatory animal attribute of hunting, and justice. Again, as seen in the previous period, ANGER is one of several targets for the metaphor, and the emotion is an entailment, not the profile of the frame.

1600-1649

The frequency of the keyword instances continues to increase, with a total of 10 cases spread among all four keywords. *Vent-*, *spleen* and *boil* make their first appearance in the collected samples. The samples employ a variety of target domains, though emotions are profiled in the cases. The *vent-* sample (4) from the year 1614 maps to WRATH by way of a simile.

(4) For when the wickednesse of man was so great, and the earth so filled with crueltie, that it could not stand with the righteousnes of God any longer to forbeare, wrathfull sentences brake out from him like wine from a vessell that hath no vent.

The simile uses the non-metaphorical meaning of *vent-* to compare God's righteousness to a container under pressure which explodes; the result of the explosion is the verbal expression of WRATH. The example is interesting for its use of the properties of the CM of ANGER, including the CONTAINER image schema and PRESSURE. This is the first clear example of the CM in the corpora; yet, this case is different from Lakoff and Kövecses' (1987) examples: it uses the older meaning of *vent-* (via the noun form) as well as a simile employing *like*, rather than the metaphorical source-target mapping. The case is an early example of the CM of ANGER, before the full metaphoric expression developed with the verb form of *vent-*.

Other samples in the period also target emotions. All three of the *spleen* samples map to different emotions, all within the range of unified model's view of the spleen. Example (5) maps ANGER, (6) JOY, and (7) VENGEANCE.

(5) The foole, seeing the pitch ball, pulled to haue it off, but could not but with much paine, in an enuious spleene, smarting ripe runes after him, fals at fistie cuffes with him; …

(6) Whereat the World so tickled her spleene that she was agog, clapped her hands for joy, and saies she was deepely satisfied, and cryed more.

(7) Now, the cause why this Law was first made, was, for that the women there were so fickle and inconstant, that, vpon any slight occasion of dislike or spleene, they would poison their husbands.

There is a CM instantiating the first two samples, which I call INTENSITY OF EMOTION IS DEGREE OF MOTION. The man in (5) has a ball of tar slapped on his head (as a joke), and

this causes intense ANGER and leads to a fight. The *Oxford English Dictionary Online* (hereafter, OED-O) supports this interpretation; an old, obscure meaning of *envious* is "[f]ull of ill-will; malicious, spiteful", a meaning which fits the desire for retribution that the man enacts by starting a fight. In addition, retribution is Step #5 in the anger prototype scenario described by Lakoff and Kövecses (1987; see Chapter 2 for discussion). For these reasons, sample (5) was analyzed as a metaphorical expression for ANGER. In (6), the woman's spleen is tickled to the point of causing her to laugh and cry. As was noted in Chapter 4, in the unified model the spleen was the origin of a variety of emotions, including anger, sadness, and merriment; excess black bile over an extended time period was thought to lead to anger and sudden, extreme violence, and ultimately, insanity and suicide. Considering the various emotions instantiated in the collected metaphoric expressions, the samples in this period thus reflected knowledge of the unified model as it applies to emotional behavior, mapping the spleen as the source domain to various target domains of EMOTION.

The metaphor INTENSITY OF EMOTION IS DEGREE OF MOTION has features in common with two primary metaphors identified by Grady (1997), INTENSITY OF ACTIVITY IS HEAT and INTENSITY OF EMOTION IS HEAT. Both of the primary metaphors target INTENSITY and EMOTION, but HEAT is missing in (5) and (6). The difference is due to the influence of the unified model, with the focus on the cold, black bile of the spleen. There is evidence in the collected data that INTENSITY OF EMOTION IS DEGREE OF MOTION is a primary CM because DEGREE OF MOTION is a characteristic of both *blood* and *spleen* metaphors, whereas HEAT applies only to blood metaphors. The feature that applies

across all cases is DEGREE OF MOTION, suggesting that Grady's INTENSITY OF ACTIVITY IS HEAT and INTENSITY OF EMOTION IS HEAT are not primary metaphors.

As for the *blood* metaphor, one of the five samples continues the "blood vengeance" mapping found in the previous 50-year period; as before, the frame is JUSTICE.

(8) Seeing myself so near my End, for the discharge of my own Conscience, and freeing myself from your Blood, which else will cry Vengeance against me.

The keyword samples also include two cases of the *cold blood* metaphoric expression discussed by Lakoff and Kövecses (1987); however, as shown in (5), (6), and (7), the targets in (9) and (10) are not restricted to ANGER—they vary over a range of emotions. These features are shown in (9) and (10) for comparison.

(9) …but the King in Mercy spared you. You might think it heavy, if this were done in cold Blood, to call you to Execution, but it is not so;…

(10) I was also to see y=r= mother whoe it pleasd not to give me a sighte of her, but it was happines inoughe for me to convers with y=r= sister Drury, who talkt at a strange rate, but I had temper to heer her and so parted vpon fayer termes, onely wishing them a happy retourne, hopeing the Bath water would coole ther bloods.

(9) refers to the dispassionate state of mind which allows a human to kill or murder another person as the result of a calculated, premeditated plan, traits that were associated in the unified model with excess black bile. (10) is from a personal letter in which he discusses the problems in his relationships with certain family members. However, some

of the context (such as the reasons for the difficulty) appears to be assumed by the writer to be known by the reader, and so is left unstated. From the contextual data that is available, the writer conceptualizes emotion on a HEAT scale (discussed by Lakoff & Kövecses, 1987); however, in this case the scale includes *both* hot and cold dimensions on the ends of the scale, with the dispassionate state (the writer maintains his temper while speaking with Drury) on the cold, calculating end of the scale and ANGER on the hot, impulsive side. Thus, the heat scale includes the full range of temperature ranging from hot to cold; I use the term temperature scale to denote the heat scale. Moreover, (10) references the unified model directly by prescribing a cure for hot anger: taking a bath in cold water. The cultural model was instantiated in the CM during the historical period.

REASON is also present as a scale, conceptualizing the calculating and impulsive traits as opposing ends of the scale (which is also consistent with the unified model). The scale varies in the degree of REASON that is employed by a person. In (9), the calculating end was instantiated, and in (10), impulsiveness was selected. Overall, the CM of ANGER during this diachronic period in English can be characterized as similar to the analysis offered by Lakoff and Kövecses (1987) for synchronic English, but more complex in the scales. The scales of TEMPERATURE and REASON described above will reappear in later time periods.

Finally, the sample for *boil-* in the period, unlike the cases found in Virginia Electronic Text cases discussed in the 1500-1549 period, target ANGER via personification.

(11) Then should he see many grete waters like to drowne him, boilinge and raginge against him as thoughe they wolde swallowe him up, yet he thought he did overpasse them. And thes dremes and visions he had every nighte continually for 3 or 4 yers space.

The "raging" targeted here is mapped from the powerful ("boiling") movement of the sea waves, which is the complex CM named INTENSITY OF EMOTION IS DEGREE OF MOTION, discussed for samples (5) and (6). In (11), the CONTAINER is open, described as the mouth of a hungry animal ready to swallow (metonymically drown) a victim. The base of the frame is FEAR, and the profile is FEAR OF DROWNING, rather than ANGER. The conceptualization employs many of the properties of the CM of ANGER, yet the meaning of the concept diverges significantly. INTENSITY is an important entailment of the conceptualization, similar to the atypical cases of ANGER analyzed in Chapter 2 (e.g., INTENSE RESPONSE OVER TIME)

For a complete view of the period, it must be noted that two of the 10 cases that were deleted from the dataset (due to the chronological overlap of the two corpora) map ANGER to heated fluid. The two samples, one for *blood* and one for *boil*, were found in the same passage from 1693 shown below (Note: the sample is not numbered because it is not in the analysis dataset).

COURTWITT. What's that you mutter, ha! pull forth thy Gold. <Draws again.> Lay it before me to appease my fury, my Wrath boils up, my Blood is all on fire, And I'll consume the Covetous Race of Mortals.

ANGER is mapped to HEAT in *my Wrath boils up*, and also in *my Blood is all on fire*. The mapping is the clear and explicit in these cases. Thus, in the 50-year period, the mapping of HEAT to WRATH was found in two samples. The mapping clearly exists in the period and is employed, though the *cold blood* mapping is more prevalent in the dataset.

To summarize, the 10 samples from the 1600-1649 period are quite varied in their use of the keywords to target the domain of emotion; the samples conceptualized human envy, joy, and hatred, animal rage, and two different effects of cold blood. In addition, the concept of *blood vengeance* continued from the 1550-1599 period. The key concepts mapped in this period were the effects of human emotion and the desire for justice in human social relations. In addition, Sample (11) displayed a complex use of elements from the target domain of ANGER to personify the sea as a voracious animal, similar to the mapping of ANGER to a dust storm in the Maalej (2004) study of Tunisian Arabic. The case is metaphorical, but it is not related to human bodily experience.

Most significantly, the period yielded samples that displayed the *temperature scale* described earlier, with the scale extending from hot to cold. I argue that there are three scales in the samples: TEMPERATURE, REASON, and CONTROL (CONTROL is discussed in more detail in the next section); lack of REASON and CONTROL corresponds with the hot and wet qualities of blood and an "impulsive" mindset, and the presence of REASON and CONTROL correlate with cold and dry qualities of black bile and a "calculating" mindset. The three scales provide an integrated model of the relationship between physical health, personality traits, and mental health.

These features of the metaphor samples are in line with the view of the unified model that characterized the sanguine and the melancholy temperaments. Thus, the heat

scale, in both the unified model and in the metaphor samples from the period, extends *across* emotions from anger to sadness, unlike Lakoff and Kövecses' (1987) model (see Chapter 2), in which the heat scale extends *within* the ANGER conceptualization from hot anger to cold anger. The difference is a significant point of divergence in the two models, and the issue has implications for later historical periods (see below) and for the implications of the current study (see Chapter 6). In sum, the metaphor samples from the 1600-1649 period conceptualize specific principles of the unified model not found in Lakoff and Kövecses' samples.

1650-1699

The 10 samples of the period develop more details in the unified model, and they also map the heat scale to additional emotions and personality traits and behaviors, such as grief, drunkenness, and revenge. I begin this section with the *vent-* samples (both from the year 1688) and the conceptualization of GRIEF.

(12) But, however she was forc'd to receive this unwelcome news, in all appearance, with unconcern and content; her heart was bursting within, and she was only happy when she cou'd get alone, to vent her griefs and moans with sighs and tears.

(13) He was forced to retire to vent his groans, where he fell down on a carpet, and lay struggling a long time, and only breathing now and then - Oh Imoinda!

There are several characteristics of the melancholy personality in the unified model displayed in these samples. First, the *heat scale* is absent, in accordance with the cold quality of black bile (in fact, all of the *vent-* samples in the dataset lack HEAT). Second,

despite the absence of heat, (12) employs the word *bursting* to characterize the feeling of grief, and the object of venting is moans, sighs, and tears. In the unified model, pressure in an organ is the result of increases in the fluid volume; heat and steam are not instantiated, even though the fluid in this case is warm and wet blood, because the emotion is grief, not ANGER. Third, in both samples the person suffering from melancholy *vents* in private rather than in public, a significant difference with the CM of ANGER concerning the expression of emotion. The melancholy person was prototypically a lover of solitude, which logically explains the private venting of emotion. Finally, in both samples, the bursting of the CONTAINER results in non-verbal expression of grief and sadness, including moaning, sighing, crying, and *breathing* (possibly "heavy" and labored). These characteristics follow from the unified model, and they are also different in several respects from the CM of ANGER.

The absence of HEAT and violent behavior directed outward towards others are also evident in the two *spleen* samples, one of which is shown in (14).

(14) We were dull Company at Table, worse A-bed. Whenever we met, we gave one another the Spleen. And never agreed but once, which was about lying alone.

The sample also follows the basic principle in the unified model of mapping the spleen to sickness, through the phrase *gave one another the spleen*, mapping the emotion of DISLIKE (cf. sample 7) to ILLNESS.

The blood samples in the period continue the *cold blood* mapping discussed in the previous section, and also develop details about the effects of heat on emotion, desire, and behavior. The samples are shown together; (16) is by Milton (1670).

(15) Come, Lory, lay your Loggerhead to mine, and in cool Blood let us contrive his Destruction.

(16) Whereupon although present and privat Execution was in rage done upon Edric, yet he himself in cool blood scrupl'd not to make away the Brother and Childern of Edmund, who had better right to be the Lords Anointed heer then himself.

(17) And though in cold blood he was a generous and good natured man, yet he would go far in his heats, after any thing that might turn to a Jest or matter of Diversion: He said to me, He never improved his Interest at Court, to do a premeditate Mischief to other persons.

The words *cool* and *cold* have the same conceptualization in these cases. Sample (15) continues the dispassionate, premeditated disregard for human life that was discussed in the previous section. Notice also that the preposition *in* is used in all three samples, a reference to both the container and to the variable nature of physical and mental health on the temperature and reason scales. (16) conceptualizes the quality of REASON entailed in cool blood, which preserves positive regard for others (by the *omission* of a violent act of murder). Finally, (17) takes the REASON quality and extends it to the *commission* of generosity toward and good natured interaction with people, an extension of REASON into GOOD DEEDS. The progression through these concepts employs the scales of HEAT, PASSION, and REASON discussed in the previous section and builds new entailments within them.

Two other *blood* samples are interesting for adding details to the heat scale—this time, on the hot end of the scale.

(18) And the natural heat of his fancy, being inflamed by Wine, made him so extravagantly pleasant, that many to be more diverted by that humor, studied to engage him deeper and deeper in Intemperance: which at length did so entirely subdue him; that, as he told me, for five years together he was continually Drunk: not all the while under the visible effect of it, but his blood was so inflamed, that he was not in all that time cool enough to be perfectly Master of himself.

(19) To this he answered, A man could not write with life, unless he were heated by Revenge: For to make a Satyre without Resentments, upon the cold Notions of Phylosophy, was as if a man would in cold blood, cut mens throats who had never offended him:…

Sample (18) is a clear reference to the unified model in its use of the word *humor*. Different foods were believed to have the hot/cold and wet/dry qualities; Boorde's (1542) book *Dyetary of health* and other historical sources of the composite model contain information on the qualities that many foods and beverages were believed to possess. Wine was viewed as a "hot" drink, increasing the heat of the blood and affecting physical health and behavior. The sample shows these resulting behaviors: increased blood heat, a warm pleasantness, and a lack of CONTROL due to decreased REASON. Interestingly, (18) uses the extension of BURN and applies it to blood, though in the unified model blood

could not burn because the fluid had the quality of wetness (this aspect will be discussed in greater detail in a later section). Overall, (18) is consistent in its use of the scales found in earlier time periods.

The CONTROL concept is an important mapping for the tEMPERATURE scale in the unified model because increased heat led to increased anger and physical violence. The concept is a scale, ranging from NO CONTROL (impulsiveness) on the hot end of the scale to TOTAL CONTROL (calculating) on the cold side. Therefore, the CONTROL scale corresponds to the TEMPERATURE AND REASON scales discussed previously.

The result closely parallels the FORCE/CONTROL scale found in the Koivisto-Alanko and Tissari (2006) diachronic study of CMs, discussed in Chapter 2. In that study, REASON was associated with the CONTROL side of the scale, and EMOTION was associated with FORCE. In the current study, similar associations were found, and the HEAT/COLD scale adds further details: HEAT is associated with FORCE, and COLD with CONTROL. However, while support was found for Koivisto-Alanko and Tissari's results on the REASON scale (i.e., reason is cold, unreasonable is hot), in the current study EMOTION was found on both sides of the HEAT/COLD scale, rather than on HEAT side only.

Example (19) follows the same conceptualization by mapping HEAT to REVENGE, a desire which can lead to physical violence. In addition, revenge against an offender is viewed more positively than violence done in *cold blood*, where the victim is not the offender. The entailment of REGARD for human life is a factor in the conceptualization, and, as was found in the composite model (see Appendix E), warmth has positive qualities not found on the cold end of the HEAT scale.

Finally, the single sample for *boil-* in the period shows an important aspect of heated fluid.

(20) Sir Tun. Oh , I'll warrant you my Hero, young Men are hot I know,
but they don't boyl over at that rate, neither;…

Boiling over is the result of heat, yet the use of the preposition *over* indicates that the CONTAINER is open, like a pot. The feature seems to contradict the *bursting* effect on the container in the Lakoff and Kövecses' samples. This issue will be discussed again in more detail in later historical periods (see below).

To summarize the samples of the 1650-1699 period, the heat scale continues to span across a variety of emotions, from anger to grief. In addition, the concept of REASON is further developed with the addition of CONTROL. CONTROL also is a scale correlating with the hot/cold, passionate/dispassionate, and unreasonable/reasonable scales, ranging from NO CONTROL entailment on the hot/passionate/unreasonable end to TOTAL CONTROL on the cold/dispassionate/reasonable end of the continuum. Additional entailments were found for heat, including the hot/cold and wet/dry qualities of foods (such as wine) in the unified model, and the mapping of heat with revenge as a cause of violent retribution for injustice. Hot revenge was also compared to cold-blooded murder, with revenge given the positive evaluation because righting a wrong against an offender is justified, whereas killing an innocent victim is not. Thus, the behaviors associated with heated humor are generally viewed with more favor than those associated with cold humor, due to the entailment of REGARD for human life inherent in the hot side of the temperature scale.

1700-1749

The data samples now shift to the ARCHER corpus for the 1700-1990 period. In the 1700-1749 period, seven samples were collected for *vent-*, *spleen*, and *blood*. *Boil-* dropped out at this point, and returned in 1850-1990. The first of the samples shown is for *vent-*.

(21) This confirmation of what Liberius had said and the jeers he had put upon him were such a weight upon the haughty spirit of Theophilus, who had the exact temper of some fellows of colleges, that it made him very chagrin and full of spleen, insomuch that he was obliged to retire to his chamber where he vented these expressions: Who could have divined that Sylvia was a gentlewoman? 'Tis seldom persons of fashion turn beggars…

This is the first sample that clearly displays the venting of *verbal* expressions, rather than non-verbal tears or sighs, and it includes a sample of *spleen*, as well. Again, as found in the previous period, HEAT is not associated with venting spleen; the emotional expression centers on SADNESS (i.e., *chagrin*) instead of anger, and expressing the emotion is done quietly in solitude, compared to the violent and public expression of ANGER. The ARCHER sample is consistent with both the unified model for the spleen and with the samples from the previous historical period in the Penn-Helsinki corpus.

Another sample, (22), again shows the mapping to SADNESS.

(22) As soon as you had reached the house, I shifted my material figure for one more becoming the dignity of the celestial condition; and being again invisible, I heard the fantastic relation you gave your

brother, who told you, twas all the effect of the spleen and obstinate grief you had indulged since my death:...

In contrast, (23) maps the spleen to the concept of a long-term COMPLAINT or "grudge" against another person.

(23) An old Spleen she had a long time bore to Yamatalallabec, on account of his Friendship with a Person at enmity with her, tho' he had never assisted him in any Designs against her, made her gladly enter into the Measure Oudescar had taken for the Establishment of his Favourite:…

The concept of grudge is a common one in *spleen* metaphor, possibly an entailment of the characteristic of AMBITION (shown in previous samples) that the melancholy temperament was believed to possess. ENVY and JEALOUSY are also mapped in spleen metaphor, both of which are logical causes of grudges. A "cold" grudge parallels the "hot" revenge discussed in the previous section, and the grudge also follows the CONTROLLED INTENSITY OVER TIME found in Chapter 2 for the atypical cases of ANGER

The *blood* samples of the period continue to entail *cold blood* and its effects on emotion, REASON, and behavior. (24) is an example.

(24) GAY-LOVE. Then turn back and use your Sword for now my Blood is cool, I'd rather lose <loose> my Life than lose <loose> your Friendship.

BELLMOUR. I cannot look on thee, and bear resentment; I'll never meet thee more but thus <(embracing him)> this is real and all my Angers feigned.

As was seen in previous samples, the entailments of REASON and CONTROL are implicated in the sample; Gay-Love no longer wants to fight his friend because his hot blooded anger has cooled, bringing control over his faculty of reason.

The next sample profiles IMAGINATION in the melancholy temperament.

(25) But though I could easily argue these Sir Gravities down, though a sentence or two would do their business, put them beyond the power of replying, and strike them dumb, yet do I think it not worth my while; their greatest and most wonted objection against these Eudemons and Kakodemons, being, that it arises all from the work of fancy, in persons of a melancholic blood.

Imagination (i.e., *the work of fancy*) and intelligence were specific traits of the melancholy temperament. Burton (1932/1621) states that writers, clergy, and scholars were believed to be melancholy professions due to the association of these vocations with intelligence, imagination, and solitary work. Again, these associations support the entailment of REASON at the cold end of the HEAT scale.

Summarizing the results of the 1700-1749 historical period, the details of the mapping of *vent-* and *spleen* to sadness were developed more clearly. In addition, the concept of *cold grudge*, in contrast to the heat inherent in revenge in the previous period, was established. Finally, the concept of *cold blood*, with the entailment of REASON, continues to be a common theme in the dataset.

1750-1799

The number of collected samples dropped in this period to a total of seven; *spleen* has dropped out of the dataset. Samples were found for two of the keywords—*vent-* and

blood. For the first time in the dataset, *vent-* is mapped to human anger, as shown in (26), from the year 1778.

(26) By the duchess's earnest solicitude to please, she destroyed her own purpose, and her obedience, like water flung upon a raging fire, only inflamed her husband's follies; and therefore, when he was in an ill humour, the duke vented his rage on her. He did not care how often he quarrelled with, or, to speak more properly, how often he insulted her;…

First note that, consistent with samples from the previous period, verbal expressions were vented (e.g., *quarreled with her* and *insulted her*), rather than visible physical behaviors associated with hot ANGER, such as skin redness or bodily agitation. In addition, recall that in the 1600-1649 period, *vent* in the noun form was used to describe the wrath of God within a closed CONTAINER that is about to burst from the pressure (see Sample 4). In comparison, (26) is the first in the dataset to ascribe the venting of ANGER onto a human being, and to do so with *vent* in the typical verb-object form. Moreover, the unified model is also referenced in the words *ill humor*. The sample is consistent with the principles of the unified model in characterizing ANGER.

Anger was possible in the melancholic temperament, though it was characterized differently in comparison to the hot and wet anger of the sanguine temperament. Melancholic anger was called *melancholy adust*, a medical condition in which cold, dry black bile was heated to the point of being burned, and the extreme heat resulted in extremely violent behavior and insanity. Suicide and violent crimes were thought to result from melancholic anger. It is unclear from (26) if the duke was thought to be

suffering from melancholy adust, but the reader of the time would have understood that such a result was possible after prolonged exposure to the effects of the condition.

A sample for *blood*, published in 1786, extends the mapping of burning to blood.

(27) ALEXIS. Oh you traitress - artful slut! this must be all a feint. I clearly heard she feels it too, that she must concern my wife, or my daughter - oh my blood burns! - She feels it too!

Similar to (26), this sample maps burning fluid to ANGER or sexual desire; the speaker displays angry behavior of cursing but states *She feels it too!*, possibly a reference to Alexis's own feelings of love for the *traitress*—in either case, the emotions instantiated are clearly intense and impulsive. The sample extends the "burning" condition to blood. The extension violates the tenets of the unified model (recall that blood had the quality of wetness and so could not burn), yet the extension is used in several of the collected samples discussed previously. Sample (27) is included in that group.

Though (26) and (27) are the first examples of vented anger in the analysis dataset, these were not the first found in the compiled corpora. One of the samples eliminated (see Appendix H) to resolve the overlap in chronology between the corpora has the same mapping. The sample was published in 1724 (Note: the sample is not numbered because it is not included in the analysis dataset).

> And indeed men's spirits were so sharpened upon it, that we all looked on it as a very great happiness that the people did not vent their fury upon the papists about the town.

The sample shows the mapping of venting to ANGER, though no explicit connection to *melancholy adust* is made. Overall, (26), (27), and the eliminated sample display the

mapping of venting to ANGER, and (26) may reference *melancholy adust*, a medical condition of the spleen and black bile in the unified model.

Finally, two samples for *blood* from the 1790s show the range of the heat scale discussed in previous periods.

(28) In cool blood, yet with firm attachment, we now see blended in her, the peerlessness of enterprise, the deportment, ardor and heroism of the veteran, with the milder graces, vigor and bloom of her secreted, softer sex.

(29) Valmont, whose imagination, long fixed to one point, had seen nothing in her confinement but a plan to deprive her of some envied advantage of rank or fortune, now gazed, as her blushes and tremor heightened her beauty, with a consciousness of it he had not before felt; and no sooner did his mind catch a ray of truth, than it became perfectly enlightened. All the warm blood congealed round his heart, flowed obedient to the voice of humanity; and in the wild hope of affording protection, he seemed to have forgotten how much he wanted it.

Example (28) is consistent with previous samples concerning the mapping of cool blood to REASON. The speaker is able to see the woman's positive attributes when the speaker is in the cool condition. Example (29) shows the effects of warm blood (as opposed to hot blood) on the feeling of positive FONDNESS towards another person. These two samples show, similar to previous samples, that the heat scale ranges across emotion

categories (as shown in the composite model; see Appendix E); the scale is not confined to ANGER.

In sum, the 1750-1799 period is provides examples which map the action of venting to anger, including the medical condition *melancholy adust*. Also, the *blood* samples provide more details about the heat scale in the unified model, consistent with samples from previous periods. Overall, though the end of the 18th century, metaphors employing the four keywords consistently and systematically entail principles from the composite model found in the historical source texts.

1800-1849

There are five metaphor samples in the first half of the 19th century; one *vent-* and four *blood*. The *vent-* sample (sample 30, below), similar to the cases discussed for the 18th century, specifies a verbal expression of emotion, as opposed to a non-verbal expression.

(30) I came only to sell a few apples, said Mary. Heaven has sent that girl to the rescue of my life, said Butler, under the impulse of a feeling which he could not refrain from giving vent to in words.

Several samples in the dataset specifically identify the use of "words" when venting emotion, apparently as a means to separate the verbal from the non-verbal. Yet, for *blood* and *boil-*, an identification of the mode of expression was not done for any sample in the dataset. The reasons for specifying the mode for *vent-* metaphors is unclear, but there appears to be a need for specifically identifying verbal expressions.

The *blood* samples for the period continue to specify aspects of the heat scale. Example (31) demonstrates the effects of cold blood on emotion.

(31) It was evening when I reached the hills of Languedoc, and looked impatiently toward my cheerful home beneath. I looked -- the last sun-beam glared redly upon smoking ruins! Oh! oh! the blood now chills and curdles round my heart - the wolves of war had rushed by night upon my slumbering fold - fire and sword had desolated all. I called upon my wife and my infant. I trampled on their ashes while I called!

In the unified model, the emotion of fear chills the blood and causes the blood to rush from the skin (causing the skin to turn pale) to the heart, in turn causing the heart to feel cold; the process is described in the words *the blood now chills and curdles round my heart*. In this sample, the TEMPERATURE scale extends to fear.

The next sample entails aspects of hot blood.

(32) When months ago you slept under my roof -- ay, slept -- what should have hindered me from stabbing you during the slumber? Two nights since, when my blood was up and the fury upon me, what should have prevented me tightening the grasp that you so resent, and laying you breathless at my feet?

Example (32) uses the phrase *my blood was up* to entail the unified model principle that blood rushed toward the skin and head during an expression of anger. Heating of the CONTAINER causes the hot and wet humor to produce steam, resulting in the physiological effects of skin redness and bodily agitation. Conceptually, the idea can be termed ANGER IS UP, a primary CM within the more complex CM ANGER IS HEAT; the latter CM is the one which underlies Lakoff and Kövecses' (1987) analysis of the CM of ANGER. ANGER

IS UP was also found in one of the eliminated samples, “my wrath boils up” (discussed after sample 11 in the 1650-1699 period).

Thus, in the 1800-1849 period, the samples entail the unified model principles that cold blood is produced by fearful life situations, causing physical symptoms such as pale skin and cooler body temperature; that anger causes the blood to run away from the heart and toward the skin; that blood runs upward in anger; and, that temperament and body temperature were passed by birth from one generation to another.

1850-1899

Boil- reappears in this period after an absence of 150 years with three samples, *vent-* has two samples, and *blood* drops out after a span of almost 300 years.

Continuing a trend from the previous period, both of the *vent* samples map to the target domain of ANGER, as in (33), below.

(33) Will, we are compelled to say, did not really care a copper for Donsy, and he bore no real ill will to Lanky: but when he found himself thus ignominously [sic] abandoned, his authority despised, his rival preferred, he fell into a passion and looked around him for some means of venting his wrath.

(34), unlike previous *boil-* samples, does not map to EMOTION but to ENERGY, a new target domain in the dataset. The passage was published in 1872.

(34) Bunny was heavy and sleepy therein, and did nothing but yawn and stretch out her arms. Barbie, on the other hand, was ready to boil over with delight and liveliness, flashing about like a little dab-chick.

This case is similar in some respects to (11), where the CM was identified as INTENSITY OF EMOTION IS DEGREE OF MOTION. In (34), the CM is INTENSITY OF ENERGY IS DEGREE OF MOVEMENT, an extension of the CM in (11), with the target a positive attribute, whereas the target in (11) is a negative emotion. The base of the frame is MOVEMENT (the extension of MOTION across a physical location), and the profile is ENERGY required for MOVEMENT.

Two other *boil-* samples from 1889, (35) and (36), also add new extensions; in these cases, from the frame of COOKING.

(35) CAPT. PHOBBS.

Yet stay - before I enter into particulars,
allow me to give you an insight into the state of my mind,
- Mr. Go - tightly!
GO LIGHTLY
Go-lightly, sir, - I never do go tightly!
CAPT. PHOBBS.
You see before you a man, furious with
indignation, sir, - literally boiling over!
GOLIGHTLY.
Well, sir, - I'd advise you to wait till you simmer
down a little. It's as well to appear cool and
collected before people --
but, I confess, I wouldn't have his wife show her face
at this moment, for a very considerable trifle!

(36) CAPT. PHOBBS.

I see you are dying with curiosity to know what has
excited my anger, which I consider both inquisitive and
impertinent.

GOLIGHTLY.

My dear sir, you are mistaken; I don't care one straw
about you or your anger either. You may boil all away,
as far as I'm concerned.

Like previous samples of hot anger, the heat scale extends from unreasonable anger to reasonable calmness (i.e., *cool and collected*). However, both of the samples use terms associated with boiling food in the frame of COOKING: *boiling over, simmer down, boil all away*. The COOKING frame was used in sample (20) in the 1650-1699 period; in that case it was applied to the young men as cook pots that may *boil over*; in the (35) and (36), the same frame and words are applied to an adult man as a cook pot. The extension is not new, but additional lexical items from the frame are included.

Recall that Lakoff and Kövecses (1987) made some specific comments about the use of words like *simmer* in ANGER metaphor, arguing that the COOKING entailment is a minor, atypical one. Yet, from a diachronic point of view, they do not appear minor or atypical, since the frame was employed in three different samples over a two hundred year period. In fact, one of the eliminated ARCHER samples from 1692 also used *boil over,* entailing an open cook pot rather than a closed vessel.

I could never get any Body to give me a satisfactory Reason, for
her suddain and dextrous Change of Opinion just at that stop,
which made me conclude she could not help it; and that Nature

boil'd over in her at that time when it had so fair an opportunity to show itself…

Though the sample does not instantiate anger, the cooking frame is clearly present. It is thus worthy of note that the fact that four samples out of 49 employed *boil over* (an NFR of 2.2) across a two-hundred year period are evidence that the COOKING frame is not minor and atypical. The frame is also an old one; the OEDO lists examples as early as the 14th century for English.

The examples from this period show some new extensions which previous historical periods did not exhibit, in adding target domains such as ENERGY and COOKING which are new to the conceptualization of ANGER.

1900-1949

One sample of the *boil-* keyword was found in this period, and one for *blood* + *boil-*. *Vent-* drops out in this period, after being in continuous use for over 250 years. The *boil-* sample (37) is similar in conceptualization to (34), INTENSE ENERGY IS INTENSE MOVEMENT. The passage was published in 1931.

(37) As for Ethel Smyth, whom you must meet, she has boiled over with a kind of effervescence of force - playing the trombone, golf, conducting, walking, riding, singing, loving, all at the same moment, so that she has, or had, a temperature of 104 - and is nursed by a single maid with Lady Betty at the bedside.

The fact that the same conceptualization occurs in a later text indicates that the concept was not a one-time novel creation in (34).

The *blood* + *boil-* sample (38) is the only one in the dataset (though, as discussed previously, a sample from 1693 which was eliminated to resolve the chronological overlap also was of this type).

(38) "Don't call me `sir'. Call me Comrade. Do you know what you are, my lad? You're an obsolete relic of an exploded feudal system."
"Very good, sir."
"If there's one thing that makes my blood [[boil]] in my veins--"
"Have another sardine," chipped in young Bingo…

The fact that (37), a new conceptualization, appears in the same historical period as the "typical" concept in (38), demonstrates the variable nature of conceptualization. The early part of the 20th century was characterized by variations in the conceptualization of emotions which recall old cultural views and new innovations.

1950-1990

Again, as in the previous period, *boil-* samples were found, but the other three keywords have dropped out of use in the corpus. Two of the three samples employ terms from COOKING, including (39), a newspaper report published in 1967.

(39) AFTER MONTHS of intensive struggle between factions of the Chinese Communist Party, the unrest in the country has boiled over into something approaching civil war. A series of reports from Peking yesterday spoke of violent clashes between party groups resulting in a death roll of more than 50,…

The sample does not necessarily instantiate ANGER though the behavior is clearly violent. However, *boil over* is the same verb used in (35), and extends

the COOKING frame to a large group of people (without a CONTAINER), using the INTENSITY OF EMOTION IS DEGREE OF MOTION primary metaphor. (40) below activates the same frame, from a novel published in 1969.

(40) (To DR. PRENTICE.)

If this boy becomes foul-mouthed keep him on the boil till

I return. (Goes to the garden, followed by MRS. PRENTICE.)

Again, *keep him on the boil* entails a cooking pot in the COOKING frame for an EMOTION that is not stated explicitly (though it is probably not ANGER). Four samples out of seven in the 1850-1990 period used the frame, and overall 5 out of the original 12 *boil-* samples in the dataset employed the COOKING frame; therefore, COOKING is a typical conceptualization for ANGER, rather than an atypical one.

The final period in the discourse analysis, 1950-1969, continues the trend toward the enactment of the COOKING frame in metaphoric expressions of ANGER. The profile in each of these cases is an open CONTAINER or cookpot, sometimes referring to the human body (see samples 35 and 40), and other times referencing a group of people, as found in (39). The characterization of the human body as an open CONTAINER is a clear divergence from the unified model view of the body as a closed, pressurized vessel. The cooking extension thus does not allow for the container to explode; instead, the container *boils over* to relieve PRESSURE on the fluid. Finally, a primary metaphor, INTENSITY OF EMOTION IS DEGREE OF MOTION was found to motivate (39); the same metaphor has been found in several of the historical periods.

Summary

To summarize the previous discussion, in each historical period analyzed, the metaphor samples display a wide range of emotions, grammatical structures, and situations of use. The complex nature of the form/meaning pairs found in the collected samples is striking and argues against the less complex CM of ANGER found in Lakoff and Kövecses (1987) and other studies. The implications of the main study results for CL theory, the study of language and culture, and future research are discussed in Chapter 5.

CHAPTER V

Discussion

The chapter is divided into four sections, beginning with a review of the main study's research questions. Next, the results are discussed for their impact on CM theory, followed by implications of the conclusions for future research.

Research questions

The research questions for the main study are reviewed below.

1. Are the *blood metaphor* and the *spleen metaphor* motivated by the CM of ANGER or some other conceptual structure?
2. What motivates the cognitive conceptualization the CM? Is it bodily experience, cultural knowledge, a combination of these, or some other source?
3. Do the conceptualizations vary over time?
4. Does scientific knowledge (and advancement in that knowledge) influence the conceptualization and variation in it?

These questions will be answered in turn, referencing the results of the ancillary study of historical sources and the main study of the CM of ANGER.

Question 1

Based on the results of the frequency study and the discourse analysis, the two metaphors investigated here are in the same CM; however, it is not the CM of ANGER, but the DM (domain matrix) of EMOTION. The DM of EMOTION is the basic conceptualization for all types of human emotion, and it includes encyclopedic knowledge of the body, including embodied experience, scientific knowledge, and cultural values and practices which are organized by the CM in a complex system of relations.

The discourse analysis of the metaphor samples shows these aspects of the CM. First, the CM is EMOTION rather than ANGER because many different emotions are instantiated in the metaphoric expressions. The emotions include ANGER, HATE, LOVE, FONDNESS, JOY, CALMNESS, ENVY, SADNESS, FEAR, and GRIEF. The number of emotions instantiated by the samples shows a complex domain (called a *domain matrix*; see Croft, 1993; Langacker, 1987). There are also a number of elaborations, extensions, and entailments. These include desires, such as REVENGE, GRUDGE, SEXUAL ATTRACTION, and AMBITION; personality traits include IMAGINATION, INTELLIGENCE, and REASON. The domain matrix (or DM) is a combination of several domains, including the CM of ANGER. I term this complex structure the *domain matrix of EMOTION*. The DM of EMOTION is the basic category, however, because it organizes the less complex CM in a system of relations that is employed to instantiate any metaphoric expression that involves human emotion.

Second, the domain matrix has several dimensions; the dimensions include TEMPERATURE, REASON, and CONTROL. The dimensions organize the emotions, desires, and personality traits in relation to each other with multiple conceptual links. Thus, HEAT

is linked to both ANGER and IMPULSIVENESS, and COLD is linked to SADNESS and CALCULATING. Other complex metaphors also were found in the DM, including INTENSITY OF MOTION IS INTENSITY OF EMOTION. Overall, the features of the dimensions and the emotions are linked systematically in order to motivate metaphoric expressions which employ the links to communicate the conceptualization and cultural knowledge about the unified model.

Question 2

The DM is a cognitive conceptualization which employs both embodied experience and cultural knowledge. Features of embodiment, such as the container and pressure, were found in the collected data; as well, features of the unified model were found, including the association of the spleen with SADNESS and a calculating personality type and the association of blood with ANGER and impulsiveness. I argue that the cultural knowledge provides contextual grounding, similar to the way that embodied experience provides experiential grounding.

The DM also allows for various combinations of emotions and dimensions to meet the needs of the communicative situation. Such combinations can contradict embodied experience or cultural knowledge, for the purpose of expressing a new meaning useful for the context. For example, sample (27) in Chapter 4 extends the property of burning black bile found in spleen metaphors and extends it to blood to indicate extreme anger. This extension of ANGER contradicts the unified model because blood, with its wet quality, could not burn (black bile could burn in the medical condition called *melancholy adust* because it had the quality of dryness). Though the entailment violates the cultural knowledge of the unified model, it extends the heat scale to

communicate a (relatively) higher level of anger in the metaphorical expression than would be possible in a blood or spleen metaphor alone; it is the combination of blood and burning that extends anger to a higher level of intensity, and the extension would be understood to readers because the unified model was well known to them. Thus, I argue that the writer creatively combined aspects of embodied experience with principles of the unified model to create a meaning that would meet the communicative goal of expressing an extreme level of anger not possible in a blood or spleen metaphor. In sum, the DM contains a several dimensions and a variety of emotions which can be employed to express highly complex and subtle shades of meaning.

Question 3

The conceptualizations of EMOTION vary in frequency over time, as Table 1 shows; the occurrences of the keywords increase during the height of the unified model's popularity, and decrease as scientific advances refute important parts of the model, with three of the keywords decreasing to zero instances by the 1850s. The relationship between frequency of use and the historical popularity of the unified model was the main reason for using the compiled corpora for data collection: the corpora, which are designed to be representative of the historical use of English, indicate that the use of the keywords (and likewise the metaphorical use of the keywords) changed as the cultural value of the unified model changed. These changes coincide diachronically with changes in the scientific validity and the cultural value of the unified model. Therefore, it is possible that the decrease in frequency of use of the metaphoric expressions could indicate a change in the cultural value of the unified model; the relationship between the model and metaphor use provides some evidence that changes in cultural knowledge affect the

frequency of use of language diachronically. I discuss this conclusion in more detail at the end of this chapter.

The conceptualizations also vary in their use of different cultural models across different time periods. The unified model was used extensively in the Early Modern period of English, and specific details drop out over time or are replaced with new combinations of DM dimensions, such as combining blood with burning to create an extreme level of anger that was not possible without the combination. The COOKING model also was used in various periods throughout the 490 year study period. The existence of more than one perception to encode emotion semantics is similar to the existence of alternate perceptions of a primary scene to encode deictic orientation in syntax. These alternate ways of viewing emotion indicate the role of cultural knowledge in choosing a perspective that fits the shared knowledge of the speaker and hearer, as well as the needs of the communicative situation.

Question 4

Finally, changes in scientific knowledge appear to correlate with changes in the DM of EMOTION. In the 1500-1549 period, metaphoric expressions using the keywords were not found in the Penn-Helsinki and ARCHER corpora, which were designed to be representative of English use of the time period. The only samples for the use of the keywords in corpora were found in the Virginia corpus in treatises by experts like Calvin and Machiavelli; however, the Virginia corpus was not designed as representative of language use. The absence of the metaphors in the representative corpora could possibly be attributed to the fact that the unified model was new to English speakers in the early 16th century, having been introduced into the language in the mid-1400s via France

(according to Gevaert, 2002). Therefore, knowledge of the unified model may not have spread to large numbers of non-expert English speakers in the early 1500s.

As the scientific theory spread, from researchers to doctors to patients, use of the CM of emotion and metaphoric expressions could have increased gradually, peaking in frequency in the Penn-Helsinki corpus during the 17th century. Harvey's discovery of blood circulation in 1628, which refuted the unified model view of humors held in bodily organs until needed, occurred less than 75 years before the decline of the frequency of the metaphoric expressions in the 18th century. By the mid-nineteenth century, three of the four keywords were no longer frequent enough among English speakers to register in the ARCHER corpus, during the same period that Virchow published *Cell Pathology*, refuting the dyscrasia theory which began in the Greek humoral system almost 2,500 years before. Overall, the frequency of use of the keywords in metaphoric expressions over the course of the historical period follows the historical rise and fall of the unified model generally, and this result suggests that scientific knowledge among non-expert speakers of a language affects metaphoric meaning and use.

Conclusions of the Main Study

The study historical metaphoric expressions found that emotion concepts are bound together by a series of dimensions, including TEMPERATURE, REASON, AND CONTROL, and the relations between the concepts and the dimensions constitute a complex domain matrix (DM) of EMOTION. In addition, several complex CM were found, including INTENSITY OF MOTION IS INTENSITY OF EMOTION, CONTROLLED RESPONSE OVER TIME, and INTENSE RESPONSE OVER TIME. The DM accounts for the results of the main study of metaphoric expressions and shows that emotion concepts are highly

interrelated at a conceptual level. In addition, the study shows that culture is an important factor in conceptualization, providing choices among cultural models for creating understanding between speakers and hearers who share those models and allows for new combinations of dimensions to create new meanings.

The main study also suggests that culture is a factor in diachronic changes in conceptualization over time and that scientific knowledge specifically has a role in changing cultural views of embodied experience and also conceptualization. The current study is limited in its ability to show these effects, but the study results do point to the possibility that these hypotheses are worthy of further study.

Finally, the metaphor study speaks to conceptual metaphor theory (CMT) and its use in diachronic language research; that is, cultural knowledge has an effect on conceptualization diachronically. Two pieces of evidence support this hypothesis. First, the selection of a particular perspective on a primary scene by cultural knowledge, as was discussed in Chapter 1 in regard to deictic orientation, implies that the possible selections will change over time as cultural values change, leading to changes in syntax and semantic meaning to fit the new values. The choices that are available cannot remain static since cultural change will change the specific details of the choices that are available for creating linguistic structure and meaning, and new choices will be developed in response to new cultural ideas, as well.

One argument against the frequency/cultural value hypothesis is that the semantic meaning of the keywords simply shifted over time, and the historical metaphoric meanings were used less frequently. Semantic shift in word meaning is a well-documented process in linguistic research so it will not be reviewed here; suffice it to say

that the argument needs to be addressed. My response is that meaning shift is the result of many factors, including changes in conceptualization and cultural knowledge.

Therefore my second argument for the effect of cultural knowledge on changes in conceptualization over time is that, as the current study showed, different conceptualizations of EMOTION were employed in the metaphoric expressions analyzed, including the unified model and the cooking model, and the dimensions of TEMPERATURE, REASON, and CONTROL were combined with EMOTION in ways that fit the communicative need of the moment. These variations can create new semantic meanings which change the meanings of words in the speech community and later meaning shifts affect the use of words. In sum, the shift in semantic meanings of the keywords over time has many causes, and I assert that culture is one cause. Shifts in semantic meaning can be explained as part of the general process of conceptual change via changes in cultural values that this study supports in both its theoretical assumptions and in the results of the data analysis. However, this conclusion is speculative because the current study was not designed to investigate the causes of diachronic semantic shift. Future work will need to study the issue in detail.

These hypotheses point to the idea that CMT has the potential to have a major role in diachronic research. The theory includes important principles, such as encyclopedic and non-autonomous knowledge, that can be applied to diachronic study designs in scientifically useful and interesting ways. I recommend, therefore, that cognitive linguists design new studies of historical language data, particularly studies of compiled corpora, and apply CMT constructs to those studies; the results have the

potential to increase understanding of the interrelationship between cognition, language, and culture significantly.

Of course, as was noted in Chapter 3, the ability to generalize the results of corpus studies requires that a corpus must be designed to be representative of the use of a particular language. Corpora such as Penn-Helsinki and ARCHER are designed to be representative of language across texts, genres, and speakers, but other corpora are not. The issue of representativeness is an important one for CMT research which employ corpora, and researchers should seek to control for this factor in empirical studies.

Future research

Investigations into conceptualization need to employ multidisciplinary methodologies, including the application of non-linguistic data, compiled corpora, and mixed analysis methods, such as Corpus-Assisted Discourse Studies (CADS). The changes seen in the metaphoric expressions and in the DM of EMOTION would not have been as visible without the longitudinal design of the study, the non-linguistic historical data, and the contextual information that the corpus samples provided. Thus, the CADS analysis of the samples has illuminated some ways in which conceptualizations vary over time. In sum, the multidisciplinary study design brought out these aspects more clearly, and the results of the study have shown the advantages of these methodologies. Future studies of conceptual metaphor should employ these methods.

Most importantly, historical corpora need to increase in size in order to increase the usefulness of diachronic research. The current study totaled 3.6 million words, which is large for diachronic studies of language; however, currently available corpora are significantly smaller than synchronic corpora. For example, the synchronic British

National Corpus (BNC) has a total of over 100 million words, and the corpus continues to grow every year. In contrast, the largest historical corpus that now exists comprises less than 5 million words. Corpus size is particularly important for studies of metaphor because metaphor as a form has a relatively low frequency of use compared to other linguistic forms, such as nouns, verbs, and prepositions (Biber, 2006). In addition, the ability to generalize the results of corpus studies increases as corpus size increases, especially in lexical (i.e., keyword) studies (Biber et al., 1998, p. 30). Research in diachronic language, both quantitative and qualitative, would benefit significantly from larger total word sizes in historical corpora. The development of new, representative, high word-count corpora are an important effort to improve historical research in general and for the study of low-frequency forms, such as metaphor, in particular.

Conclusion

The current multidisciplinary study of diachronic metaphor use has shown the usefulness of the study design for delineating complex factors which influence language meaning, including the DM of emotion and the important influence of cultural knowledge on conceptualization of emotion via cultural models. Studies which employ multiple disciplines to inform the theory, method, and analysis procedures require more time and resources than studies that incorporate only one disciplinary perspective, but the potential for uncovering highly complex relations between variables is also increased. I recommend more studies of this type in the future.

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APPENDICES

Appendix A

Penn-Helsinki Corpus

Text genres and word counts

Text genre	Number of words	Percentage of Corpus
Bible	134,275	7.5
Biography, autobiography	41,379	2.3
Biography, other	52,755	2.9
Diary, private	123,106	6.9
Drama, comedy	120,428	6.7
Educational treatise	113,032	6.3
Fiction	116,494	6.5
Handbook, other	112,419	6.3
History	108,706	6.1
Law	115,863	6.5
Letters, non-private	59,868	3.3
Letters, private	116,915	6.5
Philosophy	85,107	4.7
Proceedings, trials	105,090	8.4
Science, medicine	41,786	2.3
Science, other	79,050	4.4
Sermon	97,400	5.4
Travelogue	123,337	7.0
Totals	1,794,010	100

Appendix B

ARCHER Corpus

Text genres and text counts

Text genre	Number of texts	Percentage of Corpus
Journals	100	8.1
Letters	275	22.2
Fiction, prose	100	8.1
News	100	8.1
Legal (American only)	57	4.6
Medicine (No 18th Century American)	90	7.3
Science (British only)	70	5.7
Drama (only 5 texts from 18th Century American)	95	7.7
Fiction, dialogue	100	8.1
Sermons	50	4.0
Court testimony	5	0.4
Essays (18th Century only)	96	7.7
Letters, Samuel Johnson	79	6.4
Prose, Samuel Johnson	21	1.7
Totals	1,238	100.1*

*Note: Percentage totals more than 100% due to rounding.

Appendix C

Historical Four Humors Text Bibliography

Four Humors historical sources with brief annotations

Barrough, P. (1590). *The method of phisick*: London: Richard Field.

Electronic facsimile (PDF) of 1590 edition; 2nd of ten editions.

Boorde, A. (1542). *Dyetary of helth*: London: Robert Wyer.

Electronic facsimile (PDF) of 1542 edition; 1st of five editions.

Bright, T. (1613). *A treatise of melancholy*. London: William Stansby.

Electronic facsimile (PDF) of 1613 edition (2 editions in that year); 3rd of four editions.

Burton, R. (1621). *The anatomy of melancholy*. Oxford: John Lichfield and James Short.

Printed edition of the 1621 text; 1st of nine editions in the 17th century.

Charron, P. (1630). *Of wisdome*. London: George Miller.

Electronic facsimile (PDF) of 1630 edition; 4th of nine editions.

Coffeteau, N. (1621). *A table of humane passions* (E. Grimeston, Trans.). London: Nicholas Okes.

Electronic facsimile (PDF) of 1621 edition; 1st of one edition.

Cogan, T. (1605). *The hauen of health*. London: Melch. Bradwood.

Electronic facsimile (PDF) of 1605 edition; 5th of seven editions.

Cuff, H. (1640). *The differences of the ages of mans life*. London: Thomas Harper.

Electronic facsimile (PDF) of the 1640 edition; 3rd of three editions.

Dariot, C. (1598). *The astrologicall iudgement of the starres*. London: Thomas Purfoot.

Electronic facsimile (PDF) of the 1598 edition; 3rd of three editions.

de Glanville, B. (1582). *De proprietatibus rerum* (J. Trevisa, Trans.). London: Thomas East.

Electronic facsimile (PDF) of 1582 reprint; English translation of Latin text written in 1360. 4th of four editions.

de Mediolano, J. (1609). *The Englishmans doctor*. London: S. Stafford.

Electronic facsimile (PDF) of the 1609 edition; 3rd of five editions.

Elyot, T. S. (1610). *The castle of health*. London: W. Jaggard.

Electronic facsimile (PDF) of the 1610 edition; 16th of sixteen editions.

Huarte, J. (1698). *Examen de ingenios: Or, the tryal of wits* (M. Bellamy, Trans.). London: Richard Sare.

Electronic facsimile (PDF) of 1698 edition; 7th of seven editions.

Lemnius, L. (1581). *The touchstone of complexions* (T. Newton, Trans.). London: Thomas Marsh.

Electronic facsimile (PDF) of 1581 edition; 3rd of five editions.

Moulton, T. (1546). *Myrrour or glasse of helth*. London: Author.

Electronic facsimile (PDF) of 1546 edition; 8th edition of fourteen editions.

Rogers, T., & H, W. (1580). *A paterne of a passionate minde*. London: Thomas East.

Electronic facsimile (PDF) of the 1580 edition; 2nd of two editions of an abridged version of the 1576 text.

Walkington, T. (1607). *The optick glasse of humors*. London: John Windet. Electronic facsimile (PDF) of the 1607 edition; 1st of four editions.

Wright, T. (1601). *The passions of the minde*. London: Valentine Simmes. Electronic facsimile (PDF) of the 1601 edition; 2nd of six editions.

Appendix D

A comparison of the historical source texts on tenets of the Four Humors model

	Qualities	*Humors*	*Organs*	*Temperaments*
Barrough, 1590	hot/cold moist/dry	blood phlegm choler black bile	liver spleen stomach	melancholike choleric *others not mentioned*.
Boorde, 1542	hot/cold moist/dry	blood phlegm choler black bile	Not mentioned specifically.	sanguine phlegmatic melancholike choleric
Bright, 1613	hot/cold moist/dry	blood phlegm choler black bile	liver Spleen *others not mentioned*.	sanguine phlegmatic melancholike choleric
Burton, 1621	hot/cold moist/dry	blood phlegm choler black bile	liver heart gall spleen	sanguine phlegmatic melancholike choleric
Charron, 1630	hot/cold moist/dry	blood phlegm choler black bile	liver heart gall spleen	sanguine phlegmatic melancholike choleric
Coffeteau, 1621	hot/cold moist/dry	blood phlegm choler black bile	liver heart gall spleen	melancholike choleric. *others not mentioned*.
Cogan, 1605	hot/cold moist/dry	blood phlegm choler black bile	liver heart lungs	sanguine phlegmatic melancholike choleric
Cuff, 1640	hot/cold moist/dry	blood phlegm choler black bile	heart *others not mentioned*.	sanguine phlegmatic melancholike choleric
Dariot, 1598	hot/cold moist/dry	blood phlegm choler black bile	liver heart gall spleen	sanguine phlegmatic melancholike choleric
de Glanville, 1582 (translation of 1360 ed.)	hot/cold moist/dry	blood phlegm choler black bile	liver heart gall spleen	sanguine phlegmatic melancholike choleric

	Qualities	*Humors*	*Organs*	*Temperaments*
de Mediolano, 1609	hot/cold	blood	heart	sanguine
	moist/dry	phlegm	stomach	phlegmatic
		choler	*others not*	melancholike
		black bile	*mentioned*.	choleric
Elyot, 1610	hot/cold	blood	brain	sanguine
	moist/dry	phlegm	heart	phlegmatic
		red choler	liver	melancholike
		yellow choler	stomache	choleric
Huarte, 1698	hot/cold	blood	brain	sanguine
	moist/dry	phlegm	heart	phlegmatic
		choler	*others not*	melancholike
		black bile	*mentioned*.	choleric
Lemnius, 1581	hot/cold	blood	heart	sanguine
	moist/dry	phlegm	brain	phlegmatic
		choler	liver	melancholike
		black bile	stomach	choleric
Moulton, 1546	hot/cold	blood	heart	sanguine
	moist/dry	phlegm	liver	phlegmatic
		choler	stomach	melancholike
		black bile		choleric
Rogers, 1580	hot/cold	blood	heart	sanguine
	moist/dry	phlegm	liver	phlegmatic
		choler	spleen	melancholike
		black bile	gall	choleric
Walkington, 1607	hot/cold	blood	heart	sanguine
	moist/dry	water	brain	phlegmatic
		choler	*others not*	melancholike
		earth	*mentioned*.	choleric
Wright, 1601	hot/cold	blood	heart	sanguine
	moist/dry	phlegm	liver	phlegmatic
		choler	brain	melancholike
		black bile		choleric

Appendix E

The Four Humors Model: A Historical Composite View

Based on the information gathered from the 18 historical source texts, the following is a brief overview of the major principles of the Four Humors model, as it was constituted and practiced in the 16th and 17th centuries. Included in the composite model are four major principles (shown in Appendix B): the four qualities, the four humors, the four organs, and the four temperaments.

Basic Principles of the Four Humors Model

The model that will be presented here is a composite view compiled from 18 historical Four Humors works by authors who wrote for a lay, medical consumer audience during the Renaissance between 1500 and 1700 A. D. (see Chapter 4 for details of the ancillary study). By this procedure, the tenets of the model that were widely accepted and disseminated via written texts were brought into clearer focus.

There are six basic principles that will be presented in this section. The first one is related to the macrocosm, or the greater world of the universe and earth: the four qualities. The other four principles are within the microcosm, or the lesser world of the human body: natural heat, the humors, the organs, and the temperaments (i.e., personality profiles). Each principle will be presented in turn below.

The Macrocosm Principle

The qualities

The first principle is the *four qualities*, each of which is always paired with its opposite; the pairs are hot/cold and moist/dry. These were probably proposed by Empedocles, a Greek philosopher of the 5th century B.C, according Ackerknecht (1982).

All matter could be classified according to a unique combination of the four qualities. Ackerknecht explains that through the qualities, Empedocles envisioned that all matter came into being. Thus, the qualities are the basis, historically and theoretically, for the entire humoral model.

An important aspect of the qualities which was discussed by many of the Four Humors writers is the overall positive value of each pair to human life. The qualities of heat and moisture were viewed as the most valuable of all because the Four Humors model held that these two were *required* for life. Without them, living beings would die. Not surprisingly, cold and dry were viewed as less valuable and at times, dangerous. Cold and dry decreased heat and moisture, and so in extreme cases led to sickness, detrimental changes in personality, and death. These two qualities were seen as useful in certain situations—they could be exploited by doctors to counteract excessive heat and moisture (in large quantities, all four qualities had negative effects on the body; see the section below, "The concept of *balance* in the Four Humors"); however, in the end, cold and dryness had negative associations in the historical literature which were not generally ascribed to heat and moisture. Summarizing the writers, heat/moist was the life-sustaining pair of qualities; cold/dryness was the death-inducing combination.

Microcosm Principles

The four humors

The second microcosm concept is the four humors, for which the model itself is named. The humors are bodily fluids that were viewed as the most important for health. The four fluids included *blood*, *choler* (sometimes called "red choler" by the Renaissance writers), *black bile* (typically called *melancholy*) and *phlegm*. As was stated earlier in

this chapter, the Greeks associated the humors with the four qualities; each humor had two qualities, which were the same ones used to describe the four elements. Blood was hot and moist; choler was hot and dry; black bile was cold and dry; and phlegm was cold and moist. Each person was dominated by one of the humors, and so also took on characteristics of the two qualities associated with that dominant fluid. One person was hot and moist due to the influence of blood, another cold and dry due to black bile.

To counteract excess fluid, the four humors had to be in balance, or equal amounts. Balancing the humors required that the four fluids had to be of equal proportion in the body to maintain good health. If a person had an excessive amount of a humor, then disease would ensue. For example, an excess of choler, the hot and dry humor, led to overheating the body with attendant symptoms and disease; de Mediolano (1609) lists some of these problems, including ringing ears, interrupted sleep and nightmares, upset stomach, little appetite, and overheating (p. 22). The basic technique of humoral medical treatment was to mediate the symptoms caused by the excess humor by applying treatments that had the qualities opposite of that humor. For choler, moist and wet treatments would be prescribed to counteract the effects of the hot, dry humor.

Physicians used other methods to counteract excess humor and to restore fluid balance; these techniques included diet, exercise, activities to maintain mental health (e.g., socializing, music) and in some cases, *cupping*, in which excess fluid (usually blood) was removed from the body. In the Renaissance, the concept of balance was important to making life decisions, such as determining whom to marry; selecting the proper mate would help to balance the humors optimally in the couple's children. Huarte (1630), for example, recommended that a hot and dry man marry a cold and moist

woman, in order to maximize their children's humoral balance. Such balancing would improve the child's health, intelligence, and memory ability, according to Huarte.

Overall, the Renaissance writers viewed the effects of the humors on health in *relative* rather than *absolute* terms. Due to the open nature of the Four Humors model, a particular physical symptom could be the result of any of a large number of causes, and these causes often occurred in complex combinations, reflecting the complexity of life itself. Thus, an excess humor could cause a particular symptom, or a humor could mitigate the effects of a symptom, or the potential effects of the excess humor could be counteracted by another factor (such as weather or diet). Several different causes could also occur in combination. In sum, the humors and the other basic parts of the Four Humors model were viewed as possible causes in a relativistic system.

The four organs

The third principle involves the organs of the body. In the original Greek humoral theory, physical organs, such as the heart or stomach, were not included in the system. This may have been the result of the scant knowledge that the Hippocratic school had about the human body. The body was seen as sacred, and there was a strong prohibition against cutting open a dead human body for any purpose, including science. The only accepted means to discover the workings of the human body was to dissect the bodies of other animals. Until the late Middle Ages, both Christianity and Islam continued to restrict the dissection of the dead.

Despite the lack of knowledge of human anatomy, the Four Humors model included a detailed theory of human organs, and their effect on health and disease. There were four organs most commonly discussed in the historical texts, and these included the

heart, liver, brain, and spleen. In the Renaissance system, each humor was associated with a specific organ: blood and the heart, choler and the liver (or the gall bladder), melancholy and the spleen, phlegm and the brain. Due to these associations between fluids and organs, the organs also took on the accompanying qualities. As a result, the heart was hot and moist (also incorporating the principle, mentioned previously, that the heart was the seat of natural heat), the liver was hot and dry, the spleen was cold and dry, and the brain was cold and wet. By the time of the Renaissance writers, the system had become much more complex: it had become a physiological *process* of fluids moving between organs and throughout the body. The process was described as follows.

When a person eats, food enters the stomach. The stomach breaks down the food into basic nutrients, and the nutrient fluid (called *chyle*) was sent to the liver. The purpose of the liver, according to the Renaissance writers, was to form the four humors. Vicary (1577) explains the process of humor production.

> "Chyle which commeth from the stomacke to the lyver, should be turned into the colour of blood...The naturals is sent with the blood to all parts of the body to be ingendred and nourished. And the nutrimentals be sequestrate and sent to places ordayned for some helpings. These are the places of the humours, the blood in the Lyver, Choler in the chest of gal, Melancholie to the Spleen, Flegme to the Lungs and the Junctures..." (Vicary, 1577, p. 49).

Blood was formed first because it is the most important fluid for life, and it comprised the largest portion of the bodily fluid. Phlegm was next, followed by choler and lastly black bile, in order of quantity and usefulness to the body. Blood was most useful for life, and

black bile least useful. In fact, the texts repeatedly pointed out the dangerous nature of the melancholic fluid, due to its qualities of cold and dryness. The writers agreed that black bile is only useful for helping digestion (possibly due to the spleen's proximity to the stomach). The heart then pumped the "naturals" (or *spirits*, see next section) to the rest of the body via blood, and the other three humors (the "nutrimentals") were stored in their associated organs for later use in helping digestion or restoring humoral balance. This process was repeated every time food was taken in.

Note that, in Vicary's account, the place of phlegm has changed from the brain (in Greek thinking) to the lungs. To be more accurate, the Renaissance writers were in some disagreement on the location of phlegm in the human body (see section below on the four fluids for more information); of the 18 historical texts consulted, six linked the fluid to the gall bladder, five to the brain, two to the stomach, and five others do not identify an organ or do not mention phlegm. In any case, the writers agreed on the basic processes of nutrient dissemination and humor production outlined above.

One other aspect of the organs to note is their ability, through the passing of humors to the blood, and then to other parts of the body, to alter the natural heat of the body. Temperature is a key concept underlying the health of the body in the Four Humors system; the qualities of heat and cold were fundamentally important to health, illness, personality, and length of life. In fact, several of the historical texts, such as Huarte (1630), argued that temperature was the key factor in areas such as intelligence and career success. Again, like other aspects of the model, temperature had a relative effect on health, but its role was well-defined in the system.

The four temperaments

Finally, we come to the concept that may have been the most well-known and powerful feature of the Four Humors model—the *temperaments*. There are four types, including *sanguine*, *choleric*, *melancholic*, and *phlegmatic*. These types, which are composite personality profiles, are built on the concepts previously discussed, especially the four qualities and the four humors. The qualities determined basic categories which affected both the body and personality. As mentioned previously, body temperature was a key concept in health; it was also important to individual personality. Thus, a "hot" person often had red hair and an angry personality; a "cold" person often had white hair and exhibited behaviors similar to depression. The profiles were basically logical extensions of the qualities that are applied both to the physical body and to personality.

Each temperament was seen as distinct from the others by the Renaissance writers; however, two or more could combine in some individuals to cause physical and behavioral changes. Just as the four humors were viewed as having a *relative* effect on the body (rather than absolute effect), so the temperaments were seen in terms of relative influence on personality. Most people had one dominant temperament which largely determined their stable personality traits, yet one or more of the other types could affect behavior and emotions temporarily. These changes in temperaments were caused by macrocosmic and microcosmic factors, such as the stars and planets, the seaons, weather, geographic location, gender, age, diet, and significant life events (e.g., a happy marriage or the death of a child). In the unified view, virtually anything could affect personality over the short term, and long-term change in behavior was possible due to permanent life

changes, such as advancing age. In short, the temperaments were seen as stable and distinct in relative rather than absolute terms.

The following are brief descriptions of each temperament, including both body characteristics and behavioral traits. First, the sanguine type was viewed as the most prized of the four. The type included the qualities of heat and moisture. In terms of body characteristics, a sanguine person was characterized as having red hair and skin, large veins, a good pulse, good digestion, and not prone to disease; a few writers also included tall stature and/or large body type (though not necessarily "fat"). In terms of personality, the sanguine type was cheerful, kind, not susceptible to anger, social and outgoing, and loved entertainment, especially games and music. The sanguine type incorporates the highly positive, life-giving qualities of heat and moisture, and was often associated with youth and the season of spring.

The choleric person was also hot, but dry rather than moist. Bodily signatures included black hair and red or yellow skin, a very strong pulse, a lean body type, unstable digestion (at least for "hot" foods, which would increase the choleric's already high body heat) and difficulty in sleeping. For personality, the major trait was a quick temper ("all violent, fierce, and full of fire," de Mediolano, 1609, p. 19), witty and bold in speech, proud, and prone to fighting. These traits were commonly associated with men and the summer season.

Melancholic people were cold and dry, had dusky or medium-dark hair and skin, a slow pulse, a very thin stature, poor digestion, and typically were insomniacs. They were sad and depressed, had an anti-social tendency, were fearful and suspicious of others, loved solitude and quiet, and enjoyed reading and quiet contemplation. Burton

(1932/1621) stated that students, professors, and clergy were prone to be melancholic, since their work and interests are solitary by nature. The implication of greater intelligence required for these activities imbued the melancholic type with imagination and a wry or sarcastic wit. Finally, middle age and autumn were often associated with the personality type. It is also interesting to compare the melancholy person to the sanguine type; they are by definition exact opposites, beginning with their contrasting qualities (hot/moist vs. cold/dry). For this reason alone the melancholic type was not favored in Renaissance society, due to its life-sapping nature compared to the life-giving sanguine type.

Finally, the phlegmatic type was cold and moist, had light hair and skin, a fat, soft body (as opposed to muscular), narrow veins, weak pulse, weak digestion, and slept heavily. The personality type may have been the least appealing of all: dull in thought and speech (implying a lack of intelligence), slow to respond and act, lazy, and showing little emotion of any kind. Women were often thought to be phlegmatic, and winter was the common season associated with the type. The phlegmatic type was often described in general and vague terms in the historical texts, possibly due to its small number of distinguishing features. Overall, phlegmatics were the "anti-type," defined by the absence of visible signatures, rather than their presence.

The Concept of Balance in the Four Humors

The result of the Romans' original connection of the four qualities with the four humors led to significant expansion of the Four Humors during the Renaissance. As one example, the concept of *balance* in humoral medicine, developed by the Greeks, took on even more importance. Ackerknecht (1982) identifies three important ideas that

contributed to the Greek idea of balance. These ideas include 1) the fundamental tendency of nature (*physis*) to heal (implying that physicians do not need to "direct" a cure but serve as an assistant during the healing process; 2) *eucrasia*, the physical state in which the humors are in balance; and, 3) *dyscrasia*, an imbalance which leads ultimately to disease. These concepts reflected the Greek goal of treating the entire human body holistically, rather than simply curing one part (Ackerknecht, 1982, pp. 61-62).

The expanded role for balance in the Renaissance model is likely an outgrowth of the Greek-inspired symmetry between the humors with the qualities. The later consequences included the development of specific advice concerning marriage partners and the well-being of children, which extend the original goal of health maintenance. Balance was a useful concept in the Four Humors system because it could be manipulated by various means to improve health, natural abilities, and other important aspects of life in the Renaissance.

Indeed, many of the historical texts specifically discussed balance via the need for "moderation" in all aspects of living, neither doing too much or too little of any activity that would affect physical, mental, or spiritual health. Even laymen understood the need for moderation. Matthew Green's poem, *The Spleen* (M. Green, 1936/1737) is an example which shows in detail the importance of balance, and the practice of moderation in lay medical practice that enacted the principle, in the unified model (see Chapter 4, "The Eighteenth Century," for more details on the poem).

Appendix F

Penn-Helsinki Corpus (A.D. 1500-1699)

Metaphor Samples

1500-1549
vent (0 total)

spleen (0 total)

blood (0 total)

boil (0 total)

1550-1599
vent (0 total)

spleen (0 total)

vent +spleen (0 total)

blood (3 total)
To heare hir name spoken doth euen comfort my blood. (1553)

I beseech you, consider of me; my Blood will ask Vengeance, if I be unjustly condemn'd (1571)

But it may be lawfull ynough for wicked men, that thursted the blud of all the senate & all good men, to seeke our wrak, whom they haue seene defend the good & saue the Senate. (1593)

boil (0 total)

blood + boil (0 total)

1600-1649
vent (1 total)
For when the wickednesse of man was so great, and the earth so filled with crueltie, that it could not stand with the righteousnes of God any longer to forbeare, wrathfull sentences brake out from him like wine from a vessell that hath no vent. (1614)

spleen (3 total)
The foole, seeing the pitch ball, pulled to haue it off, but could not but with much paine, in an enuious spleene, smarting ripe runes after him, fals at fistie cuffes with him; … (1608)

Whereat the World so tickled her spleene that she was agog, clapped her hands for joy, and saies she was deepely satisfied, and cryed more. (1608)

Now, the cause why this Law was first made, was, for that the women there were so fickle and inconstant, that, vpon any slight occasion of dislike or spleene, they would poison their husbands. Whereas now the establishing and executing of this Law, is the cause that moueth the wife to loue and cheerish her husband, and wisheth not to suruiue him. (1612)

vent + *spleen* (0 total)

blood (5 total)
'Seeing myself so near my End, for the discharge of my own Conscience, and freeing myself from your Blood, which else will cry Vengeance against me; I protest upon my Salvation I never practised with Spain by your Procurement; God so comfort me in this my Affliction, as you are a true Subject, for any thing that I know. (1600)

…but the King in Mercy spared you. You might think it heavy, if this were done in cold Blood, to call you to Execution, but it is not so;… (1600)

…but it was happines inoughe for me to convers with y=r= sister Drury, who talkt at a strange rate, but I had temper to heer her and so parted vpon fayer termes, onely wishing them a happy retourne, hopeing the Bath water would coole ther bloods. (1627)

...but of all Creatures I hold that Wife a most vnmatched treasure, That can vnto her fortunes fixe her pleasure, And not vnto her Blood, this is like wedlocke, The feast of marriage is not Lust but Loue, And care of the estate, when I please Blood, Meerely I sing, … (1630)

About it before she weepe her selfe to a dry ground, And whine out all her goodnesse. T. S. Prethe cease, I find a too much aptness in my blood For such a businesse without prouocation,…(1630)

boil (1 total)
Then should he see many grete waters like to drowne him, boilinge and raginge against him as thoughe they wolde swallowe him up, yet he thought he did overpasse them. And thes dremes and visions he had every nighte continually for 3 or 4 yers space. (1602)

blood + *boil* (0 total)

vent (2 total)
But, however she was forc'd to receive this unwelcome news, in all appearance, with unconcern and content; her heart was bursting within, and she was only happy when she cou'd get alone, to vent her griefs and moans with sighs and tears. (1688)

He was forced to retire to vent his groans, where he fell down on a carpet, and lay struggling a long time, and only breathing now and then - Oh Imoinda! (1688)

spleen (2 total)
Yet if sometimes they seem to mistake in their judgement concerning a boy, that is but newly come amongst them; or to be too partial against any other upon some general splene, which is but very rare; The discreet Master may after the election, correct the error by giving such a one a place to his own liking, which he may keep till the next choyce, except some of his inferiours have a list to dispute with him for his place, (1660)

We were dull Company at Table, worse A-bed. Whenever we met, we gave one another the Spleen. And never agreed but once, which was about lying alone. (1696)

vent + spleen (0 total)

blood (5 total)
Whereupon although present and privat Execution was in rage done upon Edric, yet he himself in cool blood scrupl'd not to make away the Brother and Childern of Edmund, who had better right to be the Lords Anointed heer then himself. (1670)

And the natural heat of his fancy, being inflamed by Wine, made him so extravagantly pleasant, that many to be more diverted by that humor, studied to engage him deeper and deeper in Intemperance: which at length did so entirely subdue him; that, as he told me, for five years together he was continually Drunk: not all the while under the visible effect of it, but his blood was so inflamed, that he was not in all that time cool enough to be perfectly Master of himself. (1680)

And though in cold blood he was a generous and good natured man, yet he would go far in his heats, after any thing that might turn to a Jest or matter of Diversion: He said to me, He never improved his Interest at Court, to do a premeditate Mischief to other persons. (1680)

To this he answered, A man could not write with life, unless he were heated by Revenge: For to make a Satyre without Resentments, upon the cold Notions of Phylosophy, was as if a man would in cold blood, cut mens throats who had never offended him… (1680)

Come, Lory, lay your Loggerhead to mine, and in cool Blood let us contrive his Destruction. (1696)

boil (1 total)
Sir Tun. Oh , I'll warrant you my Hero, young Men are hot I know, but they don't boyl over at that rate, neither;…(1696)

blood + *boil* (0 total)

Appendix G

ARCHER Corpus (AD 1700-1990)

Metaphor Samples

1700-1749

vent (total 1)
File 1723BLAC
(cross-ref spleen samples)
This confirmation of what Liberius
had said and the jeers he had put upon him were such a weight
upon the haughty spirit of Theophilus, who had the exact temper
of some fellows of colleges, that it made him very chagrin and
full of spleen, insomuch that he was obliged to retire to his
chamber where he [[vented]] these expressions:
["Who could have divined that Sylvia was a gentlewoman? 'Tis
seldom persons of fashion turn beggars. And who could have
thought so young a creature could have been so great a dissembler
and mistress of so much design?"]

spleen (total 4)

File 1718LADY
Does not King
David say somewhere, that Man walketh in a vain shew? I think he
does, and I am sure this is peculiarly true of the French man - but he
walks merrily and seems to enjoy the vision, and may he not therefore
be esteemed more happy than many of our solid thinkers whose brows
are furrowed by deep reflexion, and whose wisdom is so often clothed
with a misty mantle of [[spleen]] and vapours?

File 1723BLAC
(cross-ref vent samples)
This confirmation of what Liberius
had said and the jeers he had put upon him were such a weight
upon the haughty spirit of Theophilus, who had the exact temper
of some fellows of colleges, that it made him very chagrin and
full of [[spleen]]…

File 1728ROWE
As soon as you had reached
the house, I shifted my material figure for one more becoming the
dignity of the celestial condition; and being again invisible, I

heard the fantastic relation you gave your brother, who told you, 'twas all the effect of the [[spleen]] and obstinate grief you had indulged since my death:…

File 1736HAYW
AN old [[Spleen]] she had a long time bore to Yamatalallabec, on account of his Friendship with a Person at enmity with her, tho' he had never assisted him in any Designs against her, made her gladly enter into the Measure Oudescar had taken for the Establishment of his Favourite:…

blood (total 2)

File 1706PIX
GAY-LOVE. Then turn back and use your Sword for now my [[Blood]] is cool, I'd rather lose <loose> my Life than lose <loose> your Friendship. --
BELLMOUR. I cannot look on thee, and bear resentment; I'll never meet thee more but thus <(embracing him)> this is real and all my Angers feigned. --

File 1720DEFO
But though I could easily argue these Sir Gravities down, though a sentence or two would do their business, put them beyond the power of replying, and strike them dumb, yet do I think it not worth my while; their greatest and most wonted objection against these Eudemons and Kakodemons, being, that it arises all from the work of fancy, in persons of a melancholic [[blood]].

boil (total 0)

1750-1799

vent (total 4)

File 1751CLEL
Lady Oldborough, whispering something in her ear, too low for me to hear, dismissed her, and returned to me with all the marks of confusion, anger, grief and vexation, as legible in her countenance as she could have wished. She kept withal a profound silence, as if at a loss for expressions to give [[vent]] to what she felt; less than I now saw and had heard

would have provoked my desire of knowing what was the meaning of it.

File 1751FIEL
[' O the villains,'] cries Mrs. Atkinson, ['what a stratagem
was here to take away your husband!']
['Take away!'] answered the child -- ['What hath any body> taken away papa? -- Sure that naughty fibbing man hath not taken away papa?']
Amelia begged Mrs. Atkinson to say something to her
children; for that her spirits were over-powered. She then threw
herself into a chair, and gave a full [[vent]] to a passion almost
too strong for her delicate constitution.

File 1778HAMI
By the duchess's earnest solicitude to please, she destroyed
her own purpose, and her obedience, like water flung upon a
raging fire, only inflamed her husband's follies; and therefore,
when he was in an ill humour, the duke [[vented]] his rage on her.
He did not care how often he quarrelled with, or, to speak more
properly, how often he insulted her; for that could not be called
a quarrel wherein she acted no part but that of suffering. But
though his displeasure was grievous to her, yet she could bear it
better than his indifference -- for resentment argues some degree
of regard. But whilst she was breaking her heart for him, he
passed his time in gallantry through his affections were always
the satire of a woman's virtue -- the ruin of a woman's
reputation.

File 1786COWL
CARLOTA. Bless me, madam, Don Alexis is returned; - the
council is put off - he is asking for you, and will be in the
garden directly.
SEBASTIAN. 'Tis impossible! scarcely have I had time to
[[vent]] half the malice of my tenderness - I have been here but three
minutes.

spleen (total 0)

blood (total 3)

File 1786COWL
ALEXIS. Oh you traitress - artful slut! this must be all
a feint. I clearly heard she feels it too, that she must concern
my wife, or my daughter - oh my [[blood]] burns! - "She feels it too!"

File 1797MANN
In cool [[blood]], yet with firm
attachment, we now see blended in her, the peerlessness of
enterprise, the deportment, ardor and heroism of the veteran,
with the milder graces, vigor and bloom of her secreted, softer
sex.

File 1799LEE-
Valmont, whose imagination, long fixed to one
point, had seen nothing in her confinement but a plan to deprive
her of some envied advantage of rank or fortune, now gazed, as
her blushes and tremor heightened her beauty, with a
consciousness of it he had not before felt; and no sooner did his
mind catch a ray of truth, than it became perfectly enlightened.
All the warm [[blood]] congealed round his heart, flowed obedient to
the voice of humanity; and in the wild hope of affording
protection, he seemed to have forgotten how much he wanted it.

boil (total 0)

1800-1849

vent (total 1)
File 1835KENN
I came only to sell a few apples," said Mary.
Heaven has sent that girl to the rescue of my life," said
Butler, under the impulse of a feeling which he could not refrain
from giving vent to in words.

spleen (total 0)

blood (total 4)

File 1809DIMO
It was evening when I reached the hills of
Languedoc, and looked impatiently toward my cheerful home beneath.
I looked -- the last sun-beam glared redly upon smoking ruins!
Oh! oh! the blood now chills and curdles round my heart the wolves
of war had rushed by night upon my slumbering fold
fire and sword had desolated all. I called upon
my wife and my infant. I trampled on their ashes
while I called!

File 1816CATL
Six months before the election, when the passions were not inflamed with the approaching contest, every man might give in his name to the assessors; and thus a register would be formed, showing, with certainty, every person who was entitled to a vote; but as the election drew near, the minds of men became heated, and great exertions were made, attended often with tumult, to procure votes, by causing persons who had no property to be assessed. I believe this often took place on the day of election, involved the inspectors and judges in difficulties, for want of time to ascertain the qualifications of men thus suddenly brought to the pools, and of course, was productive of altercation and hot [[blood]].

File 1832BULW
When months ago you slept under my roof -- ay, slept -- what should have hindered me from stabbing you during the slumber? Two nights since, when my [[blood]] was up and the fury upon me, what should have prevented me tightening the grasp that you so resent, and laying you breathless at my feet?

File 1847CARL
["I don't believe that,"] she replied, ["I know he never said them words, or anything like them. Don't mislead me, but tell me what he did say."]
["Ah! poor Mave,"] he replied, ["you little know what hot [[blood]] runs in the Daltons' veins. He said very little that was creditable to himself -- an indeed I won't repeat <repate> it – but it was enough to make any girl of spirit have done with <wid> him."]
["An' don't you know,"] she replied, mournfully, ["that I have done with him; an' that there never can be anything but sorrow and good will between us? Wasn't that my message to him by yourself?"]

File 18XXBROO
Many and many a man who passes for a sober, conscientious, religious sort of man at fifty, if you put back into his cooled [[blood]] the hot life he had at twenty-five would be the same reckless, profligate, arrogant sinner that he was then. It is the life, not the pride, that he has lost.
[Sample not tabulated due to uncertain date]

boil (total 0)

1850-1899

vent (total 2)

File 1854COOK
Will, we are compelled to say, did not really care a copper for Donsy, and he bore no real ill will to Lanky: but when he found himself thus ignominously abandoned, his authority despised, his rival preferred, he fell into a passion and looked around him for some means of [[venting]] his wrath.

File 1854COOK
Will drew his sword and threw his cap upon the ground: -- Lanky continued to flash his bow across the strings regardless. Willie in a rage rushed toward him: -- Lanky only raised his chin toward the sky, and shaking his head and foot, rapturously roared on. Will was about to charge the enemy, to [[vent]] at one fell blow all his wrongs and hatred, when suddenly a bell rang in the school-house, the door opened, and Lanky, with an elegant bow, placed his violin under his arm and took off his hat.

spleen (total 0)

blood (total 0)

boil

File 1872BLAC
Bunny was heavy and sleepy therein, and did nothing but yawn and stretch out her arms. Barbie, on the other hand, was ready to [[boil]] over with delight and liveliness, flashing about like a little dab-chick.

File 1889MADD
CAPT. PHOBBS.
Yet stay - before I enter into particulars,
allow me to give you an insight into the state of my mind,
- Mr. Go - tightly!
GO LIGHTLY
Go-lightly, sir, - I never do go tightly!
CAPT. PHOBBS.
You see before you a man, furious with
indignation, sir, - literally [[boiling]] over!
GOLIGHTLY.

Well, sir, - I'd advise you to wait till you simmer
down a little. It's as well to appear cool and
collected before people --
but, I confess, I wouldn't have his wife show her face
at this moment, for a very considerable trifle!

File 1889MADD
CAPT. PHOBBS.
I see you are dying with curiosity to know what has
excited my anger, which I consider both inquisitive and
impertinent.
GOLIGHTLY.
My dear sir, you are mistaken; I don't care one straw
about you or your anger either. You may [[boil]] all away,
as far as I'm concerned.

1900-1949

vent (total 0)

spleen (total 0)

blood (total 0)

boil (total 1)

File 1931WOLF
As for Ethel Smyth, whom you must meet, she has [[boiled]] over with
a kind of effervescence of force - playing the trombone, golf, conducting,
walking, riding, singing, loving, all at the same moment, so that she has,
or had, a temperature of 104 - and is nursed by a single maid
with Lady Betty at the bedside.

blood + *boil* (total 1)

File 1923WODE
"Don't call me `sir'. Call me Comrade. Do you know what you
are, my lad? You're an obsolete relic of an exploded feudal
system."
"Very good, sir."
"If there's one thing that makes my blood [[boil]] in my veins--"
"Have another sardine," chipped in young Bingo…

1950-1990

vent (total 0)

spleen (total 0)

blood (total 0)

boil (total 3)

File 1964GELB
What do you think? Another woman. It's got to be another
woman. It can't be that last great argument because
that didn't happen at all. So it must be another chick.
And when there is no other chick, then they really
[[boil]] and fume. So don't be embarrassed. I understand.

File 1967STM1
AFTER MONTHS of intensive struggle between factions of the Chinese
Communist Party, the unrest in the country has [[boiled]] over into
something approaching civil war. A series of reports from Peking
yesterday spoke of violent clashes between party groups resulting
in a death roll of more than 50,…

File 1969RTN
RANCE. I wonder if I could tempt her. I'll give it a
try. She may be a nymphomaniac.
(To DR. PRENTICE.)
If this boy becomes foul-mouthed keep him on the [[boil]] till
I return. (Goes to the garden, followed by MRS. PRENTICE.)

Appendix H

Metaphor Cases Eliminated (10 total)

Penn-Helsinki Corpus

1700-1720 (3 total)

Pray excuse me, my Passion must have vent . Arch. Passion ! what a plague, d'ee think these Romantick Airs will do our Business? Were my Temper as extravagant as yours, my Adventures have something more Romantick by half. (1707)

And indeed men's spirits were so sharpened upon it, that we all looked on it as a very great happiness that the people did not vent their fury upon the papists about the town . (17XX)

Mrs. Sull. Have a care of coming near his Temples, Scrub, for fear you meet something there that may turn the Edge of your Razor. - Inveterate Stupidity! did you ever know so hard, so obstinate a Spleen as his? (1707)

ARCHER Corpus

1650-1699 (7 total)

vent (total 2)

File 1686BEHN
<Scene II>
PHILLIS Madam, I was sent after you.
My lady Fulbank has challenged Sir Feeble at bowls,
and stakes a ring of fifty pound against his new chariot.

LETICIA Tell him I wish him luck in everything
but in his love to me.
Go tell him I am viewing of the garden.

<Exit Phillis>
Blessed be this kind retreat, this 'lone occasion
That lends a short cessation to my torments,
And gives me leave to vent my sighs and tears. <(Weeps)>

File 1686FANE
Tam. My Reasoning faculty, that was my guide,
Is so bewildred in this Hellish Fog,
That I do often grope for't, seldom find it.

Is there no Cure for this?
Rag. One, very natural: Breathing of a Vein in Fevers,
Or giving Vent to Vessels that wou'd break.

spleen (total 0)

blood (total 2)

File 1665HEAD
(Cross-reference *boil-*)
I observed so many excellencies that my blood began
to <boyl> boil, and my flesh was all of a flame. For her hair
which naturally curled, and was plaited, was of a bright flaxen,
each hair in the Sun glittered like a thread of Gold.

File 1693POWE
COURTWITT. What's that you mutter, ha! pull forth thy
Gold. <Draws again.> Lay it before me to appease my fury, my Wrath
boils up, my Blood is all on fire, And I'll consume the Covetous
Race of Mortals.

boil (total 3)

File 1665HEAD
I observed so many excellencies that my blood began
to <boyl> boil, and my flesh was all of a flame. For her hair
which naturally curled, and was plaited, was of a bright flaxen,
each hair in the Sun glittered like a thread of Gold.

File 1692CONG
I could never get any Body to give me a satisfactory Reason, for
her <suddain> sudden and dextrous Change of Opinion just at that
stop, which made me conclude she could not help it; and that
Nature [[boil'd]] over in her at that time when it had so fair an
Opportunity to show itself: For Leonora it seems was a Woman
Beautiful, and otherwise of an excellent Disposition; but in the
Bottom a very Woman.

File 1693POWE
(Cross-reference *blood*)
COURTWITT. What's that you mutter, ha! pull forth thy
Gold. <Draws again.> Lay it before me to appease my fury, my Wrath
boils up, my Blood is all on fire, And I'll consume the Covetous
Race of Mortals.

VITA

James Jolly Mischler, III

Candidate for the Degree of

Doctor of Philosophy

Thesis: A TIME FOR ANGER: CONCEPTIONS OF HUMAN FEELING IN MODERN ENGLISH, A. D. 1500-1990

Major Field: English

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy degree in English at Oklahoma State University, Stillwater, Oklahoma in May, 2008.

Experience:

Completed the Master of Arts in Linguistics and Teaching English as a Second Language (TESL) in August, 1993 at Northeastern Illinois University, Chicago, IL. Worked as a ESL instructor from 1992-1998 at Northeastern Illinois and North Park University in Chicago; developed new courses and several different types of language assessment instruments. Between 1998 and 2002 taught at several schools in the Pacific Northwest, including the University of Oregon and Oregon State University. Entered the Ph.D. program in TESL/Linguistics at Oklahoma State University in August, 2003; served five years as a Teaching Associate in the International Composition Program and two years as Assistant Director of the International Teaching Assistant Program.

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Name: James J. Mischler, III Date of Degree: May, 2008

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: A TIME FOR ANGER: CONCEPTIONS OF HUMAN FEELING IN MODERN ENGLISH, A. D. 1500-1990

Pages in Study: 217 Candidate for the Degree of Doctor of Philosophy

Major Field: English

Scope and Method of Study: The presentation reports on an interdisciplinary, diachronic study designed to delineate the influence of historical cultural knowledge over time on the conceptualization of ANGER in English metaphoric expressions. Non-linguistic data on the Four Humors medical model was collected from primary sources of the historical period under study; then, metaphoric expressions of anger were collected from two compiled corpora of historical English texts. The two corpora were the Penn-Helsinki corpus and the ARCHER corpus. The corpora were searched for two metaphoric expressions analyzed in previous studies of the conceptual metaphor of ANGER, including "Her blood boiled" and "He vented his spleen." The 49 metaphoric expressions collected were analyzed for the underlying conceptualization of ANGER and the influence of the Four Humors model on the conceptualization.

Findings and Conclusions: The results showed that the conceptual metaphor of ANGER is a dimension (Langacker, 1987) within the conceptual metaphor of EMOTION; I argue that this CM is a basic-level conceptualization and reasonably accounts for a wide variety of human emotional experience. For example, the heat scale related to the CM of ANGER (Lakoff & Kövecses, 1987) is part of a more general temperature scale found in the CM of EMOTION which links various emotions to points on the scale, ranging from hot to cold. Likewise, the CM of EMOTION includes a CONTROL scale that accounts for the entailment of the loss of control in certain metaphoric expressions of anger and also the maintenance of control in other anger expressions. Finally, both scales were found to be consistent with the Four Humors model data. In sum, the CM of EMOTION is a domain matrix which links together human emotions in a complex set of conceptual, cultural, and historical relations.

ADVISER'S APPROVAL: Carol Lynn Moder