CHAPTER NINETEEN

WRITTEN IN THE WIND: CULTURAL VARIATION IN TERMINOLOGY

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Introduction

The interface between language, culture, and conceptualization is an explicit focus in both Cognitive Linguistics and Cultural Linguistics (Palmer 1996; Sarifian 2011). Culture encompasses the beliefs, behavior, objects, traditions, language, and other characteristics common to a particular sociocultural group. As the primary vehicle of cultural transmission, language encodes shared cultural knowledge, which can be reflected in word or term meaning in its most encyclopedic sense. In Cognitive Linguistics, meaning is identified with conceptualization, which encompasses any kind of mental experience (Langacker 2007: 431). Meanings are thus regarded as access points to extensive bodies of knowledge that are not specifically linguistic (Langacker 2014: 28). This is applicable not only to general language, but also to specialized language.

This paper explores the cultural dimension of the conceptual category of WIND. From a meteorological perspective, winds are generally classified in terms of the following: spatial scale, speed, direction, region of occurrence, and effect. Many of these parameters are derived from cultural perceptions, especially when the wind is typical of a certain geographic area or region. The analysis of dictionary definitions as well as the study of micro-contexts extracted from a corpus of specialized environmental texts highlighted a common core of conceptual relations used to describe local winds. These relations are also the basis of a cultural frame or *semplate* (Burenhult and Levinson 2008: 144) for the concept of WIND.

Although terms or specialized meaning units have always possessed a cultural dimension (Temmerman and Campenhoudt 2014), they are not generally perceived as cultural objects. This is the case of environmental

concepts such as geographic landforms (e.g. wetlands) (Faber and León Araúz 2014) and meteorological phenomena, such as wind. The fact that scientific categories are culturally, bodily, and perceptually based is underlined in the work of Temmerman (2000) and Fernández-Silva, Freixa, and Cabré (2014).

This study used the premises of Frame-based Terminology (Faber 2012, 2014) to analyze the terms for different types of local wind and establish a set of meaning parameters that structure and enrich the cultural schemas that define concepts belonging to the category of atmospheric phenomena. These parameters highlight the cultural dimension of wind as a meteorological force.

Frame-based Terminology

Frame-Based Terminology (FBT) is a cognitive approach to terminology, which directly links specialized knowledge representation to cognitive linguistics and cognitive semantics (Faber 2011, 2012). Its methodology combines premises from psychological and linguistic models and theories such as the Lexical Grammar Model (Faber and Mairal 1999, Martín Mingorance 1990), Frame Semantics (Fillmore 1985: 222-254, Fillmore 2006: 373-400), the Generative Lexicon (Pustejovsky 1995), and Situated Cognition (Barsalou 2003, 2008: 618-623).

More specifically, the FBT approach applies the notion of *frame* as "a schematization of experience (a knowledge structure) which is represented at the conceptual level and held in long-term memory and which relates elements and entities associated with a particular culturally embedded scene, situation or even from human experience" (Evans 2007: 85). Frames have the advantage of emphasizing non-hierarchical as well as hierarchical conceptual relations (Faber 2014).

As reflected in Ecolexicon (ecolexicon.ugr.es) (Faber 2012; Faber, León, and Reimerink 2014), a multilingual knowledge base of environmental terms, cultural situatedness has an impact on semantic networks, where differences have been detected even between environmental terms used in closely related language cultures. Nevertheless, the addition of a cultural component to term meaning is considerably more complicated than the inclusion of terms that designate new concepts specific to other cultures. The reason for this is that certain conceptual categories are linked to the habitat of the speakers of a language and derive their meaning from the characteristics of a given geographic area or region and the weather phenomena that typically occur there.

Cultural frames and the concept of WIND

The specification of a pan-European concept system for the languages in the EcoLexicon knowledge base requires a typology of cultural frames or profiles linked to the most prominent semantic categories. Cultural frames are directly connected to what has been called 'design principle' (O'Meara and Bohnemeyer 2008), 'template', 'model', 'schema' or 'frame '(Brown 2008; Burenhult 2008, Cablitz 2008, Levinson 2008). In EcoLexicon, a *frame* is a representation that integrates various ways of combining semantic generalizations about one category or a group of categories. In contrast, a *template* is a representational pattern for individual members of the same category. Burenhult and Levinson (2008: 144) propose the term, *semplate,* which refers to the cultural themes or linguistic patterns that are imposed on the environment to create, coordinate, subcategorize, or contrast categories.

In Frame-based Terminology, conceptualization is regarded as a dynamic process that is modulated by human perception. This means that each terminological definition constitutes a mini-knowledge representation that describes specialized concepts based on how they are perceived, processed, and understood. Factors that come into play are the knowledge level of the perceiver, the relevance of the specialized concept in his/her daily life, the role and location of the concept in the perceiver's environment, frequency of daily interaction with the concept, its potential manipulation, and affordances. Furthermore, the role of perception in the formulation of definitions is crucial since sensory information as well as cultural perceptions (in the form of acquired contextual knowledge) constrain and guide conceptualization.

This is supported by the embodied or grounded cognition hypothesis, which equates understanding with sensory and motor simulation (Faber 2011; Tercedor Sánchez, Faber, and D'Angiulli 2011). This hypothesis claims that interactions between sensorimotor systems and the physical world underlie cognition.

In cognitive neuroscience, there is now a large body of work that explores whether and to what degree sensory and motor information is a part of semantic representation and processing (Meteyard et al. 2012). Theories that support this view can be ranged on a continuum. At one end are mainstream theories that claim that semantic information is symbolic and encoded in a common representational format, independent of sensory and motor systems (Quillian 1969; Anderson 1983). At the other end are strongly embodied theories positing that concepts are totally grounded in perception and action, and thus are completely dependent on sensory and

motor systems (Gallese and Lakoff 2005). Nevertheless, in our opinion (see Faber et al. 2014), reality lies somewhere in-between (Meteyard et al. 2012; Kiefer and Pulvermüller 2012). This is the view of Patterson et al. (2007), who propose a supramodal format for semantic representations, which is modality-invariant though derived from mappings across sensory and motor input.

In Terminology, the correlate of this supramodal representation is a category schema or template as posited by various authors (Faber 2012; Faber et al. 2014; Roche et al. 2009; Leonardi 2010; Temmerman 2000). This is in consonance with Binder and Desai (2011), who state that conceptual representation has multiple levels of input. The top level consists of schematic representations that are fleshed out by sensory-motor-affective input when and as needed. These modality-invariant representations have been compared to geographic maps (Lambon Ralph et al. 2010), in which each map type (geological, political, linguistic, etc.) codes the same chart/grid system, but differs in the presence or absence of each type of feature.

Consequently, when we encounter a physical object or force, such as the wind, our senses represent it in terms of perception and action though within the context of a frame shared by all category members. This top-level schema constrains perceptual input though at the same time, it is also derived from sensorimotor mappings. Since processing the object involves retrieving property information on sensory modalities, no specialized knowledge concept can be activated in isolation, but rather is understood as part of a 'situated' event in which perception, culture, and a wide range of other dynamic factors come into play.

WIND as a cultural and meteorological concept

Wind is both a meteorological and cultural concept. It is a phenomenon that ever since the beginning of time, people have endeavored to understand and control. Long before a scientific understanding of the atmosphere emerged, people were aware of the impact of different winds on their daily lives and general welfare. In fact, the variety of names given to winds around the world reflects the salience of wind in human perception.

Although wind is invisible, it is still as real as any geographic landform. In ancient times, the wind was given a supernatural explanation. Throughout the ages, most civilizations have explained this phenomenon by creating a god or gods in charge of the wind. This supported the folk

belief that wind must come from somewhere and even have its own habitat.

Since there are many varieties of wind, the term *wind* is often used in the plural. Over the centuries, myths about the origin and activity of the wind have become deeply embedded in the belief systems of different cultures. Depending on the culture, there have been various explanations for wind, which have become part of mythology. For example, in aboriginal legends, winds often originate in volcanoes, in mountain caves, from vents in the sea, or from the breath of gods (De Villiers 2006: 10). According to Greek mythology, the winds reside in the Aeolian Islands where they are guarded by Aeolus, the son of Poseidon. In fact, in his travels, Odysseus carried winds in a bag in the same way as the Chinese wind goddess (Feng Po) and the Japanese wind god (Fujin), who also stuffed winds in a bag and carried them around on their shoulders.

Furthermore, the Greeks established a system in order to explain different types of wind. They did this that by associating each wind (and the resulting weather conditions) with a god. In this system, Aeolus was the god of the winds, who controlled the four winds by keeping them in his caves on the islands of Thrace. Of the four winds, Boreas was the north wind and bringer of cold winter air; Zephyrus was the west wind and bringer of light spring and early summer breezes; and Notus was the south wind and bringer of the storms of late summer and autumn; Eurus, the east wind, was not associated with any of the three Greek seasons (Forrester 1982, Trckova-Flamee 2002).

The Romans, who adopted most elements of Greek culture, maintained this hierarchical system of wind deities to explain the winds though some of the names were changed. Aeolus was the keeper of winds; Aquilo/Septentrio was the north wind; Favonius was the west wind; Auster, the south wind, and Subsolanus, the east wind. The Roman deities were similar to their Greek counterparts, borrowing their attributes and being frequently conflated with them (Forrester 1982, Gill 2015).

Curiously, in Polynesian mythology, there is a similar hierarchical system of wind deities. Maui is a powerful god, who rules over the wind gods: Tua-Uo-Loa is the god of the south wind; Matuu, the god of the north wind; Mata Upola, the god of the east wind; and Tonga, the god of the southwest wind. The gentle breeze, Fisaga was allowed to remain free.

Within different cultures, direction appears to be the most basic organizational parameter for wind. This is reflected in the way ancient cultures, in which seafaring was an important activity, explained the origin and occurrence of different types of wind. Secondary parameters are

intensity and temporality. This rudimentary categorization is important since it underlies subsequent scientific classifications.

As knowledge of the weather advanced, various scientific categorizations of wind were also proposed. According to Ahrens (2008), circulations of all sizes exist within the atmosphere. Meteorologists generally classify these air movements based on their size and scope. In certain areas, the winds blow predominantly from one direction throughout the year; in other areas, the wind direction changes with the season; and in still others, the winds are so variable that no pattern is discernible. Despite these differences, the winds can be divided into three general categories: (1) planetary winds or permanent winds that blow around the world and in the same direction throughout the year; (2) periodic winds that change direction with the change of seasons; (3) local winds that usually affect small areas.

Nevertheless, even highly technical categorizations of wind types are still imbued with the two most basic parameters for wind description, namely, directionality and intensity. These parameters also surface in the general language definition of *wind*: "the perceptible natural movement of air, especially in the form of a current of air blowing from a particular direction" (*Oxford Advanced Learner's Dictionary*). The references to perception of air movement (i.e. intensity) and directionality establish the existence of a perceiver, who is interacting with the weather elements in his/her environment at a given location and from a certain orientation. There is also an implicit neutral level of perception, based on which the presence of wind is positively or negatively perceived, depending on its deviation from the default value.

Precisely because the definition of wind depends on the perceivers and their orientation, winds do not exist in a void. Since the wind cannot be seen, it is evaluated by its effect on the landscape and on the inhabitants of the landscape. The role of perception and interaction in the evaluation of wind is officially reflected in the Beaufort wind scale. This scale, which was created by Admiral Beaufort of the British Navy in the 17th century, uses visual, auditory, and tactile observations to determine wind speed. Users of this scale look for specific effects of the wind on the land and sea environment as well as on the perceiver to determine wind speed.

In a maritime environment, the effects of the wind are measured in relation to waves. The wind as a causal force, leading to the creation of sea conditions, is reflected in the size of waves and relative quantities of whitecaps, spray, and foam, all of which are visually perceived. In contrast, the wind's effect on land is observed in the movement of flags, smoke, and trees. However, other senses also come into play since the

scale includes auditory stimuli (e.g. the rustling of leaves) and tactile stimuli (the feeling of wind on exposed skin). It also includes the ability to perform actions such as walking against the wind, opening an umbrella, or driving a vehicle. This evaluation of wind intensity is specifically based on the perceiver's interaction with his environment.

This interaction is crucial since the action and effects of wind have a significant impact on a landscape as well as on the inhabitants of the landscape. According to Ingold (2007, 2010), the wind is a force that models landscapes since it scatters seeds, erodes surface material, and shapes the growth of vegetation. Together with other elements of weather, the wind influences daily life and shapes behavior.

Generally speaking, winds blow because of differences in atmospheric pressure. Although pressure gradients may develop on a global scale, heating and cooling cycles that develop periodically can create local or regional wind systems. Stull (2015) observes that each locale has a unique landscape (mountains, valleys, etc.) that creates or modifies the wind.

In this study, we focuses on local winds, given their status as culture-bound objects that can affect choice of habitat, buildings, crops, and even vehicles for travel. In many cases, the beneficial or destructive nature of a local wind is reflected in its name, which can depend on its direction, region where it occurs, or its effects on the landscape and inhabitants.

Definition parsing and analysis

As part of this study on the cultural dimensions of wind, we extracted dictionary definitions of 51 types of local winds from specialized dictionaries and encyclopedias. According to León, Faber and Montero (2012), the information in dictionaries constitutes a lexical-conceptual network that is in direct relation to the knowledge expressed. Local winds such as *sirocco* and *foehn*, which affect very large geographical areas, were not included in our corpus. This made it easier to delimit the populations affected by certain winds and thus highlight the intimate relation between culture and terminology.

The specification and structure of specialized meaning definitions is a key factor in establishing semantic networks of specialized concepts, and thus in the creation of a specialized language semantics. According to Hirst (2009: 2), a dictionary in a machine-readable format can provide the source material for a computational lexicon. It can also serve as the basis of a semantic hierarchy since in definitions, the genus designates the superordinate concept of the defined word, and the differentiating features are the properties that make the concept different from other members of

the same conceptual category. The meaning of a word constitutes an access point to a concept or conceptual structure of some kind. Definitions can thus be regarded as mini-knowledge representations that reflect the existence of a definitional frame or template typical of each category. The method used for definitional analysis was based on Dik's (1978) stepwise lexical decomposition as applied in Faber and Mairal (1999).

The definitions of types of local wind were retrieved from specialized knowledge resources such as *The Dictionary of Environmental Science and Technology*, *The Dictionary of Environment and Ecology*, *The Environment Dictionar*y, *The McGraw Hill Dictionary of Environmental Science*, etc. We then proceeded to analyze and categorize the winds, based on their names, location, intensity, and affordances. It was assumed that local wind names and definitions would reflect cultural perceptions.

A corpus of specialized texts consisting of 24,255,961 words was also compiled. The corpus was composed of textbooks, specialized and semi-specialized articles, encyclopedia entries, as well as terminographic resources in the environmental science and other related domains, such as Meteorology, Coastal Engineering, Hydrology, etc.

The definitions of *wind* and types of wind produced a core set of conceptual relations that were present in all definitions and thus provided the basic parameters of description. This cluster of relations was common to all of the winds analyzed. Not surprisingly, they reflect the convergence of cultural and meteorological description parameters.

As shown in Table 1, as a general concept, WIND is a type of moving air. It is characterized by having a certain location as well as direction. Its prototypical action is *blow.*

WIND	
is_a	moving air
action_of	blow
location_of	location where the wind usually blows
direction_of	direction from which the wind originates

Table 1. Definitional template of WIND.

As a verb of (air) movement, the definition of *blow* varies, depending on the effector of the action. This agent can either be a human (*to expel air through pursed lips*) or a meteorological force, such as the wind (*to move creating an air current*). The parallelism between the human and meteorological agents of air movement (blowing) has given rise to images of wind personification, such as the following, in which the human and meteorological agents converge.

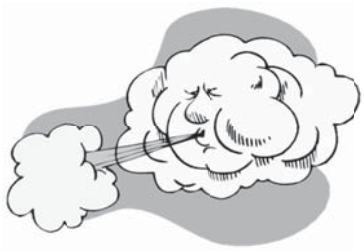


Figure 1. Personification of wind.

Other parameters in this general definitional template for WIND are the two cultural parameters: location and direction. Location specifically refers to the space or landscape where the perceivers live and carry out their daily activities whereas direction refers to their orientation within this space.

As previously mentioned, in most scientific classifications, there are three categories of wind: planetary, periodic, and local. This study focuses on local winds because of their status as culture-bound objects that affect the habits and customs of the inhabitants of a region. The analysis of 51 types of local wind showed that their definitions, in addition to the information in the general definitional template of WIND, also contained the conceptual relations in Table 2.

LOCAL WIND	
GENERAL PARAMETERS	
is_a	wind
action_of	blow
location_of	geographic location where the local wind usually blows
direction_of	direction from which the local wind originates
SPECIFIC PARAMETERS	
intensity_of	strength of the wind
time_of	time of the year when the wind occurs
duration_of	temporal duration of the wind
result_of	effect caused by the wind
temperature_of	temperature of environment when local wind occurs
water_content_of	humidity of the wind

Table 2. Definitional template of LOCAL WIND.

The results of the analysis showed that the most salient (specific) parameters for LOCAL WIND were intensity, time, duration, result, temperature, and water content. These attributes of wind are vitally important for the inhabitants of a region, who need to know the time or season when a local wind will occur, how long it will last, and whether it is hot or cold, strong or weak, and wet or dry. These factors allow them to predict the effects produced by the air movement. As an example of a specific type of local wind, Table 3 shows the parsed definition of BISE and the conceptual relations activated.

definition of *bise*	wind that blows in the Swiss Middleland (the region between the Jura and the Alps) and the upper Rhône Valley in eastern France coming from a northerly direction. It is cold and dry and it blows during the winter. The strong outbreak of cold dry air associated with the bise is often accompanied by heavy cloud. However, the bise is most frequent in spring, when it can last about one to three days and usually bring fine, bright weather.
is_a	wind
action_of	blows
location_of	Swiss Middleland, upper Rhône Valley
direction_of	north
intensity_of	strong
time_of	winter and spring
duration_of	1-3 days
result_of	heavy cloud, fine, bright weather
temperature_of	cold
water_content	dry

Table 3. Parsed definition and conceptual relations for BISE.

The definitions of the other local winds were also derived from the basic conceptual template for wind. Similarly to *bise*, they contained this additional cultural information. As previously mentioned, these conceptual relations provide information that is directly related to the effect of the wind on the local environment and its interaction with the landscape and the inhabitants. Table 4 shows the definition of *cape doctor* and the conceptual relations activated.

cape doctor	strong southeast moist wind which blows on the south coast of South Africa from spring (August and September) to late summer (March and April). At Cape Town it brings the "tablecloth," a sheet of hill cloud that covers Table Mountain and also eliminates air pollution.
is_a	wind
action_of	blowing
location_of	south coast of South Africa, Cape Town,
direction_of	southeast
intensity_of	strong
time_of	from spring (August and September) to late summer (March and April)
duration_of	six-seven months
result_of	cloud, elimination of pollution
temperature_of	-----
water_content	moist

Table 4. Definitional template of CAPE DOCTOR.

The definition in Table 4 activates all conceptual relations except for temperature since the salience of the intensity parameter overrides temperature, which corresponds to a default value of neither hot nor cold. Furthermore, the name *cape doctor* for this southeast local wind is an example of how the inhabitants of a region personify it. In this case, the strong (often disagreeable) wind is personified as a doctor because it is said to keep the region healthy and to have positive medical effects on the population. More specifically, it clears the skies by blowing away smog and air pollution.

Brickfielder, a hot wind blowing through regions of Australia, is another example of personification. The name arose because during the construction of the city of Sydney, a hot northerly wind carried clouds of reddish dust from the brickworks, which gave everything a reddish color. The wind was conceptualized as a worker bringing this dust from the fields, where bricks were made. Another more agricultural explanation (weatheronline.co.uk) is that the name, *brickfielder*, comes from the heat and dryness of the wind itself that turns the surface of the soil hard as bricks. Table 5 shows the definition of *brickfielder.*

Three of the main descriptive parameters for local winds are temperature, intensity, and water content, all of which are susceptible to accurate measurement with scientific instruments. More concretely, temperature is measured with a thermometer in degrees Fahrenheit or Celsius; wind intensity is measured by an anemometer in kilometers per hour; and relative humidity is measured with a hygrometer, generally as a percentage.

brickfielder	hot, dry, dusty north wind blowing strongly from the interior across the southern coast of Australia during the summer. It is caused by a poleward advance of tropical air from the deserts of the interior. Prolonged hot spells often occur when the brickfielder blows; temperatures can exceed 40°C (104°F) on a daily basis.
is_a	wind
action_of	blow
location_of	Australia: interior and southern coast
direction_of	north
intensity_of	strong
time_of	summer
duration_of	several days
result_of	intense heat, red dust
temperature_of	hot 40°C (104°F)
water_content_of	dry

Table 5. Definitional template of BRICKFIELDER.

Nevertheless, in the definitions of local winds, these parameters are not lexicalized in the form of numerical measurements, but rather as dynamic adjectives that refer to properties either viewed as temporary or changeable or else applied externally as a value judgment or experienced as sensory perception. (Tomaszczyk and Lewandowska-Tomaszczyk 1990). They are thus subjective rather than objective, and stem from the shared cultural perceptions of the community of speakers that interact with the type of wind.

These adjectives are gradable since they permit scaled variation as to degree and measurement. This indicates the existence of an implied norm, or default value, which in this case is imposed by the social environment and implicitly accepted by the group of speakers. (Tomaszczyk and Lewandowska-Tomaszczyk 1990). Table 6 shows the descriptive parameters of temperature, intensity, and water content along with the graded scale lexicalized by the adjectives in the definitions of local winds.

Again, it is possible to see the adscription of human qualities and emotions to the wind. These are implicit in adjectives such as *vehement,* indicative of strong, angry emotion, and *howling,* a long mournful cry indicative of rage or pain.

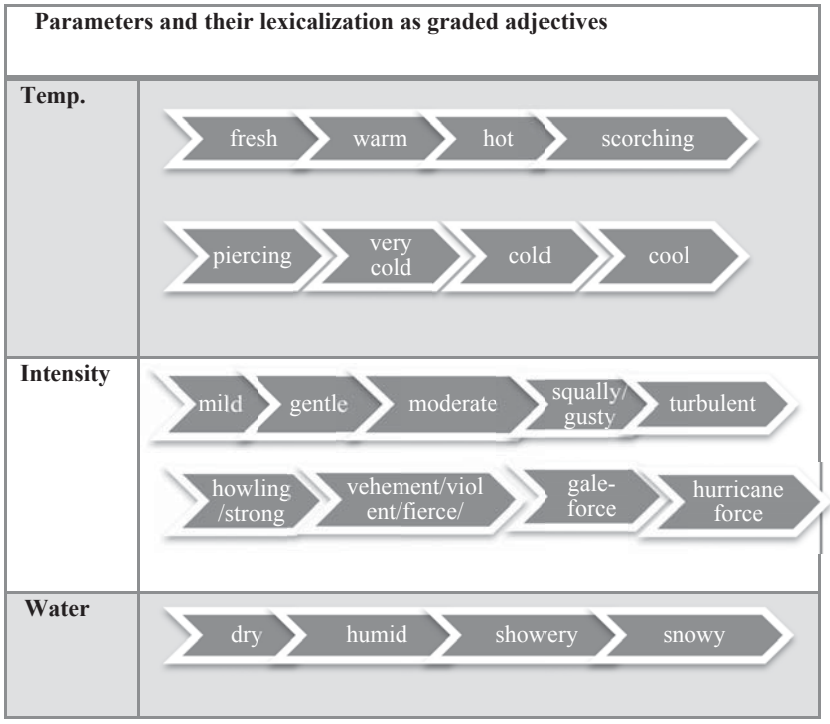


Table 6. Parameters and graded scales for local winds.

However, this scale is relative. Evidently, wind intensity would be perceived differently in a place where strong winds are the norm as opposed to a region where winds are generally mild. These parameters are thus bound to geographic location and are derived from cultural perceptions.

Corpus analysis

The next step was to confirm these conceptual relationships for local winds by means of corpus analysis. A great deal of information about a term's meaning and usage can be derived by analyzing linguistic contexts. For this purpose, Sketch Engine was used to study concordances and generate word sketches. Accordingly, we compiled a subcorpus of 19 million words, composed of wind-related texts from the EcoLexicon corpus.

The information extracted from the corpus was semantically classified and analyzed so that the concept could be placed in the underlying conceptual framework of a knowledge-domain event (Faber et al 2006; Faber et al. 2007, Faber et. al. 2012). The concordances generated were used to search for the most frequent conceptual relations used to describe wind in these texts.

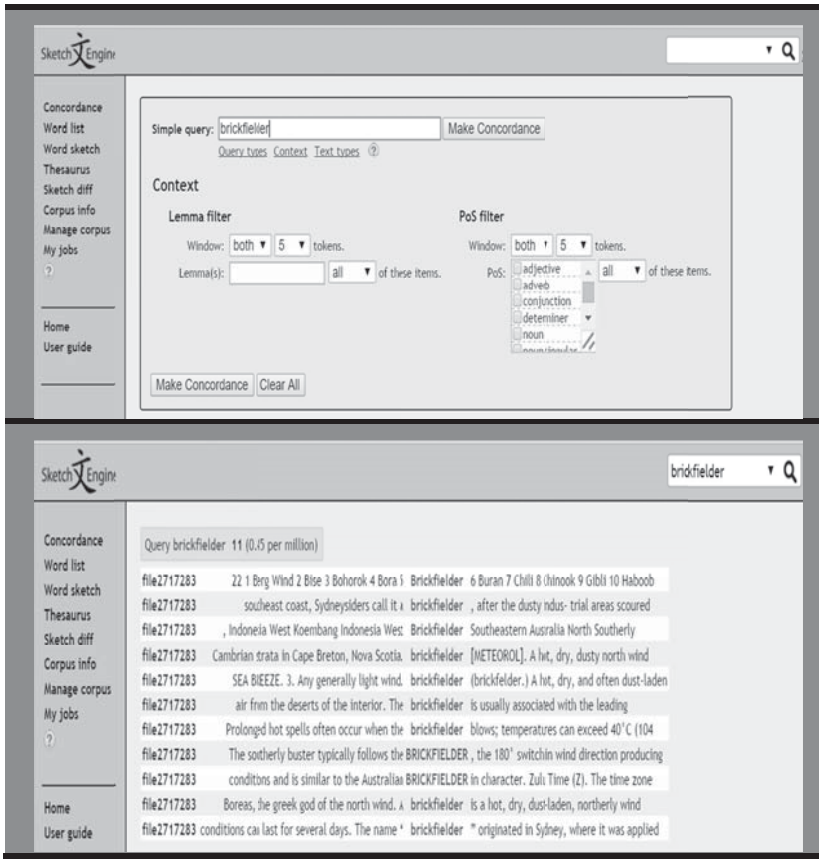


Figure 2. Sketch Engine interface and concordances for *brickfielder*.

In this respect, a helpful notion is that of *knowledge pattern* (Barrière 2004b; Barrière and Agbago 2006), which refers to explicit domain-independent metalinguistic information regarding terms, and their conceptual structures. Sketch Engine and its functions "make concordance",

"word sketch" and "thesaurus" were used to extract data for this analysis. Figure 2 shows a set of the concordances for *brickfielder* on the Sketch Engine interface.

Knowledge patterns are lexical markers that help the reader to fully understand the meaning of a concept, and the relation or relations of this concept to others. When such markers appear in texts in the near environment of the search term, they signal the possible existence of a conceptual relation between the search term and another term. Table 7 shows the conceptual relations potentially reflected by these lexical markers.

Conceptual relations	Lexical markers
is_a	*called, is a, known as, type of*
location_of	*across, along, at, dominates, found in, over, on, through, where*
direction_of	*along, from…across/onto/over /to/toward, the opposite direction, onto, uphill/downhill*
action_of	*blow*, brings, whip up, carries, flow*, develop*, experience*, occur*,*
time_of	*during, season/time for*
result_of	*because of, caus*, due to, form*, in response to, generat*, result*, bring*, creat*, effect of, produce*, send*,*

Table 7. Lexical markers used in wind descriptions.

In the concordances extracted from texts in our corpus, local winds were found to be mainly described in terms of the following conceptual relations: *is_a, location_of, direction_of, action_of, time_of,* and *result_of.* Figure 3 shows the frequency of their lexical markers in the corpus.

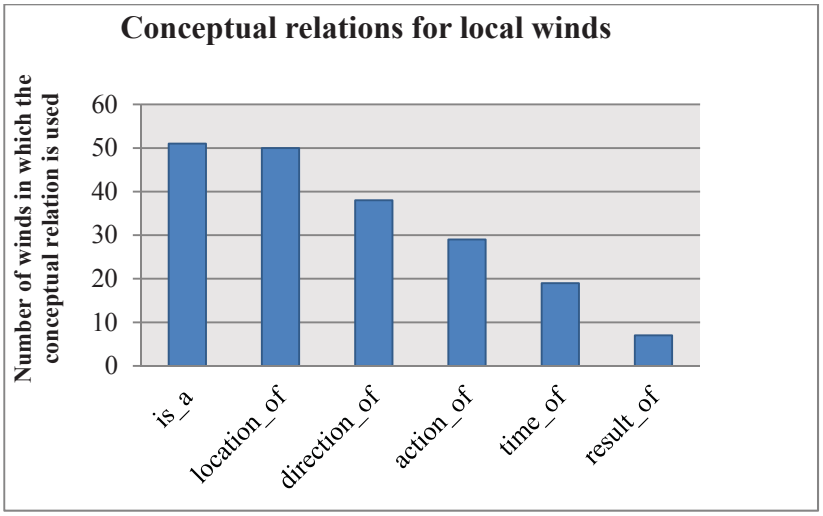


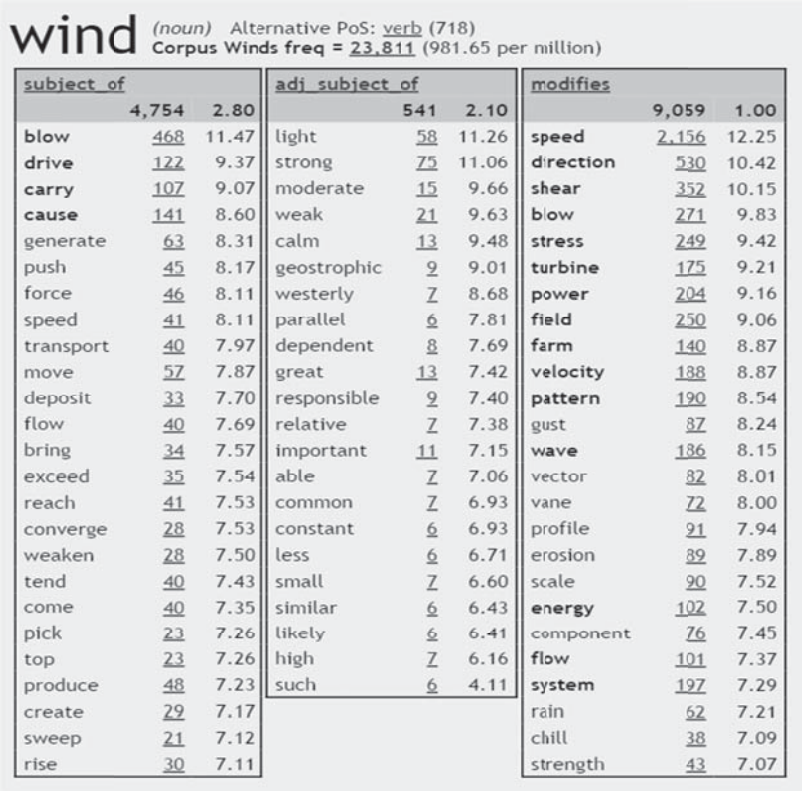
Figure 3. Frequency of conceptual relations in definitions of local winds.

Word sketch analysis

A word sketch is an automatic corpus-derived summary of a word's grammatical and collocational behavior. In Figure 4, the collocates for *wind* are grouped according to the syntactic relations in which they occur.

For example, these collocates include the verbs that most frequently occur with *wind* as the grammatical subject, the adjectives that most frequently modify *wind*, and the nouns that *wind* modifies. This information confirms that the most prototypical action effected by the wind is *to blow*. The other lexically salient actions are all related to causative movement (*drive, carry, push, move, transport*) or creation (*cause, generate*). This highlights the fact that wind is conceptualized as a force, which means that it is more susceptible to personification.

The adjectives that modify *wind* highlight its levels of intensity (*strong, light, moderate, weak, calm*). When *wind* modifies another noun, it produces a multiword expression that foregrounds qualities or attributes generally associated with the wind. Not surprisingly, the two most frequent are *speed* and *direction.* Also relevant are the nominalization of actions that wind can cause such as *shear, blow,* and *stress.*



wind *(noun)* Alternative PoS: verb (718)
Corpus Winds freq = 23,811 (981.65 per million)

subject_of	4,754	2.80
blow	468	11.47
drive	122	9.37
carry	107	9.07
cause	141	8.60
generate	63	8.31
push	45	8.17
force	46	8.11
speed	41	8.11
transport	40	7.97
move	57	7.87
deposit	33	7.70
flow	40	7.69
bring	34	7.57
exceed	35	7.54
reach	41	7.53
converge	28	7.53
weaken	28	7.50
tend	40	7.43
come	40	7.35
pick	23	7.26
top	23	7.26
produce	48	7.23
create	29	7.17
sweep	21	7.12
rise	30	7.11

adj_subject_of	541	2.10
light	58	11.26
strong	75	11.06
moderate	15	9.66
weak	21	9.63
calm	13	9.48
geostrophic	9	9.01
westerly	7	8.68
parallel	6	7.81
dependent	8	7.69
great	13	7.42
responsible	9	7.40
relative	7	7.38
important	11	7.15
able	7	7.06
common	7	6.93
constant	6	6.93
less	6	6.71
small	7	6.60
similar	6	6.43
likely	6	6.41
high	7	6.16
such	6	4.11

modifies	9,059	1.00
speed	2,156	12.25
direction	530	10.42
shear	352	10.15
blow	271	9.83
stress	249	9.42
turbine	175	9.21
power	204	9.16
field	250	9.06
farm	140	8.87
velocity	138	8.87
pattern	190	8.54
gust	87	8.24
wave	136	8.15
vector	82	8.01
vane	72	8.00
profile	91	7.94
erosion	89	7.89
scale	90	7.52
energy	102	7.50
component	76	7.45
flow	101	7.37
system	197	7.29
rain	62	7.21
chill	38	7.09
strength	43	7.07

Figure 4. Excerpt from a word sketch of *wind*.

Thesaurus analysis

In addition, the Sketch Engine application allows users to generate a tag cloud showing frequent collocates that appear with a word. The visual representation in Figure 5 highlights the most basic information about wind as extracted from the corpus.

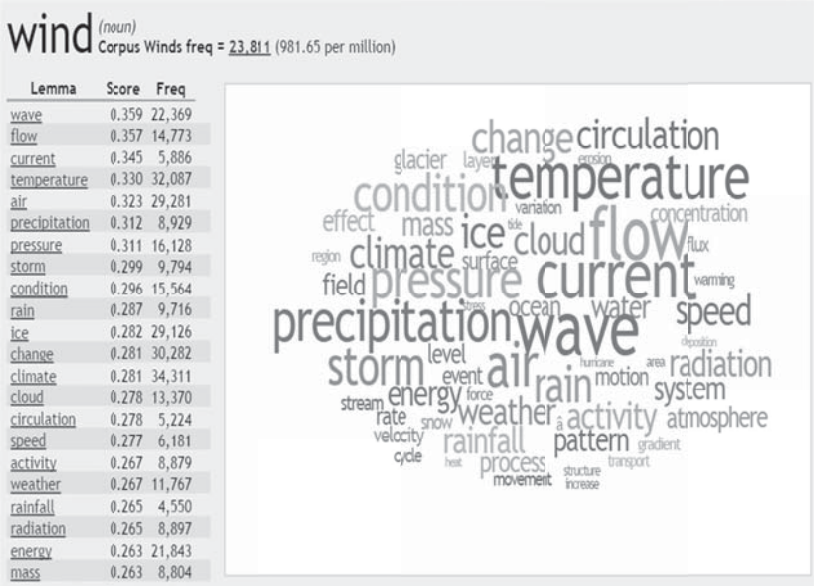


Figure 5. Tag cloud for WIND.

The following information can be derived from this representation:

- Wind *causes* waves in the ocean.
- Wind *moves* by flowing.
- Wind *is a* current of air.
- Wind *has a* temperature.
- Wind *causes* precipitation (rain, ice)

These data foreground the importance of wind type, action, temperature, effect, and water content. As such, it partially confirms the results of the definitional analysis.

The cultural profile of local wind

People interact with meteorological forces such as wind through day-to-day weather. This type of weather phenomena has been woven into human experience of life and affects daily routine in countless ways. This is evident in cultural perceptions of meteorological forces, such as wind, and is also reflected in language.

The template for the description of local wind is derived from the basic template for wind in general: *is_a, action_of. location_of,* and *direction_of.* These relations are descriptive parameters for any new object that appears on a perceiver's horizon and they encode what an entity is, what it does, where it is, and where it comes from. As small-scale winds arising from differences in temperature and pressure in localized areas, local winds are more specific and thus have additional relations that characterize them, namely, *temperature_of, time_of, duration_of, result_of, intensity_of,* and *water_content_of.* These parameters are a reflection of how the inhabitants of a landscape understand the wind, and how they engage with and ascribe meanings to it.

Evidence of this is the name given by the inhabitants of a region to local winds. When a wind receives a name, this is generally because it periodically produces a significant effect on the environment and alters daily life in some memorable way.

For the most part, winds that are named by the inhabitants of a region are rarely perceived as agreeable. As such, they are a significant deviation from the neutral default value for air movement. This is evident in the prevalence of negatively loaded adjectives used to describe wind intensity, temperature, and effects, such as *vehement, angry, howling, scorching,* etc.

The predominance of negativity can also be seen in the names give to local winds. Although many of these names lexicalize wind direction (*southeaster, nor'easter, nor'wester*) and location (*pampero, papagayo, tehuantepecer*), others foreground other aspects that comprise the template of conceptual relations derived from definitional and corpus analysis.

For example, in regards to *action_of*, *haboob,* is the name of a strong wind in the Sudan that brings sand and dust. It comes from the Arabic *habb* [to blow], which highlights prototypical wind activity. The relation *duration_of* is lexicalized in *khamsin,* which is derived from the Arabic *khamsun* or *hamsin* [fifty], the approximate number of days that this hot, dry, dusty North African wind is expected to blow. The relation *result_of* is lexicalized in wind names such as *karaburan* [black storm] and *rashabar* [black wind]. This is also the case of the *helm wind,* which takes its name from the Anglo-Saxon, signifying a helmet or covering for the head, and is a reference to the distinctive cloud formation that is the result of this type of local wind (Veale, Endfield and Naylor 2014). Other names are also indicative of the results of the wind and the damage that it can cause. An evident example of this is *wreckhouse winds*, very strong and dangerous winds occurring in southwest Newfoundland.

As previously mentioned, the name of a local wind can even personify it as a type of human entity with a social role (*brickfielder, cape doctor*).

Interestingly, the notion of the wind as a medical professional is also lexicalized in another local wind known as the *Fremantle doctor,* an afternoon sea breeze from the Indian Ocean that cools Perth, Western Australia and offers relief from the heat in the summer. Finally, local winds can embody malevolent supernatural entities, such as *diablo* [devil] a hot, dry, offshore wind from the northeast in the San Francisco bay. Though not a personification, another example of the conceptualization of the wind as a negative object is *simoom*, a hot, dry dust-laden wind that blasts through Arabian deserts, and whose name comes from the Arabic *samma* [poison]. This negative instrumental dimension of wind as an instrument causing pain or death is also reflected in the Mexican wind known as el *cordonazo* [the lash of St. Francis], a southerly hurricane wind along the west coast of Mexico

Conclusions

This chapter has explored the cultural dimension of the conceptual category of WIND within the context of Frame-based Terminology. Its primary focus was on local winds, given their status as culture-bound objects that can affect choice of habitat, building construction, crops, and even vehicles for travel.

The analysis of dictionary definitions as well as the study of micro-contexts extracted from a corpus of specialized environmental texts highlighted a common cultural frame or *semplate* for wind, in reference to the cultural themes or linguistic patterns imposed on the environment to create, coordinate, subcategorize, or contrast categories. Our study resulted in the specification of a set of conceptual relations that are reflected in the definitions, texts, cultural beliefs, and even in the names given to local winds. These parameters can be used to enrich the cultural categorical schemas that define and represent concepts belonging to the category of atmospheric phenomena.

Acknowledgements

This research was carried out within the framework of project FF2014-52740-P, *Cognitive and Neurological Bases for Terminology-enhanced Translation* (CONTENT), funded by the Spanish Ministry of Economy and Competitiveness. Partial funding was also received from the University of Granada (Spain) (*Beca de Introducción a la Investigación*).

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