School of Applied Language and Intercultural Studies

Complexity in Organoleptic Paths of Motion in the Genre of Craft Beer Reviews:

A Comparative Study of Spanish and English

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Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Doctor of Philosophy is entirely my own work, that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

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my most sincerest gratitude I reserve for my mother Monica whose encouragement is unrelenting; I dedicate this doctoral thesis to the memory of my late father James.

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Abbreviations and Acronyms

Abbreviation/Acronym	Description
ABV	Alcohol by Volume
AdL	*Amante de Lúpulo*
APP	A Perfect Pint
ASL	American Sign Language
BNC	British National Corpus
C	Complex (Path)
CdM	*Cervezas del Mundo*
CeE	*Cerveza en Ecuador*
CJ	*Cerveteca-Jab*
CL	Corpus Linguistics
CMT	Cognitive Metaphor Theory
Conf.	Conformation
CPP	Conceptual Preference Principle
DM	Draft Mag
DyB	*Dorado y en Botella*
EGD	Earth-grid Displacement
Eng.	English
G	Ground
Gust.	Gustatory
HL	*Humulus Lupulus*
HS	*Hiposurinatum*
IPA	Indian Pale Ale
KWIC	Key Word in Context
M	Manner (verb)
MB	*Mundo Birruno*
MoM	Manner of Motion (verbs)
Olf.	Olfactory

P	Path (verb)
PDF	Portable Document Format
POS	Part of Speech
S	Simple (Path)
Sat.	Satellite
S-language	Satellite-framed Language
SLN	Sign Language of the Netherlands
Span.	Spanish
TBC	The Beer Connoisseur
ST	Source Text
TBN	The Beer Nut
TN	Tasting Note
TTR	Type-token Ratio
URL	Uniform Resource Locator
V-language	Verb-Framed Language

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Abstract

David Clarke

Complexity in Organoleptic Paths of Motion in the Genre of Craft Beer Reviews:

A Comparative Study of Spanish and English

The study of how languages differ in their portrayal of motion events has received much attention since Talmy (1972) provided the first detailed account of the phenomenon. Interest has extended from real, or factive motion, to imagined or fictive motion, and from there to metaphorical motion, in which experience in one sensory domain is understood in terms of motion. Studies of metaphorical motion have, however, concentrated so far on a limited number of sensory domains, principally vision, and drawn data from a limited number of textual genres. The aim of this study is to identify the extent to which motion expressions are employed to express organoleptic sensory experiences, that is experiences of taste and smell. Drawing on analytical categories put forward by Talmy (2000) in his treatment of Satellite- and Verb-framed languages and on treatments based on Cognitive Metaphor Theory (Lakoff and Johnson 1980), and particularly the concept of 'embodiment', we investigate the variety and complexity of organoleptic Paths evidenced in two self-built corpora of craft beer reviews, one in Spanish, the other in English. We also compare the level of complexity evident in these sensory Path types with those of another, closely related, sensory domain: vision. The study finds, in line with related studies, that English has greater variety and complexity of sensory Paths than Spanish. A more unexpected result is the finding that organoleptic Paths are more varied and complex than visual Paths. This finding, then, may encourage us to reconsider Path complexity differences in sensory domains as a multifactorial issue and not simply as a cognitive-linguistic phenomenon. It is proposed here that external factors such as genre, or specifically, its communicative functions and linguistic constraints, coupled with the unique 'perceptual landscapes' created by each sensory modality, may transcend perceived physical boundaries of a Figure's trajectory.

Chapter 1 – Introduction

1.0 Broader Context of Research and the Position of this Study

Motion descriptions, it has been proposed, vary across the world's languages in terms of where in the clause the actual direction of motion, i.e. the course or *Path* of the moving entity, is expressed.[1] However, it has emerged that, generally, only two locations are possible: either Path is inherently expressed in the verb, as for example in 'exit', or it is expressed 'outside' of the verb as a bound affix or a free word; in English, for example, Path can be expressed in a particle or preposition accompanying the verb, as in 'jump *up'*.

This observation led Leonard Talmy (1996, 2000) to develop a systematic and comprehensive theoretical framework and binary typology in which all of the world's languages could be categorised as being either 'Verb-framed', i.e. expressing direction in the verb, or 'Satellite-framed', i.e. expressing direction in the accompanying prepositional phrase.

However, the study of actual motion (termed '*factive* motion') has not been the only focus of intellectual inquiry. Rather, the use of motion expressions to describe our experiences with, and perceptions of the outside world has also long been of scholarly interest. In the 1960s, a conceptual connection was first observed between verbs of motion and verbs of vision such that we tend to talk of the act of looking in much the same way as we talk of concrete objects moving (Gruber 1967).

Since then, a great deal has been learned about the pervasive use of motion in our everyday language in dynamic predication about inanimate and static entities, which are deemed to exhibit '*fictive* motion', such as roads *meandering* through forests or abstract entities such as prices *rising sharply*.

This non-literal motion also permeates deeply into our descriptions of sensory experience in domains such as vision, taste and smell, as exemplified by Özçaliskan (2004: 76) using the sentence: 'the fear in his eyes creeps *from* his gaze *into* her heart, making its way *through* the labyrinths of her unconscious' (emphasis in the original). What is noticeable in this example is that some intangible object (deemed the *Figure*) is described as following a complex trajectory (i.e. the *Path*) by firstly leaving a certain point of an entity (*his gaze*),

[1] We follow the convention in the linguistics literature of using initial upper case when representing the semantic components of a motion event, such as Figure, Path, Ground etc.

then penetrating or entering into another (*her heart*), and continuing via some kind of medium (*labyrinths of her unconscious*).

Focusing specifically on exploring differences in the degree of complexity of these 'fictive' Paths in various languages across the divide of Talmy's binary typology, Dan Slobin (2008) first carried out investigations into the particular sensory domain of vision and, later, Paula Cifuentes-Férez (2014) contributed to the discussion. These scholars found that Paths of motion in 'satellite-framed' languages were considerably more complex than their counterparts on the 'verb-framed' side of the typology. Further, in both of these studies, it was proposed that variety and complexity were greater in Paths of factive motion events than in fictive or visual motion by virtue of concerning a far larger landscape in which a Figure could move compared to the more limited boundaries of an observer's line of sight.

Recognising the almost exclusive attention given to the sensory domain of vision in studies of fictive motion, other scholars (e.g. Lehrer 2009, Caballero 2007, 2009, 2017, Caballero and Paradis 2015) turned their focus to some of the other senses. By doing so, they provided illuminating cross-linguistic insights into the functions of fictive motion for descriptions of organoleptic sensations (i.e. taste and smell), particularly in the genre of wine reviews. It was proposed that fictive motion compensates for a general poverty across languages of vocabulary to describe these sensations.

Corpus linguistics methods were employed in some of these studies (e.g. Caballero 2007, 2009, 2017 and Caballero and Toste 2008), which allowed the researchers to develop two relatively large monolingual corpora of wine reviews in Spanish and English consisting of 6,000 tasting notes per corpus; the former language was represented by almost 250,000 tokens and the latter over 350,000 tokens. As will be discussed in later sections (§2.3.8.6), one of the main benefits of exploring corpora to uncover linguistic phenomena is that they consist of data sets 'captured in the wild', or naturally occurring authentic language, as opposed to language 'created in captivity' by eliciting responses from project participants or, perhaps worse, from 'the notorious unreliability of intuition for judging linguistic data' (Lew 2009: 9).

However, this project differs from other related studies not only in the focus of the analysis (i.e. non-literal Paths of motion in sensory domains). The corpus analysed is also amplified beyond the size of any other hitherto investigated and, arguably more importantly, the methodology to be employed throughout the study, to the best of my knowledge, makes

greater use of the technology at the disposal of the modern corpus linguist than has been the case before.

Two monolingual corpora of craft beer reviews, in Spanish and English, each consisting of almost half a million words constitute the objects of inquiry for this research project. The texts from which they were compiled were retrieved from a variety of sources, across various countries, and although predominantly written by male reviewers, also feature contributions from female writers in the field.

Also, to the best of our knowledge, only the realm of vision has so far been probed with specific emphasis on Path complexity, with taste and smell remaining largely ignored. Furthermore, in terms of textual genre, most attention has been paid to wine reviews.

1.1 The Emergence of the Craft Beer Industry and a New Textual Genre

With the rapidly expanding global industry of craft beers, and, more importantly to this research project, the online availability of vast volumes of commentary describing and evaluating craft beer products, an opportunity thus presented itself to conduct empirical research into Path complexity in this, related, but as yet unexplored, textual genre and, at the same time, to investigate the relatively neglected domain of sensory experience; that is, the organoleptic (i.e. olfaction and gustation).

In Ireland, the number of microbreweries increased from 15 in 2012 to 72 in 2017. Further, in 1996, only one new microbrewery was opened, increasing to eight launched in 2012, 23 in 2014, and 14 in 2016 (Bord Bía 2017: 21). From an economic perspective, a stimulus for this substantial growth was the 50% reduction in excise duty introduced in 2005 on microbreweries; consequently, most of the microbreweries appeared from 2009 onwards (Hennessy and Jensen 2014: 2). This boom in craft beer production was quickly followed by an increase in craft beer commentators and critics such as, for example, The Beer Nut blog, launched in 2005, A Perfect Pint appearing in 2008 and Draft Mag, developed in 2009.

Another factor in the craft beer explosion was a heightened awareness of the importance of supporting local and Irish businesses in Post-Celtic Tiger Ireland. Specifically, the decline in consumers' incomes resulted in a greater demand for value for money which also prompted restaurants and bars to offer a greater range of choice to the consumer (Ibid: 1).

In 2016, the total turnover of craft beer production was €52m which was an increase of €12m on the previous year (Bord Bia 2017: 28).

In 2017, a total of 137,000 hectolitres (hl) were consumed in the domestic market, while 39,000hl were exported and, both directly and indirectly, the industry employed 871 workers for the same year (Bord Bia 2017: 58). The Exchequer benefitted directly to the sum of €7.3m from production and sales with a further €9.8m generated through Pay Related Social Insurance (PRSI), Income Tax and Universal Social Charge (USC) charges paid by employees in the industry (Ibid: 61).

At the European level, Ireland is ranked in 9th position in terms of the number of microbreweries per million inhabitants, at 15. Spain, on the other hand is significantly lower, with 9 microbreweries per million inhabitants given it a ranking of 17. However, Spain too has enjoyed a considerable rise in the number of microbreweries in recent years and in 2014 a total of 314 were recorded, which rose from 203 in 2013 (European Economics 2016: 2); in 2016, this number continued to rise with a total of 463 microbreweries (Statista 2018), with a total consumption of 100 million litres of craft beer per annum (Monedo 2018).

1.2 Core Aims of this Research Project

The core objective of this research project is, in fact, twofold. Firstly, we aim to discover both the variety and complexity of Path and Ground combinations in metaphorical motion events pertaining specifically to the domain of organoleptic sensory experiences in the genre of craft beer reviews. Secondly, we will compare the findings of this initial stage to those yielded by other researchers into a 'sister' domain of sensory experience, vision, in order to expand the broader discussion of non-literal Paths of motion and perception.

However, this is not only a cross-(sensory) domain exploration but, rather, it is also a cross-linguistic investigation of two languages said to occupy polar opposites of Talmy's binary typology of Verb- and Satellite-framed languages: Spanish and English, respectively.

Therefore, the specific aim of this research project is to answer the following four questions:

1. At the macro-level of minus- and plus-Ground clauses, in which language is greater complexity evident?[2]

[2] 'Plus-' is taken to express the existence of a Ground element in a clause.

2. At the micro-level of Path component + Ground combination, which language evidences greater variety and which language evidences greater complexity?[3]
3. At both the macro- and micro-levels, in which domain of sensory experience, organoleptic or visual, are greater variety and complexity evident?
4. Is there a link between physical boundaries and Path variety and complexity?

1.3 Structure of the Thesis

This thesis consists of six chapters. In this initial chapter, a brief outline of the main concerns of the study has been provided and the research has been placed within the general context of the related literature. The importance of the craft beer industry has been noted and our research questions have been stated.

In Chapter 2, the main theoretical framework which provides the foundation for the study, Talmy's (1996, 2000) Paths of fictive motion and, another important contribution, Lakoff and Johnson's (1980) Cognitive Metaphor Theory are expanded upon and critiqued.

Chapter 3 outlines the methodology adopted in this study. It is concerned first with corpus development, outlining the criteria which have been developed to demarcate the borders of the genre under study and the texts which are permissible for inclusion in our corpora. A description of the various corpus tools and methods of data collection and analysis employed in the study follows, along with some of the problems encountered throughout the investigation stages and solutions sought to resolve them.

Chapter 4 reports mostly on all the relevant quantitative data retrieved from our two monolingual corpora of craft beer reviews. Presented first will be the data from the English corpus and, later, the Spanish corpus. The chapter will close in a more comparative nature as the data from the two corpora will be compared to ascertain in which one are Path complexity and variety greater.

In Chapter 5, the aims of this research project as laid out above are revisited for discussion in light of the findings yielded here and with the intention of comparing them to those of other studies.

Chapter 6 concludes the study with a summary of the results, a general evaluation of the research itself, including the primary and secondary contributions the study may be

[3] '+' is taken to express the simultaneous co-existence of a particular Path component and a Ground object.

considered to have made to the broader discussion of non-literal motion, and draws to a close by suggesting further interesting avenues of research to pursue.

Chapter 2 -Literature Review

2.0 Introduction

In this chapter we survey the evolution of the (linguistic) study of literal and non-literal motion and the scholarly interest these phenomenona have received from their early conceptions, through the development of a systematic theoretical framework to account for them to present-day applications of this theory.

The chapter will be presented in three sections. Firsty, an introduction will be provided to the general notion of motion events and their various semantic constituents. Also to be discussed here is the emergence of a binary typology of the world's languages according to how they structure and express motion and, in particular, the direction of motion.

The second section will trace the evolution of scholarly research from literal to non-literal motion events, and will further expand upon one of the fundamental notions of this study, Path, or, rather, the perceived trajectory of an object. The various semantic components of this concept will be considered and their utility for measuring Path variety and complexity will be demonstrated.

The third and final section is concerned with presenting the latest addition to the category of non-literal Paths of motion, namely metaphorical motion, its theoretical underpinnings and its value for investigating the peculiarities of motion expressions for describing the often highly abstract domains of sensory perception.

Part 1 – Motion Events and Language Typologies

2.1 Motion in Language: Developing a Theoretical Framework

The research carried out in the past few decades into the linguistic expression of motion is as vast as it is diverse. However, Manner of motion verbs can be categorised either from the perspective of lexical semantics or from a language typology and contrastive point of view (Caballero 2007:2096).

How motion is represented in different languages in terms of lexicalisation patterns has been much discussed by linguists for many decades (cf. Bergh 1948, Malblanc 1968, Vinay and Darbelnet 1958, Tesnière 1957, Wandruszka 1976).

Leonard Talmy has proposed that these early studies performed the 'initial gathering and sorting of phenomena' (Talmy in Ibarretxe-Antuñano 2005: 328) and he views the findings yielded as important contributions to the field. However, what was lacking was a systematic account of the phenomena concerned which could ultimately allow a solid theoretical framework to be established with a sufficient degree of theoretical abstraction (Ibid: 328). This was the enterprise which Talmy himself sought to undertake.

Talmy defines a 'motion event', as 'a situation containing movement or the maintenance of a stationary location' (Talmy 1985: 60) and holds that 'the world's languages fall into two typological categories on the basis of where they characteristically express the schematic core of the framing event (i.e. the core information) – in the verb or in a *satellite* to the verb' (see §2.1.2.2) (Talmy 1991: 480, emphasis in original).

2.1.1Types of Motion Events

Talmy (2000) outlines three different types of motion event based on the number of semantic components of which the motion event consists.

2.1.1.1 Minimal Motion Event

The most basic motion event, the Minimal Motion Event, is so called because it consists of the most essential semantic components present in all motion events.[4] These are:

1. Figure
2. Ground

[4] We follow common practice here in using initial capital letters for 'Minimal Motion Event' and its semantic components Figure, Ground etc.

3. Motion
4. Path

The concepts of Figure and Ground originate in Gestalt Psychology where it was shown that the Figure has unique properties allowing it to be perceived as being more prominent than the Ground (Ungerer and Schmid 1996: 157).

Talmy (1985) gave these concepts distinct semantic interpretations in the context of motion events as follows:

> **Figure** A moving or conceptually movable object whose path or site is at issue.
>
> **Ground** A referent-frame, or a referent point stationary within a referent-frame, with respect to which the Figure's path or site is characterised.
>
> Talmy (1985: 61)

Saeed (1997: 245) provides a useful synopsis of how these concepts relate to each other:

1. **Figure**: the object moving or located with respect to another object (the **Ground**).
2. **Motion**: the presence *per se* of motion or location in the event.[5]
3. **Path:** the course followed or the site occupied by the Figure with respect to the Ground object.
4. **Manner**: the type of motion.

Note that Saeed (Ibid) includes here the notion of 'Manner', which is treated as a Co-Event in Talmy's earlier work (see §2.1.1.2.) but which takes on a more central role in Talmy's later work (1999, 2000) (see §2.1.2.2).

2.1.1.2 Co-event

Talmy (1991) indicates that the Co-event is a form of 'supporting event', the purpose of which is 'to fill in, elaborate, add to or motivate the framing event' (Talmy 1991: 484).

The Co-event most typically represents the Manner or Cause of the Figure's motion (Talmy 2000: 26). However, ten other relations to the motion event were identified, which include:

[5] See §2.2.3.2 for an expanded discussion of this concept 'Motion' in relation to 'location' or 'stasis' of a Figure.

Precursion, Enablement, Concommitance and Subsequence (Ibarretxe-Antuñano 2005: 327).

2.1.1.3 Full Motion Event

When the motion event consists of the four semantic components of a Minimal Motion Event accompanied by another from the list of potential Co-events, it is deemed to be a 'Full Motion Event' (Talmy 2012: 1). An example of a Full Motion Event in which the elements of a Minimal Motion Event and a Co-event are evident can be seen in 1) below. The following constituents of a Minimal Motion Event are evident: the Figure is the bottle (*la botella*); the Ground is the cave (*la cueva*); Motion and Path are clearly evident (see §2.1.2 for an expanded discussion on the typological differences between Spanish and English in terms of expressing Path and Manner). The Co-event is evident through the expression of the Manner in which the Figure element moves ('float' in English and *flotando* in Spanish).

2.1.2 Language Typologies

Talmy (1972, 1985) first developed a three-way typology on the basis of how the meaning of the verb encodes the motion event. All languages were found to express the presence-of-Motion component in the verb. Beyond this, though, languages were found to fall into three main typological categories on the basis of whether they 'characteristically' also used the verb to express the Path, the Co-event, or the Figure (Talmy 2012: 1), that is, on the basis of which component is characteristically 'conflated' with the presence of motion in the verb.

'Characteristic' here is understood as meaning that an expression is:

(i) colloquial in style, rather than literary, stilted, etc.

(ii) frequent in occurrence in speech, rather than only occasional

(iii) pervasive, rather than limited, that is, a wide range of semantic notions are expressed in this type.

Talmy (1985)

In the following sections, we focus on conflations that are characteristic of the languages under study in the current thesis, namely Motion + Path, and Motion + Manner, although a brief mention is also made of the Motion + Figure conflation.

2.1.2.1 Motion + Path

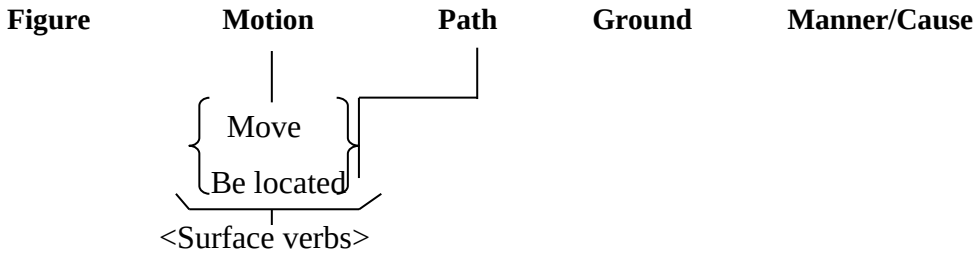
Spanish, like all Romance languages, typically encodes the semantic component Path in verbs of motion, as in (1).

1) *La botella **entró** en la cueva* (*flotando*)
   the bottle **moved-in** to the cave (floating)

   'the bottle floated into the cave'

The corresponding conflation pattern can be schematized as in Fig 2.1 (Ibid: 69):

Figure 2. 1: Conflation of motion with *Path*:



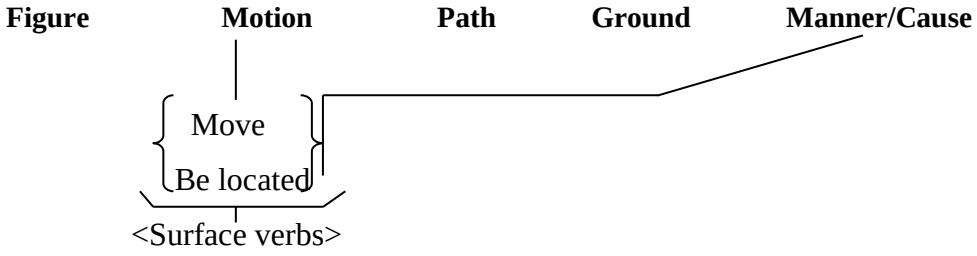
2.1.2.2 Motion + Co-event

English typically encodes the Co-event (i.e. Manner or Cause etc.) in the verb, as in (2):

2) *the bottle floated into the cave*

The corresponding conflation pattern can be schematized as in Fig 2.2 (Talmy 1985:62 in Saeed 1997):

Figure 2. 2: Conflation of motion with *Manner*:



2.1.2.3 Motion + Figure

Atsugewi, a Hoken language of northern California has a system of conflating motion with the Figure by combining affixes to the verb stem, allowing the expression of motion and of various kinds of objects or materials as moving or located.

Although this pattern is characteristic of languages like Atsugewi, English has some forms which are similar, such as can be seen with the non-agentive verb 'to rain' in (3):

3) *It **rained in** through the bedroom window*

What is moving here (i.e. the Figure) is actually the rain, and the conflation pattern of Motion + Figure allows this to be expressed with only the verb (Talmy 1985: 73).

However, as this is not the 'characteristic' pattern of English, this language cannot be said to belong to the same category as Atsugewi.

2.1.2.4 Binary Typology

Talmy (1991, 2000) later reduced this three-way typology to a binary typology which divided the world's languages into two categories: 'satellite-framed' languages or 'verb-framed' languages.

According to this dichotomy, languages can be classified depending on whether the core meaning (or *core schema*) of the motion event (its directionality) is inherently expressed in the lexical meaning of the motion verb, in verb-framed languages, or by a 'satellite' to the main verb, in satellite-framed languages (Rojo and Valenzuela 2005: 2).

Talmy (1991) defines a satellite, which can be a bound affix or a free word, as 'the grammatical category of any constituent other than a nominal complement that is in a sister relation to the verb root' (Ibid: 486). In English, satellites are verb particles, as in (4):

4) *He ran **out** of the house.*

where *out* is a satellite and *of the house* is a prepositional phrase (Ibid: 198).

The verb in satellite-framed languages, also known as S-languages, provides information about the Manner (or Co-event) in which the action was carried out; while the 'satellite' encodes the directionality which is the core meaning of the motion event.

Other S-languages are shown below with their corresponding satellite forms:

	Language	**Satellite Form**
i.	German	verb prefixes (separable and inseparable)
ii.	Latin and Russian	verb prefixes
iii.	Chinese	verb complements
iv.	Lahu	non-head 'versatile verbs'
v.	Caddo	incorporated nouns
vi.	Atsugewi	polysynthetic affixes around the verb root

Talmy (1991) rationalises the elaboration of the grammatical category of *satellite* as it captures syntactic and semantic commonalities across all forms in the list above. In other words, the common function across the typological category is the characteristic site of the core schema (Talmy 1991: 486).

As already indicated, in 'verb-framed' languages (or 'V-languages'), the core meaning of the motion event (i.e. its directionality) is inherently expressed in the lexical meaning of the motion verb. The contrast between V-languages (represented by Spanish) and S-languages (represented by English) is shown in the classic example in 5a and 5b.

5a) Spanish non-agentive motion-type framing event (Talmy 1991: 487):

*La botella **salió** flotando* ('the bottle exited floating')

5b) English non-agentive motion-type framing event (Ibid: 487):

*The bottle floated **out***

In 5a, the core schema, the Path (i.e. the trajectory or directionality), is expressed by the verb, and the gerundive form expresses the 'supporting event' (or Co-event) of Manner; while in 5b, the core schema is expressed by the satellite *out* and the 'supporting event' is expressed by the verb *float* (Ibid: 487).

Talmy simplifies the distinction between S- and V-languages by asserting that languages can be classified 'on the basis of the [semantic] component that characteristically appears in the verb root, and are further subdivided by the component that then appears in a satellite and/or preposition' (Ibarretxe-Antuñano 2005: 327, based on Talmy 1996).

2.1.2.5 An Expanding Typology

Talmy (1991) expanded the typology developed by Talmy (1985), whose original concern was motion events, suggesting that 'in any language, the syntactic site – verb or satellite – where Path is characteristically expressed is also to a great extent where aspect, state change, action correlation and realization are characteristically expressed' (Talmy 1991: 487).

Therefore, in the case of S-languages, represented here by English, Talmy (1991) discovered that the following could be expressed (Ibid: 480):

1. **Path**, in a motion event: *the ball rolled **in**.*

2. **Aspect**, in an event of temporal contouring: *they talked **on**.*

3. **State change**: *the candle blew **out**.*

4. **Action correlation**: *she sang **along**.*

5. **Action realization**: *the police hunted the fugitive **down**.*

2.1.3 Challenges to the Typology

Leonard Talmy is viewed by many (e.g. O'Connor 2006; Turner 2002; Marchetti 2006) as a linguist whose diverse and deep contribution to our understanding of language and conceptual structure has won immense influence, making him one of the most original theorists of language (Turner 2002:576). Indeed, his work has been described as 'monumental' (Farrell 2002: 201) and 'exceptionally in-depth and wide-ranging' (Marchetti 2006: 19).

Perhaps of greater importance to the current thesis is, however, that, after twenty years, there are still arguments about exactly what constitues a 'satellite'. This question arises as the typology has been repeatedly applied, enhanced and expanded by linguists around the world using experimental methods and discourse studies (O'Connor 2006:1134). This particular challenge is addressed below along with others which have been made to the typology on the basis of intra-lingual variation discovered in data elicited through translation and on the basis of controversy regarding the status of the 'main verb'.

Slobin (1996, 2005) and Ibarretxe-Antuñano (2003) gained insights from a translation perspective, the latter of which yielded an interesting challenge to Talmy's two-way categorisation of languages. Ibarretxe-Antuñano (2003) points out that the challenge for the translator, in terms of complex Paths and Manner verbs, is actually twofold: firstly, s/he has to decide on how to distribute the information about Path and Manner; and secondly, whether to maintain all the semantic distinctions contained in the source text (Ibarretxe-Antuñano 2003: 158).

A generalisation made by Slobin (1996) in relation to the expression of motion events in narrative is that Spanish-language writers are less concerned about the motion of their characters as they are often placed in a new location without explicit description of their movements, which are left for the reader to infer. In contrast, the English-language writer will devote more attention to the dynamics of movement of the character.

Spanish, then, favours static scene-setting, whereas English is more concerned with the dynamics of movement in the scene being described (Slobin 1996: 205). The result of these differences, according to Slobin, is that the Manner of motion verb lexicon in S-languages is larger than in V-languages, and that description of trajectories is more typical in S-languages than in V-languages (Ibarretxe-Antuñano 2003: 153).[6]

Looking beyond simple motion events to those which depict motion across various clauses (deemed a 'journey' in Slobin's terminology), Slobin (1996, 2005) examined how these complex Paths, and Manner of motion information, were handled in the translation of texts into languages both within the same, and across the other, typological category.

[6] This was not found to be the case, however, in some studies of other domains such as vision (Clarke 2013), speaking (Rojo and Valenzuela 2001) and sensory perception (Rojo and Valenzuela 2005) where either no significant difference was observed or the V-language corpus was far more abundant than the S-language corpus in Manner verbs of each domain.

Slobin (1996), in order to compare sizes of motion verb lexicons and information transfer of motion events, investigated Spanish and English which, respectively, 'represent opposite poles of [the] typological dichotomy' of S-languages and V-languages (Slobin 1996: 195).

In relation to translation strategies of trajectories (aka 'Paths'), it was found that when translating from Spanish to English, only 8% of instances resulted in no information loss; whereas in the opposite direction in almost 25% of cases information loss was observed (Slobin 1996: 210).

Slobin (2005) investigated the typological factors which determine the 'rhetorical style' of a narrative in eleven languages from each of the two typological categories. Representing S-languages were: English (ST), Dutch, German, Russian and Serbo-Croatian. The V-languages investigated were: French, Portuguese, Italian, Spanish, Hebrew and Turkish.

Within the S-languages, it was found that translation of complex Path descriptions from English to the Germanic languages followed an identical pattern (i.e. the same number of Path elements per verb). However, the two Slavic languages (Russian and Serbo-Croatian) along with all of the V-languages employed between two to four verbs.[7] (Slobin 2005: 122).

Although Ibarretxe-Antuñano (2003) and Slobin's above-mentioned studies had somewhat different foci in terms of motion events seen in V- and S-languages, certain common strategies emerge in cross-typological translation.

For example, it was found that, for the Manner of motion component, translators from V- to S- languages tend to either omit information or, alternatively, they would use a Path verb for the original Manner verb (Slobin 1996, 2005).

Ibarretxe-Antuñano (2003) summarises all possible translation strategies for Path information and Manner of motion information for the direction S- to V-language, as observed in Slobin (1996, 2005) and Ibarretxe-Antuñano (2003), and reproduced here in Table 2.1:

[7] Slobin (2005) suggests that the Slavic languages appear to be on a 'diachronic plane away from satellite framing' and refers the reader to Filipovic (2002) for a more detailed discussion (Slobin 2005: 121 foot note 7).

Manner Information	
Strategy M-1	Omission of all Manner information
Strategy M-2	Translation of all Manner information (verb or separate expression)
Strategy M-3	Substitution of a Manner of motion verb for a Path verb
Path information	
Strategy P-1	Omission of some Path element
Strategy P-2	Insertion of a new motion verb, usually a Path verb
Strategy P-3	Translation of all Path information

Table 2. 1: Translation strategies of Manner of & Path information: S- to V-language.

Ibarretxe-Antuñano (2003), again taking English as the source language, investigated contrasts in translation techniques from S- to V-languages, focusing solely on the possible differences that exist between languages from the same typological group: Spanish and Basque.

Basque belongs to the same typological category as Spanish (V-languages) by virtue of the fact that it also expresses the core information (i.e. directionality, or Path) of a motion event in the verb, while additional information of Manner is expressed in an element separate to the verb – contrasting with the typical pattern for S-languages. Examples of these similarities between Spanish and Basque are provided in Table 2.2.

Path Description		
English	***go down***	***go in***
Spanish	*bajar*	*entrar*
Basque	*jaitsi*	*sartu*
Manner Information		
English	***Run*** *out*	
Spanish	*Salir* ***corriendo***	*lit. 'exit running'*
English	***Jump*** *up*	
Basque	***Saltoka*** *igo*	*lit. 'jumping ascend'*

Table 2. 2: Patterns of Motion event description in Spanish, Basque and English.[8]

As Slobin points out in relation to the different conflation patterns of motion in V- and S-languages, '[it] is almost always the case [that] typologies leak' (Slobin 1996:214). Ibarretxe-Antuñano (2003) exposed one particular leakage of the strict binary typology as she observed intra-typological variation in terms of the translation strategies typical of S- to V-language translation through her study of Spanish and Basque translators. Her initial comparison of the translation of Manner of motion information found that translators of both languages behave similarly in that some information is maintained; however, if information is to be completely removed, it will be the Basque translators who will do so rather than their Spanish counterpart (Ibarretxe-Antuñano 2003: 164).

A different picture emerges, however, in relation to the translation of Path in these two languages. The Spanish translator follows a typical V-language pattern and inserts a new Path verb for each of the original Path segments. Conversely, even though the four Basque

[8] Adapted from Ibarretxe-Antuñano 2003.

translators had the option to follow a typical V-language structure, two of them actually followed a lexicalisation pattern characteristic of S-languages (Ibid: 165).

Basque belongs to the category of V-language in terms of how it accommodates the Manner component of a motion event. However, it can also be placed within the category of S-language when considering how it accommodates the Path component of a Motion event. In Ibarretxe-Antuñano's words, 'Basque, like Spanish, will tend to contain little information about Manner of motion, and unlike Spanish but like English, it will present complex Path descriptions' (Ibid: 153).

It is on these findings that Ibarretxe-Antuñano (2003) challenges Talmy's strict binary typology.

2.1.4 Challenges to 'Main Verb' Status

Perhaps the most important challenge to the binary typology concerns the assignment of 'main verb' status, as the typology rests on the assumption that one particular constituent of the Motion event encodes the core information (or Core schema), while the additional information of the Co-event (i.e. of Manner or Cause etc.) is to be found in another constituent. If this 'main verb' cannot be identified in even a few languages, Talmy's typology would need to be reconsidered.

2.1.4.1 Defining and Assigning Main Verb Status

In monomorphemic languages like English, the constituent type assigned 'main verb status' is quite easy to identify in a clause, such as in (6):

6) *My neighbour seldom **rolls down** his shades.*

According to Talmy (2000), the constituent type represented by the morpheme *roll* ranks higher for main verb status as, among other factors, it takes: the inflection *–s,* which encodes present tense, habitual aspect, indicative mood, third person and singular number for the subject; in terms of syntax, it is the head of the construction formed with *down*; and it is an open class with hundreds of morpheme members. None of these factors are performed by the other constituent type, instantiated in this example by the morpheme *down* (Talmy 2000 in Ibarretxe-Antuñano 2005: 331).

However, there are other languages for which morphology, syntax and class size are not sufficient criteria for identifying the morpheme ranked as 'main verb' in the clause and a more complex analysis is required.

One such example is the polysynthetic language Atsugewi (see §2.1.2.3).[9] A motion event in this language is typically expressed by a verb complex constructed from a tripartite stem (i.e. a verb stem of three bound morphemes, each instantiating a particular constituent of a Motion event – Cause, Figure and Ground) which can receive several derivational and inflectional affixes (Talmy 2012: 8).

Motivated by such radically different methods of expressing Motion events, Talmy developed a comprehensive set of factors which can be used as a diagnostic tool for identifying which constituent type any given language treats as its main verb. It is important to point out that there is no one single factor which will determine main verb status, but, rather, the greater the combination of factors seen for a constituent type, the greater probability it will be assigned main verb status in the language.

Talmy lays out the following six main factors and their corresponding sub-factors that tend to mark a particular constituent type as the main verb (root) (Ibarretxe-Antuñano 2003: 330, Talmy 2012: 5-6):

1. Morphology

   > If it can take inflections or clitics for such semantic categories as tense, aspect, mood, evidentially (sic), negation, causation, voice, transitivity, or the person, number, and gender of the subject (and object).

2. Syntax

   > If, as head, it directly or nestedly [sic] forms constructions with such other sentence constituents as: adverbs; particles for place, time, aspect, quantity (e.g. floats), negation, etc.; or a subject or object nominal.

[9] In a polysynthetic language, the core of the sentence is a complex constituent in turn consisting of a number of morphologically distinguishable constituents that occupy distinct position slots in a specific sequence relative to each other, all of them morphologically bound (Talmy 2012: 8).

3. Co-occurrence patterns

   If its presence is required across a range of construction types, while the other constituent type need not or cannot be present in some of those construction types.

4. Class size

   If it has more morpheme members or is open-class while the other constituent type has fewer morpheme members or is closed-class.

5. Phonology

   a) If its morpheme members have a greater average phonological length.
   b) If its morpheme members vary over a greater range of phonological length or pattern.
   c) If its morpheme members include phonemes ranging over a greater portion of the phonemic inventory of the language.

6. Semantics

   a) If the meanings of its member morphemes tend to have more substantive content greater specificity, and a greater number of more varied conceptual components associated together in more intricate relationships, while those of the other constituent type tend to have less of these.
   b) If the meanings of its member morphemes range over a greater variety of concepts and types of concepts and trail off into more outlying conceptual areas, while those of the other constituent type tend to fit a more stereotyped semantic typology.
   c) If it is experienced by speakers of the language as contributing the criterial component of actuation to the proposition that is otherwise represented by the sentence.

2.1.4.2 'Equipollently Framed' Languages – A New Category?

In his 2006 study of the salience of manner of motion, Slobin suggests that various languages pose a problem for Talmy's (1985) typology, which is predicated on having a 'main verb' in a clause.

Languages deemed to be 'serial verb languages'[10], 'bipartite languages'[11] and 'generic verb languages'[12] (Slobin 2006: 59), for which 'main verb status' is not so easy to assign, pose a particular challenge to the typology. Therefore, Slobin (2006) proposes a third category, 'equipollently framed', which is a 'kind of framing in which both Path and Manner have roughly equal morphosyntactic status' (Ibid: 59).

'Serial verb languages' typically express a Motion event by placing two or three morphemes together, each expressing a different component (i.e. Co-event – Manner or Cause – Path conformation or Path Deixis). These constructions, according to Slobin (2006), however, have no grammatical marking of finiteness and so elude the assignment of main verb status (Ibid: 58).

Further, basing his analysis on morphosyntactic criteria alone, Slobin (2006) suggests that 'serialising' languages belong in a category of their own as they not only share features of V- and S-languages, but that they have a property unique to these two typological groups (Ibid: 5).

Mandarin is such a language as it typically uses a series of two or three verbs to express a Motion event. Talmy (2012) refers to these verbs as constituent 1, 2 and 3 (C1, C2 and C3). The three constituents mentioned above are sequenced as follows:

C1 – expresses the Co-event (Manner or Cause)

C2 – expresses the Vector + Conformation components of Path

C3 – expresses the Deixis component of Path

[10] E.g. Mandarin. Thai, Niger-Congo, Hmong-Mien, and Sino-Tibetan.
[11] E.g. Hokan and Penutian languages (Slobin 2006: 5); Talmy (2000) also places the North American language Nez Perce in this category.
[12] E.g. Jaminjung – an Australian language (Slobin 2006: 5).

In the following example (Table 2.3), deemed by Talmy (2012) to be a ‘verb + satellite’ subtype of the serial construction group, there is one candidate which is given main verb status:

Constituent in sequence	C1	C2
Verb	pao3	kail
Semantic Component	Manner	Path (Vector + Conformation)
Constituent	Main verb	Satellite
Mandarin sentence	*ta l pao3-kail le.*	
Meaning	s/he run away PERF	
Gloss	*S/he ran away.*	

Table 2. 3: Assignment of main verb status and satellite in Mandarin.

In bipartite verb languages, the verb consists of two morphemes, both considered by Slobin to be of equal status, expressing Path and Co-event (typically, Manner).

DeLancey (1989), investigating Klamath, a Native American language of northern California and southern Oregon, observed that verbs in these languages contain a series of morphemes specifying shape or other classificatory features of the Theme or Instrument argument, and a series indicating direction or either Manner of motion or location (DeLancey 1989: 31).

DeLancey (1989) adopts, and slightly modifies, Jacobson's (1980) terminology to label each of these two bound morphemes: 'lexical prefixes' (LP's), which always precede the stem, and 'dependent motional stems' (DMS's), which always follow the independent stem.[13] One particular pattern observed, then, was:

LP – STEM – DMS

[13] Jacobson (1980) originally labelled these 'dependent verb stems'; however, DeLancey (1989) found in Klamath other dependent stems which did not fit the category and, as most elements had a motional/locational sense, he modified the term to '**d**ependent **m**otional **s**tem' (DMS).

However, a second pattern is also common in which the LP and DMS, although themselves being bound morphemes, form an independent, *bipartite* verb stem without an intervening independent stem included (as seen in the previous pattern), such that the construction is:

LP – DMS

A description of this structure is given in Table 2.4.

Morpheme	LP	DMS
Morphological description	|ks|	|elwy|
Semantic component	Manner	Path
Meaning	*act upon a living object*	***by*** *the fire;* ***along*** *the edge;* ***into*** *water*

Table 2. 4: Bipartite verb stem in Klamath.

Further, DeLancey (1989) shows up to 20 morphemes in the LP classification with meanings such as: *run*, *swim* (fish), *peek*, *glance* and *burn* – many of which describe Manner of motion (DeLancey 1989: 32); whereas the morphemes of the classification of DMS express other motional notions such as: ***to*** *the shore*, ***down*** *from a height* and ***out of*** *a container*, which are clearly directional in nature or, in Talmyan description, encode the Path component of a Motion event.

The features of this pattern were extended by DeLancey (1989) to include languages from the region, such as Sahaptin, Washo and Atsugewi.

In 'generic verb' languages, there is a small stock of verbs expressing deixis or aspect. These are combined with satellite-like elements, or 'coverbs', encoding Manner and Path

in the same way, neither of which is considered subordinate to the other and so neither can be assigned 'main verb' status (Slobin 2006: 5).

2.1.4.3 Talmy's Rejection of 'Equipollence'

Talmy claims that he is open to the possibility of extending his binary typology to include a third category, and also agrees that the correct way of viewing this third category would be as per Slobin's *equipollence*, if a valid case were presented (Ibarretxe-Antuñano 2003: 328). However, Talmy (2012) strongly rejects the equipollent counter example to the two-way typology and suggests that 'without independent justification', the challengers focused solely on a pairing of just two constituent types out of the five that make up a full Motion event – namely, Path and Co-event – on which to base their claim of equipollence (Talmy 2012: 4). Talmy (2012) continues the rebuttal proposing that homing in on these two elements is a 'mis-selection' (ibid: 4) and that 'the criteria used for judging main verb status have been too few' (ibid: 4).

A specific example of Talmy's rejection of equipollence concerns Atsugewi which is deemed not to be equipollent but, rather, fits neatly into one of the two categories of the binary typology as it is ranked higher on factors such as co-occurrence, class size, phonology and semantics and the Figure-specifying constituent type (and its semantic alternatives) should be considered to constitute the verb root (Talmy in Ibarretxe-Antuñano 2005: 335).

The suffix in Atsugewi is in a subordinate relationship to the main verb root. Further, as the core schema (i.e. Path) of the motion event is expressed in this constituent, Talmy identified this language as *satellite-framed* (Talmy 2012: 13).

The account Slobin provides for assigning main-verb status (or the lack of it) is, one could argue, somewhat impoverished when compared to Talmy's multi-factorial designation of main verb status. Slobin makes his case on morphological grounds alone; whereas Talmy considers a series of factors which 'tend to mark a particular constituent type as the main verb (root)' (Ibarretxe-Antuñano 2005: 330). As shown, these factors include: morphology, syntax, co-occurrence patterns, class size, phonology and semantics – a categorisation far more complex and encapsulating than that of Slobin.

Considering the complexity of Talmy's account and the narrow focus of Slobin's 'equipollence' argument, it is not difficult to see how Talmy would view this 'proposal of

an indeterminate or equipollent pattern as novel and deserving of further examination' (Ibarretxe-Antuñano 2003: 329) but claim that it contains too many oversights (Talmy 2012: 4) and that, ultimately, the binary typology, although extended and modified over time between Talmy (1985) and Talmy (2000), remains intact.

2.1.5 Summary of Part One

This first part of the chapter traced the development of, and challenges to, a typology of the world's languages in terms of how motion is typically expressed: in the verb or in a 'satellite' to the verb. The initial observations of lexicalisation patterns were expanded upon by Leonard Talmy and a comprehensive and complex theoretical framework was constructed based upon the relevant semantic components (e.g. Figure, Ground etc.). What emerges is that in V-languages such as Spanish, Path is inherent in the verb, while in S-languages such as English, the verb expresses the Manner of movement.

In the second part of this chapter, the semantic component Path will receive particular attention. As will be seen, there are many types of Paths in motion description which have implications for the inclusion of Manner of Motion verbs in the expression of a motion event.

Part 2 – Paths in Motion: Literal to Non-literal Motion

2.2 Motion and Paths

In Part 1 of this literature review, an historical overview of the development and evolution of a sophisticated and systematic account of how motion is represented in language and, also, how different languages express similar motion events was provided. Further, the categorisation of the world's languages into a binary typology of V-languages (verb-framed languages) and S-languages (satellite-framed languages), based on whether the core schema (or core meaning) of the motion event (i.e. its directionality) is inherently expressed in the motion verb or in a 'satellite' to the main verb, was also presented.

Lastly, some important critiques of, and challenges to, Talmy's typology were systematically discussed, such as: the definition of a 'satellite' (§2.1.3); the sub-types proposed for the binary typology (§2.1.3); and main verb status (§2.1.4). However, one could argue that Talmy successfully defended his two-way categorisation of languages and his typology remains intact. But this perspective would not be a complete description of the situation, as will be shown in following sub-sections, as while the categorisation of English remains intact, the categorisation of Spanish has undergone many refinements in terms of manner of motion verbs and types of phrases in which they can appear.

In this section, however, the focus will be on the notion of 'Path' in motion events. As will be seen, some scholars have observed that there are various types of Path that can be expressed in language and that these types place certain restrictions in particular on the realisation of a Manner verb in the expression of a motion event.

2.2.1 Typology Leakages and Refinements

The by now classic example Talmy put forward to demonstrate the distinction between V-languages and S-languages in terms of motion+manner or motion+path conflation, as previously shown, (see §2.1.2.4 for a detailed discussion) is given again in 7a and 7b:

7a) Spanish non-agentive motion-type framing event (Talmy 1991: 487):

*La botella **salió** flotando.*

'the bottle exited floating'

7b) English non-agentive motion-type framing event (Ibid: 487):

The bottle floated ***out.***

In 7a), the core schema, the Path (i.e. the trajectory or directionality), is expressed by the verb, and the gerundive form expresses the 'supporting event' (or Co-event) of Manner; while in 7b), the core schema is expressed by the satellite *out* and the 'supporting event' is expressed by the verb *float* (Ibid: 487).

However, a speaker of Spanish, and indeed other V-languages, such as Italian, Portuguese, French etc., would know that in these languages the conflation pattern of motion+manner is not only possible but can be the more natural form of expression and that there seems, then, to be a 'leakage' in the typology. Table 2.5 provides some equivalents from these V-languages for English manner+motion conflation verbs.

English	Spanish	Italian	Portuguese
run	*correr*	*correre*	*correr*
float	*flotar*	*galleggiare/flutuare*	*flutuar*
roll	*rodar*	*rotulare/viaggiare*	*rolar/rodar*
slip	*deslizar(se)*	*scivolare*	*escorregar*

Table 2. 5: Spanish, Italian and Portuguese manner+motion conflation verbs.

It would seem that the simple binary categorisation of verb-framed and satellite-framed language patterns in motion event expression would be insufficient to account for the acceptance in V-languages of an S-framed pattern. Something else needs to be considered to account for these verbs.

Scholars such as Aske (1989), Slobin and Hoiting (1994) and Naigles et al (1998) had as a core objective to investigate the specific linguistic environments in which these manner verbs were permitted and in which path verbs are not only chosen but are obligatory. From each of these studies emerged further important refinements to Talmy's (1985) typology and his prediction that all types of motion events in Spanish were more likely to be described with path verbs than manner verbs (Naigles et al 1998: 541).

2.2.1.1 Aske (1989)

Jon Aske (1989) found that telicity in motion events was a determining factor in the realisation or non-realisation of manner+motion conflation patterns in Spanish. Firstly, he suggested that two types of directional or path phrases were possible in English, depending

on the role each would execute. The first would modify the verb or predicate a location of the whole proposition; the second would predicate an end-point location of the Figure argument of the sentence (Aske 1989: 6).

The two types of path phrase are described as:

(i) **Mere locative path phrase** – adds the location (i.e. path or one-dimensional region) in which the activity took place.

(ii) **Telic path phrase** – predicates an end-of-path location/state, a 'culmination point' of the Figure.

Examples of i) and ii) are given in 8a) and 8b), respectively:

8a) Lou ran **in the park**; Pat went **up the ladder**.

8b) Pat swam **into the cave**; the leaf blew **off the table**.

Aske (1989) suggests that a 'telic path phrase acts semantically as a special type of non-verbal predicate (NVP)…in that it predicates both the path of motion and the end-of-path location/state of the Figure' (Ibid: 6).

The fundamental difference, then, between the examples given in 8a) and 8b) is that, in 8a), only the location, or path, of the activity is given, while in 8b) the path ***and*** the resultative location of the activity is expressed, i.e. the sentence *Pat swam into the cave,* then, expresses that he swam into the cave ***and*** he is located in the cave as a result. Aske (1989) points out that the second example given in 8b), *the leaf blew **off the table***, is telic, or resultative, as, sometimes, the location of the Figure is 'negatively' defined with respect to the Ground (i.e. *off the table*); *the table* here is the Ground while the preposition *off* predicates the source Path (Ibid: 7).

Aske (1989) observed that only one-dimensional locative path phrases can be expressed in Spanish but that telic path phrases are non-existent in this language mainly due to the complete lack of resultative non-verbal predicates (Ibid: 6).

Aske's (1989) findings for Spanish motion events can be summarised as follows:

i. The use of manner-of-motion verbs is restricted to descriptions of motion events that take place at or in a single location;

ii. These descriptions of motion events will use locative path phrases such as: *en la casa* (in the house), *hacia el bosque* (towards the forest), *por el tunel* (through the tunnel) etc. and can appear with manner verbs much as in the English pattern.

iii. Motion events which have definite endpoints or sources, and which are described by such resultative (or *telic*) path phrases as *a la casa* (to the house) and *del edificio* (from the building) must appear with path verbs and follow the Spanish pattern.

(Naigles et al 1998: 541)

From this evidence, it can be said that Spanish has a mixed system of motion event description in that motion of the Figure at or around a location permits the conflation of manner+motion in the verb, while those motion event descriptions which depict the source or endpoint of the Figure require the use of a verb which conflates path+motion and does not permit the manner verb pattern seen in English (Aske 1989: 11).

2.2.1.2 Slobin and Hoiting (1994)

Dan Slobin and Nini Hoiting expanded the investigation of manner verb realisation and restrictions in path phrases to include other V-languages such as French, Turkish and Japanese. These scholars, along with others such as Cifuentes-Férez (2014) concur that a mixed system of motion event description in terms of manner verb and path verb encoding, as reported by Aske (1989), is evident in these languages; however, the linguistic environments in which manner verbs were permitted were narrower than Aske's telic, or resultative, path phrases.

This 1994 study took as its starting point Sign Language of the Netherlands (SLN) which, like American Sign Language (ASL), is derived from Old French Sign Language (Slobin and Hoiting 1994: 488). These scholars included SLN in their study in order to apply Talmy's typology to a language of a different modality to spoken languages.

Slobin and Hoiting (1994) classify SLN, along with ASL and spoken serial-verb languages, as a 'complex verb-framed language'. The verb matrix in SLN consists of two to three verbs, and follows the typical, or universal, conceptual pattern of serial-verb languages:

Manner-Direction-Goal

That is, a verb of manner is followed by a linear Path verb if the Figure is moving towards or approaching a Goal, as in 9a).[14] However, if the Figure traverses a boundary, (i.e. enters into somewhere, exits from somewhere or crosses some dividing line), as in 9b) and 9c), a second, path verb is required, which in these examples is one of the generic verbs meaning to 'enter', 'exit' and 'cross' (Ibid: 491):

(9a) English sentence

*The man ran **up to** the house.*

SLN construction

2-verb structure: V1 *run* + V2 linear path verb of directionality

SLN semantic schematisation

RUN – APPROACH.

9b) English sentence

*The man ran **into** the house.*

SLN construction

3-verb structure: V1 *run* + V2 linear path verb of directionality + V3 boundary-crossing path verb

SLN semantic schematisation

RUN – APPROACH – ENTER

9c) English sentence

*The man ran **across** the street.*

SLN construction

3-verb structure: V1 *run* + V2 linear path verb of directionality + V3 boundary-crossing path verb.

[14] The Manner verb is optional in the motion event description, as in spoken languages.

SLN semantic schematisation

RUN – APPROACH – CROSS.

Slobin and Hoiting (1994) showed that SLN makes a distinction between motion events consisting solely of a linear path and those consisting of either a boundary crossing or the entering or exiting of an enclosure. The linear path is performed by a single one-handed gesture. To express the enclosed space, a second 'covering hand' is used; the boundary crossing also requires a second hand to gesture an arc, expressing that the path is obstructed in some way (Ibid: 493).

From this distinction, two types of path orientation could be developed for motion events: a *path orientation* and a *boundary orientation*; the former closely resembles Aske's (1989) *non-telic path phrase* and the latter was developed to correct an important limitation to his *telic path phrase*.

The *path orientation* focuses on the path itself, moving in space from one 'non-configured' point to another, and corresponds to Aske's (1989) *mere locative path phrase.* A manner verb is permitted here in most V-languages and only described is either the path itself or the arrival at a goal, with no predication of a specific location endstate except for proximity to a Ground (Ibid: 495). Slobin and Hoiting (1994) found many examples across a variety of V-languages which lend support to Aske's *mere locative path phrase*.

However, the *boundary orientation* path seeks to replace Aske's *telic path phrase* as many examples were found that contradict the restriction proposed for the realisation of manner verbs in motion events which have definite endpoints or sources.

The Spanish example given in 10a) clearly shows a manner verb being used in a motion event with a definite endpoint:

10a) *El hombre corrió hasta la casa*

'the man ran to the house'

(Ibid:496)

La casa (the house) here is an end Goal that the Figure, *el hombre* (the man), reaches; the verb of motion is a manner verb and the Path is expressed by the adpositional phrase *hasta* (to).

Thus, Aske's telic path phrase explanation cannot fully account for the restriction of manner verbs in certain motion event descriptions. Slobin and Hoiting (1994) did, on the other hand, find that there was something unique about the three serial path verbs in SLN which denote 'enter', 'exit' and 'cross'.

These verbs all depict paths that specify a particular configured relationship of Figure to Ground in which the Ground is either an enclosure or a boundary – into, out of or across which the Figure passes (Ibid: 493) – and the motion needs to be encoded in a particular way.

Just as SLN mandates an extra gesture to express these 'boundary crossings', spoken V-framed languages require a separate main verb which cannot indicate manner of movement (Ibid: 498).

2.2.1.3 Naigles et al (1998)

The multi-modal study carried out by Naigles et al (1998) used static depictions of motion (as did Slobin and Hoiting 1994) but was novel in that it also employed video footage of motion events, which were shown to both native Spanish and English speakers in order to elicit path and manner verbs.

The reason for using video footage was that it diminished the ambiguity sometimes present when describing motion events using static pictures as in the Frog Story used by Slobin and Hoiting (1994) (Naigles et al 1998: 540).

As with Aske (1989) and Slobin and Hoiting (1994), it was found that Spanish manner verbs were acceptable in motion scene descriptions in which the Figure did not cross a boundary or enter or exit an enclosure.

Using the prepositions *a* (to), *de* (from) and *para* (to) along with source or goal nominatives as diagnostics of resultative events in Spanish descriptions, Naigles et al (1998) found that 55 (72%) out of 72 utterances containing one of these diagnostic prepositions contained path verbs; 21 (28%) contained manner verbs. This demonstrates a preference for path verbs but not an absolute restriction on manner verbs when using these telic path prepositions (Ibid: 538).

As would be expected from Slobin and Hoiting's (1994) prediction, however, a path verb was always used when describing the Figure crossing a boundary (i.e. entering or exiting an enclosure) (Ibid:542).

However, there was a very interesting finding in this study which may call for a further refinement to the linguistic environments which require a path verb.

Naigles et al (1998) observed a contrast in Spanish speakers' descriptions of horizontal and vertical boundary crossing (entering/exiting buildings and entering a swimming pool, respectively). Across the six horizontal boundary crossing events, an average of 1.92 manner verbs was evident and 9.08 path verbs. The polar opposite was reported, however, for the two vertical boundary crossing events as there was a clear preference for manner verbs to describe the Figure entering the pool: an average of 9.25 manner verbs was reported in this case, 1.0 path verbs and 0.75 other verb. A surprising finding from this study was thus that in those motion events in which vertical motion was investigated, Slobin and Hoiting's (1994) prediction is not realised.

Naigles et al (1998) suggest that the most likely explanation for the high use of manner verbs in vertical boundary crossing in Spanish involves the degree of *control* that the Figure executes in the action. The manner-of-exertion seemed to be more salient than the action of crossing the boundary, i.e. the Figure was in control of the initial exertion but, as gravity brings the Figure down and into the water, the boundary crossing is a 'by-product' of the initial action.

These researchers acknowledge, however, that more investigation is needed to test vertical and horizontal planes in boundary crossing motion events before these assumptions can be confirmed.

However, there is another potential explanation for this unexpected high usage of manner verbs in that the scene involves two distinct but interdependent segments: the initial exertion and the second action of crossing the boundary, as already suggested by Naigles et al (1998) above.

The distinction here, though, is that this explanation makes use of the two types of path as proposed by Slobin and Hoiting (1994): *path orientation* and *boundary crossing orientation*. The Figure first follows a path orientation and, therefore, no restriction is placed on the use of a manner verb; next, the Figure crosses the boundary but a path verb

is neither required nor necessary to express this action as the context (entering a swimming pool) provides this information. The connection between the two events (i.e. the two types of path) is a natural and simple relation of contiguity – 'natural' in the sense that, if an object is launched, or launches itself, upwards and providing no impediment is put in its way, it will naturally return back down to the ground.

However, just as acknowledged by Naigles et al (1998), the proposal put forward here is tentative at this stage. An interesting prospect would be to investigate vertical boundary crossings in which the Figure *exits* rather than enters the enclosure.

It should also be noted that perhaps a purely linguistic perspective to this phenomenon is not sufficient to gain useful insights but that a more cognitive linguistic or psychological approach might prove more fruitful (e.g. Matlock 2010 etc.).

2.2.1.4 A Summary of Refining the Characterisation of Spanish as a Path-Conflating Language

It is perhaps prudent at this point to summarise all the refinements proposed to the characterisation of Spanish as a path-conflating language and the increasingly narrower set of motion events which mandate a path verb and not a manner verb in motion event description.

Firstly, Talmy (1985) stated that *all* motion events in Spanish required Path to be expressed on the verb and that manner verbs could not lexicalise motion (Aske 1989: 2). Aske (1989) proposed that manner could be expressed on the verb but not in motion events with definite sources or endstates. Slobin and Hoiting (1994) further refined the restriction of manner verbs to boundary crossing motion events. A final refinement has been, albeit, tentatively, forwarded by Naigles et al (1998) in which only horizontal, as opposed to vertical, boundary crossing motion events, do not permit the use of manner verbs.

2.2.2 Non-literal Paths of Motion

The previous section concentrated on the various refinements proposed for characterising Spanish motion events in which path verbs were mandatory and those which restricted the use of manner verbs.

This section will explore how paths of motion are used in domains other than that of literal motion, i.e. it explores non-literal uses of paths of motion in language in various sensory domains, such as vision.

The progression from actual motion event description (*factive* motion), as discussed thus far, to these other sensory domains, in which similar structural patterns of motion are evident when no actual motion occurs (*fictive* motion), will also be traced.

The section also contains a detailed discussion of the sophisticated classification of the various types and sub-types of fictive motion paths, along with the components comprising the relevant Paths of fictive motion.

Researchers such Talmy (1996, 2000), Slobin (1996, 2008), Rojo and Valenzuela (2003, 2005), Caballero (2009) and Cifuentes-Férez (2014) have all investigated fictive motion focusing their attention mainly on the domain of *vision* in a narrative context. However, some other researchers, such as Caballero (2007), have reported the presence of manner-of-motion verbs depicting fictive motion in oinoglossia, which is primarily concerned with olfactory and gustatory sensory domains in a non-narrative genre of texts. This section thus ends with a discussion of investigations into other sensory domains in which fictive motion is also pervasive.

2.2.2.1 From Physical Motion to Visual Motion

Gruber (1967) is widely considered to be one of the earliest attempts at explaining the similarities between verbs of motion and verbs of vision (e.g. *see* and *look*) from a syntactic and semantic perspective. It was noted that the same sub-set of prepositions used with verbs of motion, indicating the goal, are also utilised with verbs of vision.

The verb *see*, however, was shown to have special characteristics which resulted in the preposition *to* not being present in transitive uses of the verb, as in 11)

11) **The bird saw **to** the nest.*

Gruber (1967), employing Chomsky's (1965) syntactic theory, accounted for this non-realisation by suggesting that the preposition is present at an underlying level:

> One of the non-terminal features of MV (Main Verb) is Motional … this feature would characterise the ordinary verb of motion, and would specify that the prepositional phrases possible in the verb phrase after *see* (or any verb of motion) be ***expressions of goal*** (i.e. based on the underlying *to*).
>
> (Gruber 1967: 940)

Gruber (1967) argued for the conceptual connection between motion verbs and vision verbs in the following incremental stages. Firstly, sentences such as 'John *sees* a cat' could be considered a metaphorical extension of 'John *goes to* the cat'; likewise, 'John *sees across* the room' is similar in underlying syntactic structure to 'John *goes across* the room' and by semantic extension, this is the same as saying 'John's *gaze goes across* the room' (Ibid: 941). Again, Gruber points out that this is made possible as, at the underlying syntactic level, the preposition *to*, which indicates a goal, is present, but not actually manifested at surface, or *terminal*, level.

2.2.2.2 Fictive and Factive Motion

However, the most comprehensive and illuminating discussion of motion and vision appears in Talmy (1996, 2000) in which a complex and comprehensive categorisation of non-literal motion, along with all the various categories and sub-categories of Path types and their constituents, is presented.

The framework also aims to explain the linguistic conceptualisation of visual instances in which one perceives motion with no physical occurrence. For example, the perceived 'apparent motion' in successive flashes along a row of light bulbs; the perception of movement of a static linear entity such as a road or path, as in 12a); the conceptualisation of an object's shadow moving from that object to the surface upon which it is visible 12b); or the conceptualisation of individual entities as following a specific 'pattern' path 12c).

12a) *This road* ***goes*** *from Modesto to Fresno* (Talmy 2000: 103).

12b) *The tree* ***threw*** *its shadow across the valley* (Talmy 1996:224)

12c) *As I painted the ceiling, (a line of) paint spots slowly* ***progressed across*** *the floor*. (Ibid: 236)

Talmy (1996) proposes 'a unified account of the extensive cognitive representation of non-veridical phenomena – especially forms of motion – both as they are expressed linguistically and as they are perceived visually' (Ibid: 211). In other words, this is 'an account of the cognitive systems involved in perceiving and describing unreal phenomena' (O'Connor 2006:1127).

The term developed by Talmy to describe these 'unreal' phenomena in vision events was 'fictive' motion, with its 'real' counterpart termed 'factive' motion.

Talmy (1996) elaborates on the veridicality (or lack of it) in factive and fictive motion as follows:

> Factive is veridical in that the assessment is produced by a cognitive system – not to suggest that a representation is in some sense objectively real.
>
> Fictive refers to the imaginal capacity of cognition – not to suggest that a representation is somehow objectively unreal.
>
> Talmy (1996: 212)

Broadly speaking, there are six categories of fictive motion paths, as presented by Talmy (1996, 2000):

1. Emanation
2. Pattern paths
3. Frame-relative motion
4. Advent path (site manifestation and site arrival)
5. Access paths
6. Coverage paths

See Figure 2.3 for the fully expanded graphical representation of the various types of fictive motion paths.

Of the eighteen different types and sub-types of fictive motion paths developed by Talmy (1996, 2000), only sensory Emanation paths will be discussed here due to their importance and relevance to this doctoral research. Highlighted in blue and green in the graphical representation (Fig 2.3), are these relevant concepts. Further, Talmy presents '*sensory paths*, including *visual paths*, as one of the most well-represented *Emanation paths* in language' (Ibid: 224, my emphasis).

As mentioned previously (§2.1), Leonard Talmy developed a sophisticated theoretical framework to provide a systematic account of the phenomenon of motion representation in typologically dissimilar languages from the 'initial gathering and sorting of related phenomena' by other scholars (Ibarretxe-Antuñano 2005: 328). Similarly, Gruber's (1967)

initial observations and contributions were greatly expanded upon by Talmy (1996, 2000) in relation to non-literal, or *fictive*, motion in language.

One of the most important elements of Gruber's (1967) observations was the subject's 'gaze' (§2.2.2.1) moving from him/her to the object of the vision event; this is reinterpreted as some 'intangible moving object' in Talmy's description of sensory paths.

Therefore, visual sensory Emanation paths consist of two entities: the *Experiencer* (i.e. the *observer* (Cifuentes-Férez 2014: 218)) and the *Experienced* (i.e. the *perceived entity* (Ibid: 218)); and also, 'something intangible' moving in a straight path between the two entities in one direction or the other' (Talmy 2000: 115).

Talmy proposed two different ways to conceptualise the relationship between the Experiencer, Experienced and the 'intangible moving object', as follows:

Experiencer-as-Source type of sensory path:

> The Experiencer emits a ***probe*** that moves from the Experiencer to the Experienced and detects it upon encounter with it.

Experienced-as-Source type of sensory path:

> The Experienced emits a ***stimulus*** that moves from the Experienced to the Experiencer and sensorially stimulates that entity on encounter with it (Talmy 1996: 224).

Vision, then, is either a probing system which emanates from or is projected forth by the viewer to detect a particular object; or, conversely, it is a visual quality emanating from that object to the individual, stimulating the visual experience in him or her (Talmy 2000: 115).

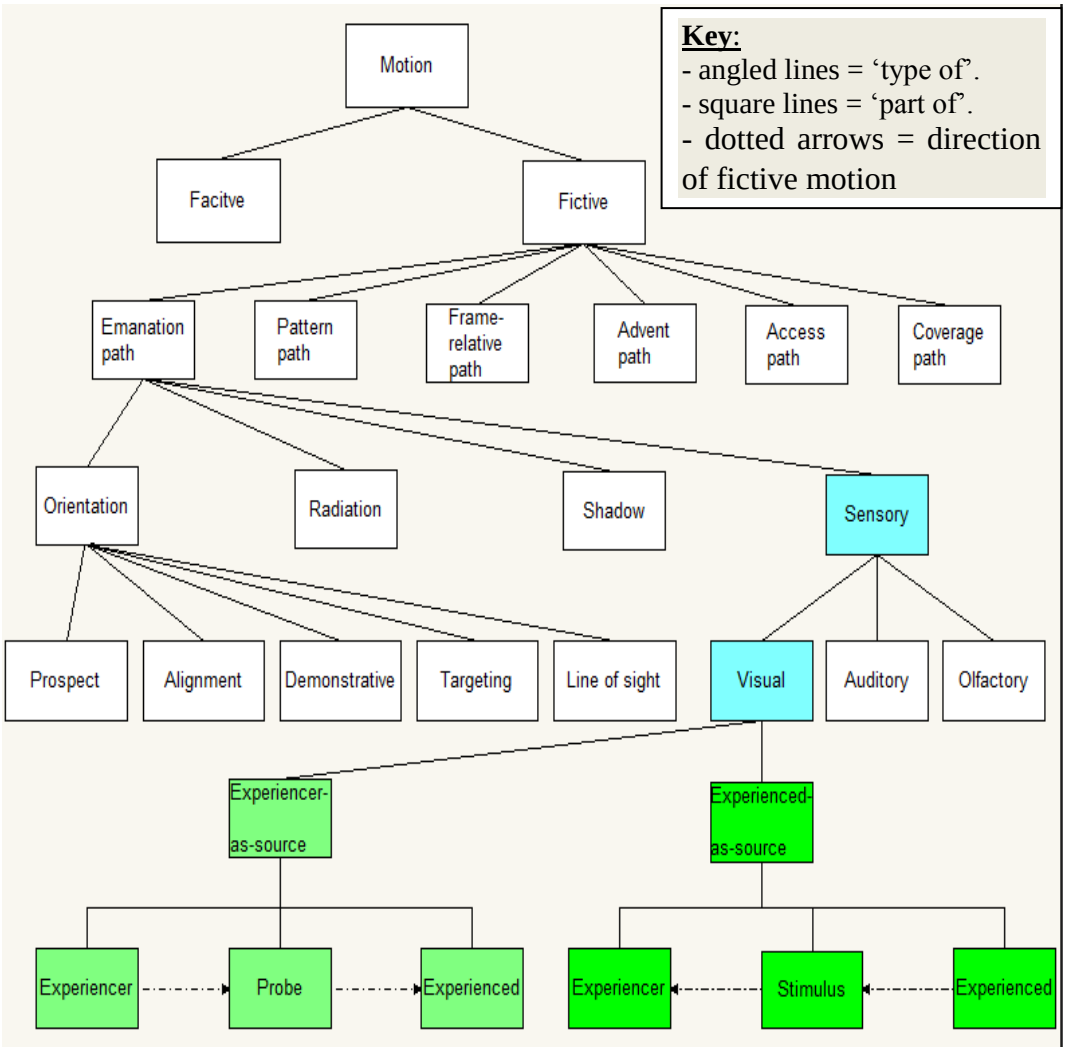


Figure 2. 3: Paths of fictive motion in vision.

Talmy (2000) points out, however, that it is the first, namely the Experiencer-as-source, which is generally favoured in fictive visual paths (Talmy 2000: 116).

2.2.3 Path and Ground Properties of Visual Sensory Paths

As already seen, Talmy (1985, 1991, 1996, and 2000) proposes that all motion events consist of the following four semantic components: Figure, Motion, Path and Ground (see §2.1.1.1 for a more detailed discussion) (Talmy 2000: 25).

However, as will be shown in this section, in order to provide a systematic approach to the analysis of visual paths in a given language, Talmy (1996, 2000) further developed the notion of Path and Ground and the components of which each is comprised.

2.2.3.1 Vision Verbs versus Motion Verbs

The connection between vision verbs and motion verbs has been well documented in this chapter. However, these verbs are not identical and one important distinction should be

made at this point. The main difference is that motion verbs can encode Path (i.e. 'enter' in English and '*entrar'* in Spanish), which vision verbs cannot. As Cifuentes-Férez (2014) indicates, no verbs exist that encode 'look inward/through/up' etc. and, as a consequence, a ground element(s) must be employed (Cifuentes-Férez 2014: 220).

Further, Slobin (2008) points out that, due to the observer not actually moving, visual paths are less complex and usually do not exceed two Ground elements (Slobin 2008: 204).

2.2.3.2 The Components of Visual Paths

According to Talmy (2000), the four components of a visual path are: Vector, Conformation, Deixis and Earth-grid Displacement.

Vector of Motion

The Vector of motion refers simply to the direction of motion of the Figure with respect to the Ground and comprises the departure, traversal or arrival of the Figure in relation to the Ground. Thus, Vector can denote motion from a source, past or along a milestone and to or towards a goal (Talmy 2000: 53). Schematised in Figure 2.4 are the three types of Ground involved (source, milestone and goal) and the corresponding types of Vector.

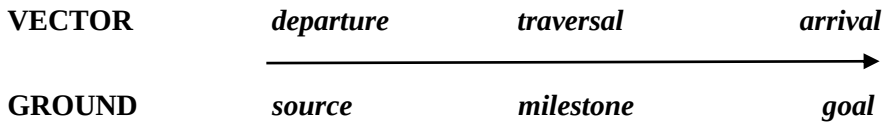


Figure 2. 4: Vectors of visual path and Ground elements.

Talmy (2000) proposes the following set of Vectors of motion which are applicable to visual paths:

From a Source	Past or Along a Milestone	To or Towards a Goal
MOVE FROM	MOVE VIA	MOVE TO
MOVE FROM-TO	MOVE ALONG[15]	MOVE TOWARDS
	MOVE ALENGTH	

[15] In Talmy's terminology: ALONG refers to movement over an unbounded extent such as '[the] ball rolled *down* the slope/*along* the ledge'; ALENGTH refers to movement over a bounded extent such as '[t]he ball rolled *across* the rug/*through* the tube' (Talmy 2000: 53-54, my emphasis).

What is apparent from all of these Vectors is that they describe the actual movement or relocation of a Figure in relation to a Ground; however, there are situations in which a Figure does not move and is not described as leaving one location or arriving at another etc. but, rather, is described as simply 'being located' at a particular site or position.

Therefore, it is perhaps important at this point to expand upon the initial, brief introduction given at the start of this chapter (§2.1.1.1) in relation to two specific semantic components of a motion event, 'Motion' and 'Path', and to show how Talmy accounts for the 'stasis' or 'location' of a Figure in his Motion-aspect formulas and Path components.

Saeed (1997) defines the concept of 'Motion' as 'the presence *per se* of motion or *location* in the [motion] event' and 'Path' as 'the course followed or the *site occupied* by the Figure with respect to the Ground object' (Saeed 1997: 245, my emphasis). The two related concepts 'location' and 'site occupied' are of most importance here and motion events consisting of a Figure's stasis at a particular point are captured by Talmy's (2000) Motion-aspect formula 'BE$_{LOC}$AT a point for a bounded extent of time', which is exemplified by the sentence '[t]he napkin lay on the bed/in the box for three hours' (Talmy 2000: 53). Here, the Figure (*the napkin*) is static at a particular point (i.e. the Ground *the bed/the box*) and does not move to or from it but, instead, remains at that same location.

As will be discussed in more detail in later chapters of this thesis (§4.1.4), this type of Vector was quite common in metaphorical motion events observed in both the Spanish and English corpora of this study. In the English corpus, for example, metaphorical motion events containing verbs such as 'linger' are afforded the Vector BE$_{LOC}$AT, as in '…a delicate hint of citrus fruit *lingers in the background*' (source: The Beer Connoisseur, my emphasis).

Conformation

The Conformation is related to the Ground geometry, which can be conceptualised as a container (e.g. move into, out of), a surface (e.g. on), or a point in space (e.g. past), etc. (Talmy 2000: 54).

The relevant Conformations for visual paths are found in the geometry of enclosures, lines and planes; that is, the configurations that are involved in boundary-crossing which, in English, yield Path expressions such as:[16]

- *into*
- *out of*
- *across*
- *through*

Deixis
The deictic component of Path typically has only the two member notions: 'toward the speaker' and 'in a direction other than toward the speaker' (Ibid: 56).

Earth-grid displacement
This component relates ***Path directedness*** to ***earth-based geometry*** and yield Path expressions in English such as:

- *up-down*
- *over*
- *north-south*
- *east-west*
- *other absolute, earth-based coordinates*

(Talmy, 2000: 201-203)

2.2.4 Studies Employing Path and Ground Components

This section describes two studies which employed the notions laid out above in order to better understand visual path expressions in V-languages and S-languages. Some research has continued into motion expressions and their use in describing sensory perception from a cross-linguistic perspective (e.g. Caballero 2017); other scholars turned their attention to focusing on the challenges translators encounter when crossing this typological divide (e.g. Cifuentes-Férez 2015). However, to our knowledge, only the present study and those two described in this section are uniquely concerned with cross-linguistic investigations of Path complexity in fictive or metaphorical motion events.

[16] Talmy states that '[E]ach language *lexicalises* its own set of…geometric complexes' (Talmy 2000: 54, my emphasis) and that '…the vector plus the fundamental Ground schema 'VIA a point', can be combined with the Conformation 'which is to one side of [a point]' to *yield* 'past' (The ball rolled *past* the lamp at exactly 3:05) (Talmy 2000: 56, my emphasis). Slobin (2008) makes more explicit use of the term *Path expressions* to refer to prepositions and directional adverbs such as 'across', 'along', 'in' etc.

As will be discussed in later sections of this thesis (§5.1), the two studies revised below were unique in various ways from the point of view of the present study and are discussed below.

2.2.4.1 Slobin (2008)

Slobin (2008) was concerned with cross-typological differences in Path complexity and the combinations of the components that were evident in V-languages and S-languages. Table 2.6 shows the Path component combinations observed.

Path Complexity	Example	S-languages (English/ Russian)	V-languages (Spanish/ Turkish)
1 Vector + 1 Ground	*Look from X*	✓	✓
1 Conformation + 1 Ground	*Look through X*	✓	✓
1 Deictic + 1 Ground	*Look behind X*	✓	✓
Vector FROM-TO + 2 Grounds	*Look from X to Y*	✓	✓
1 Earth-grid + 1 Ground	*Look up/down at X*	✓	
2 Conformations + 1 Ground	*Look out into X*	✓	
2 Conformations + 2 Grounds	*Look past X into Y*[17]	✓	
1 Earth-grid + 1 Conformation + 1 Ground	*Look down into X*	✓	
1 Conformation + 1 Deictic + 1 Ground	*Look out from behind X*	✓	

Table 2. 6: Visual Path complexity in S- and V-languages (in Slobin 2008).

The most noticeable feature of Table 2.6 is that S-languages appear to have more combinatorial possibilities of path components than do V-languages.

Slobin (2008) claims that 'just as these languages cannot combine two verbs in a single phrase, such as 'exit enter', they cannot express 'look out into' as a complex visual Path' (Slobin 2008: 210/14. Slobin (2008: 209/13) summarises the findings as such:

> With regard to visual paths in the data, all four of the languages under study use variants of 'look' with a single Path component and a Ground object, such as 'look from X' (Vector), 'look across X' (Conformation), and 'look behind X (Deixis). Furthermore, all four languages can mention two Ground objects if the Vector is move from-to: 'look from X to Y'. All four languages can also mention one Ground when combining one Vector and one Conformation component, such as 'look into' (move to + a point at the inside of an enclosure).

[17] This conformation was not in the original list developed by Talmy (2000).

2.2.4.2 Cifuentes-Férez (2014)

Cifuentes-Férez (2014) also had as one of its main goals the investigation of complexity in visual Paths, which are a sub-type of Emanation Path (see Fig. 2.3), using the various combinations of Path components (*Vector*, *Conformation*, *Deixis* and *Earth-grid displacement*) as a method of analysis. In particular, Cifuentes-Férez (2014) investigated whether the different lexicalisation patterns for motion events in English and Spanish also carry over into the domain of vision.

Table 2.7 shows the path complexity recorded for the Spanish-English corpus used in Cifuentes-Férez (2014).

Path Complexity	Example	S-languages (English)	V-languages (Spanish)
1 Vector + 1 Ground	*Look from X*		✓
1 Conformation + 1 Ground	*Look through X*	✓	✓
2 Deictic + 1 Vector + 1Ground	*Look left & right along X*	✓	
1 Deictic + 1 Conformation + 1 Ground	*Look back over X*[18]	✓	
1 Vector FROM-TO + 2 Grounds	*Look from X to Y*	✓	
1 Earth-grid + 1 Ground	*Look up/down at X*	✓	
2 Conformations + 2 Grounds	*Look through X into Y*	✓	
1 Earth-grid + 1 Conformation + 1 Ground	*Look down into X*	✓	
Vectors FROM-TO-TO + 3 perceived entities[19]	*Look from X to Y to Z*	✓	

Table 2. 7: Visual Path complexity in English and Spanish (in Cifuentes-Férez 2014).

The most obvious trend here is that the findings in Cifuentes-Férez (2014) are similar to those in Slobin (2008) in relation to the considerable complexity evident in S-language visual paths compared to V-language visual paths.

There are, however, fewer combinations (only two) of path components for V-languages in this study than reported by Slobin (2008), who reported four such combinations.

[18] This conformation was not in the original list developed by Talmy (2000).
[19] This vector was not in the original list developed by Talmy (2000).

2.2.5 Fictive Motion in Non-visual Sensory Domains: Introducing Oinoglossia

The language used by wine critics and tasters, *winespeak* (or *oinoglossia* in Silverstein 2004), has received the attention of numerous scholars over many years. Some have addressed its subjective nature, calling for the standardisation of terminology (Noble et al., 1987; Bernstein, 1998; Pierre, 1998; Moore 1999 etc.). Others have focused on the contrasts between the commentaries provided by novice and master tasters/critics (Lehrer 1983; Lawless, 1984; Solomon 1990 etc.), while attention has also been paid to the 'difficulties inherent in organoleptic perception and the concomitant difficulties in articulating the visual, olfactory and gustatory properties of wine' (Caballero 2007: 2099). Two of the main challenges facing the wine critic are the 'poverty of smell and taste terminology' and the highly economical nature of description required for the tasting notes (Caballero 2007); Manner-of-motion verbs, Caballero argues, compensate for this terminological deficit and aid the wine critics in their descriptions of the wine's most salient properties (Ibid: 2105).

The highly ritualised event of wine description and assessment has a temporal dimension (Lehrer 2009: 40) consisting of three stages: identification of (a) the wine's colour; (b) the 'nose', or smell; and (c) the 'palate' (further fragmented into mid-palate and back-palate (Gluck 2003: 107)) or the wine's flavour(s) and texture (Caballero 2007: 2098). These stages are recorded in texts known as 'tasting notes'. A tasting note (i.e. wine review) is typically 10-100 words in length, relies heavily on imagery, and is mimetic and iconic in nature as its principal function is to linguistically recreate the actual ritualised organisation of the tasting experience (Silverstein 2004: 641).

2.2.5.1 Why Fictive Motion?

As already briefly mentioned, the wine critic has a smaller set of nouns and adjectives to call on than is required to accurately describe the vast possibilities of aromas, flavours and textures etc. that emerge from the wine tasting experience and so needs to employ other linguistic means to articulate the properties of any given wine. Indeed, Gluck (2003) amusingly explains that the often pretentious and exclusive terms used in winespeak are merely 'cover-ups' and seeks to identify exactly what it is that the wine critic is trying to hide. The conclusion arrived at is his or her *struggle to communicate* (Gluck 2003: 107, my emphasis).

One very important linguistic device that aids the critic is the Manner-of-motion verb, the principal function of which is to 'enliven' the wine descriptions (Lehrer 2009: 40). More

specifically, verbs like *weave*, *glide*, *burst*, *emerge* and *creep* etc. play an important role in the description of the olfactory, gustatory and tactile properties of the wine which is 'determined by the idiosyncrasy of the genre concerned with verbalising the organoleptic sensations produced by that drink' (Caballero 2007: 2098).

An example of fictive motion in winespeak can be seen in example (13) where manner-of-motion verbs are highlighted in bold (my emphasis):

13)

> [This Chardonnay] presents a tight, solid, direct core of pear, apple, citrus and melon flavors, ***fanning out*** with a splash of toasty oak. ***Turns*** silky smooth, ***ending*** with a persistent anise and black licorice edge.
>
> Laube (2015)

2.2.5.2 Caballero (2007), Winespeak and Fictive Motion

Caballero (2007) investigated winespeak focusing on fictive motion and how it is employed in this genre and discovered a very systematic use of different types of Manner-of-motion verbs (henceforth, MoM verbs).[20] MoM verbs can be further categorised according to their semantic content (Slobin 1996; Özçaliskan 2004; Ibarretxe-Antuñano 2006), examples of which are:

> *Crawl*: refers to the motor properties of motion.
>
> *Run*: refers to rate of motion.
>
> *Stroll*: refers to attitude.
>
> *Swim*: refers to the medium where motion is affected.

Caballero (2007) adapted the classifications of MoM verbs to the genre of winespeak (i.e. olfactory and gustatory properties) in order to classify them according to two important dimensions in wine assessment: intensity and persistence.

For example, the semantic component of 'lower/higher energy' corresponds to the positive or negative force in '+/- force' while 'rate' corresponds to '+/- speed' (Caballero 2007: 2102).

[20] Özçaliskan (2004) called this 'metaphorical' motion.

A wine perceived as having 'forceful' or 'intense' flavours and/or aromas would be assigned a MoM verb from the extreme positive in the 'intensity' cline and may be combined with either 'abruptness' or '+/-speed'.

In order to give a more nuanced description, MoM verbs are placed into different categories depending on the combination of semantic features they are thought to contain; therefore, verbs like *sneak* and *float* would share the semantic property of '– speed' but would differ in terms of '+/- force' (the former having '+force', the latter '- force'. 14a) and 14b) demonstrate some other semantic categorisations of MoM verbs:

+force and **abruptness**[21]

14a)

> This wine *bursts from* the glass with violets, lilies, blueberries, cherries, blackberries, and buttery oak.
>
> (Caballero 2007: 2102, emphasis in original)

The combination of '+force' and '–speed' would be represented by a MoM verb such as *creep* or *sneak* to show that the flavour(s) present are 'discernible but not too strong or dominant' (Caballero 2007: 2104), as seen in 14b):

+force and **'–speed'**

14b)

> An austere style, showing more mineral and spice than fruit, though citrus and apple *creep* into the mix, ending on an almond note.
>
> (Caballero 2007: 2104, emphasis in original)

2.2.6 Emanation Sensory Paths in Oinoglossia

2.2.6.1 Modification of Talmy's (1996, 2000) Types of Fictive Motion

One important development gained from Caballero (2007) and Lehrer (2009) etc. is that an additional sensory modality can be included in Talmy's (1996, 2000) original list of sensory Path sub-types of Emanation Paths. The category of *Emanation Paths* was said to be the most well-represented in language and consisted of three sub-types: *visual*, *auditory* and

[21] We follow here the formatting style of Caballero (2007) of representing the combination of semantic features in upper case form.

olfactory. I propose that a fourth sub-type of sensory modality can now be added to this list: *gustatory* (e.g. ... *with fresh fruit* ***zipping along*** *the palate*...).

However, as will be seen (§6.2.3.1), the intertwining and interdependent nature of the sensory perceptions involved in gustation and olfaction often prove challenging to separate in textual descriptions of sensory experience, such as craft beer reviews and, therefore, it may be more profitable to fuse the two senses together to form a new type of sensory Emanation Path: *organoleptic*.[22]

Fig.2.5 shows a modified version of my original graphical representation of sensory Paths showing the relation between these concepts and offering an example for each one.

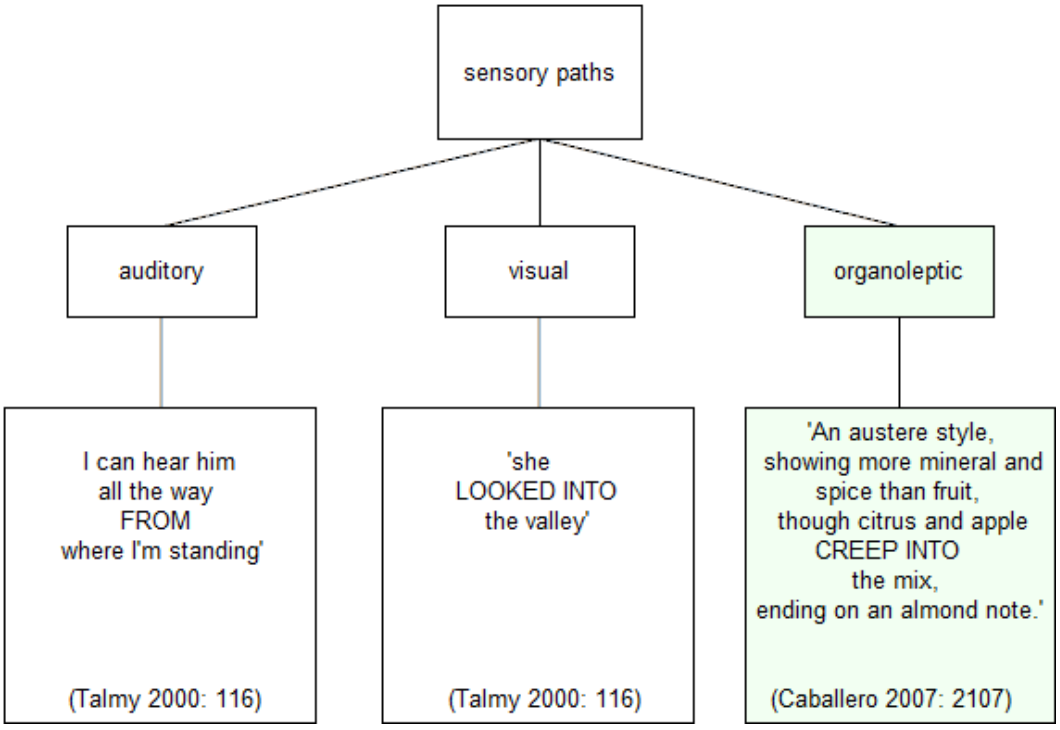


Figure 2. 5: Sub-types of Emanation sensory Paths & proposed modification (*organoleptic*).

Example 15a) is used below to illustrate how Talmy's Motion Event and components of visual sensory Paths can be applied to the organoleptic sensory domain.

15a)

[22] 'Organoleptic' is defined in www.winefrog.com as 'the way that one uses the senses to evaluate and judge the quality or *tastes* in wine by using the sensory organs like sight, *taste* and *smell* to take in the *flavors*, nuances, textures and *aromas* that are special to that particular wine' (my emphasis); Caballero (2007 and 2017) also places emphasis on the senses of taste and smell. Therefore, the term 'organoleptic' is employed here to refer uniquely to the two senses of olfaction and gustation and not to any of the other five human senses.

> This wine *bursts from* the glass with violets, lilies, blueberries, cherries, blackberries, and buttery oak.
>
> (Caballero 2007: 2102, emphasis in original)

The first semantic component seen here is the Figure, which is represented by *the wine* (i.e. its olfactory qualities); the Ground element is represented by *the glass*; while the Path component is represented by *from*, which, more specifically, is a Vector.

An initial observation that could be made from this simple example is that Path complexity in the olfactory domain consists of only one Ground element, which is consistent with Slobin (2008) (see §2.2.4.1) who proposes that visual Paths (i.e. sensory Paths) are less complex than Paths in factive motion descriptions.

2.2.7 Summary of Part Two

This second part of this chapter added more of a 'structural' theme to the discussion of motion in language. That is, the semantic components (i.e. Figure, Ground, Path etc.) that structure a fictive motion event were elaborated upon. Particular attention was given to Path and to its sub-components (i.e. Vector, Conformation etc.).

The third and final section will explore metaphorical language across a variety of sensory domains and the role it plays in meaning construal and description of sensory experience and perception.

Part 3 – Metaphorical Motion

2.3 Conceptual Metaphor Theory

One of the most insightful theories into meaning in language, one could argue, and one which will prove very useful for this exploration of figurative language in the genre of craft beer description and evaluation is the Conceptual Metaphor Theory (henceforth, CMT) as developed by Lakoff and Johnson (1980).

Metaphor is often seen as a poetic device or a linguistic adornment typical of great works of literary art. However, as Lakoff and Johnson (1980) point out, metaphor and metaphorical description is not simply a device reserved for those most gifted writers, neither does it concern language alone; it is, rather, a cognitive tool employed in our everyday lives which allows us to make sense of, and talk about, the world through direct contact and experiences with it. Metaphor, then, 'structures how we perceive, how we think and what we do' (Lakoff and Johnson 1980:4) as it is 'a cognitive phenomenon that organises the thinking process itself' (Ibid: 5). In other words, cognitive metaphors are 'basic resources for thought processes in human society' (Schäffner 2004: 1258).

2.3.1 Embodiment

However, before a detailed discussion of Lakoff and Johnson's influential CMT takes place, it is perhaps useful to firstly introduce a central notion for a cognitive approach to metaphor, 'embodiment'. The phenomenon of 'embodiment' concerns our physical experiences with the world and their importance in shaping our thinking processes, reasoning and, by extension, understanding our everyday experiences. The notion of embodiment has had a significant impact in many fields of academic enquiry such as psychology, neurology, linguistics and philosophy and emerged from the unease of scholars with the traditional view that thought was abstract and disembodied, independent of the limitations of the human body, perceptual system, and nervous system (Lakoff 1990: xiii). George Lakoff points out that, contrary to this view, thought is, in fact, *embodied* as:

> the structures used to put together our conceptual systems grow out of bodily experience and make sense in terms of it; moreover, the core of our conceptual systems is directly grounded in perception, body movement, and experience of a *physical* and *social* character.
>
> (Lakoff 1990: xiv, my emphasis)

In other words, thought and reason as *embodied* is rooted at the deep level of our inherited internal genetic makeup and the actual nature of our interactions in not only our physical environment but also our social environment (Ibid: xv).

Therefore, our experiences with the world around us, and how we perceive the information received from it, involve not only the brain that processes the information but, rather, the particular aspects of our physical bodies. Thus, embodied cognition is the direct result of the *interaction* between the brain and body both working in unison to create our cognition and not the traditional 'mind-separated-from-body' view that held sway in philosophy for two thousand years.

Wilson and Foglia (2011, my emphasis) encapsulate this interaction and interdependency as follows:

> Cognition is embodied when it is deeply dependent upon features of the physical body of an agent, that is, when aspects of the agent's body beyond the brain play a significant *causal* or physically *constitutive* role in cognitive processing.

Chandrashekar et al (2000) (see §5.4.2) explains the evolutionary based function of the tongue for detecting the potential for a food source to be beneficial or deleterious at the moment of ingestion. This organ is tuned to detect potentially poisonous chemicals (sour and bitter tastes) often manifested through the emotion of disgust. This emotion concerns 'strong physical components and explicit bodily changes, such as nausea, stomach-turning, throat clenching, food-expulsion…' (Wilson and Foglia 2011). Disgust, according to scholars such as Wilson and Foglia (2011) and Prinz (2004), transcends the realm of the physical to the domain of emotional and moral cognition; thus resulting in an embodied nature of moral cognition. In terms of a bodily connection to emotions, Niedenthal et al (2014) points out:

> '[h]eads are attached to expressive bodies that gesticulate, cower in fear, stand proudly, and gloomily shuffle their feet…[t]here is ample evidence for the role of bodily sensation in emotions …and any complete emotion processing theory should take the role of body into account'.
>
> (Niedenthal et al 2014: 245).

Neuroscientist Antonio Damasio (1996) demonstrated the importance of certain areas of the physical brain for our understanding of processes of human reasoning and decision

making in social contexts. It is suggested that the specificities of our 'bodily cues and affective reactions (e.g. nausea, arousal) guide and constrain cognitive processing in social and moral domains' (Wilson and Foglia 2011).

Damasio forwarded the 'somatic marker hypothesis' which claims that our bodily states as manifested during any given emotional experience are 're-enacted' when considering certain circumstances in order for us to make adequate decisions for the avoidance of harmful situations.[23] It was found that patients with damage to a very specific part of the brain (the ventro-medial-prefrontal cortex, or 'VMPFC patients') showed significant limitations in reasoning and decision making resulting in choices that were 'no longer personally advantageous [or were] socially inadequate' (Damasio 1996: 1413).

One very important implication of this finding is reiterated by Wilson and Foglia (2011): 'the affective and bodily feedback implicated in various types of moral judgment do not simply lead to different understandings and conceptualizations of the situation at hand, but are part of the physical machinery realizing cognitive processes'.

Considering the phenomenon of embodiment from the perspective of language, Popova (2003) provides a useful description:

> Our conceptual and linguistic systems and their respective categories are created and constrained by the ways in which we, as human beings, perceive, categorise and symbolise experience. Linguistic expressions are therefore ultimately grounded in experience: bodily, physical, social and cultural.
>
> (Popova 2003:139).

Further, Lakoff and Johnson (1999) list three vital elements that shape thought and reasoning: 'the peculiarities of our human bodies, the remarkable details of the neural structure of our brains, and the specifics of our everyday functioning in the world' (Lakoff and Johnson 1999:4).

Embodiment, then, is the view that 'human thinking is ultimately motivated by our bodily configuration and sensorimotor experiences' (Caballero and Paradis 2015: 2).

[23] Damasio (1996) suggests these markers are 'somatic' as 'they relate to body-state and regulation even when they do not arise in the body proper but rather in the brain's of the body (Damasio 1996: 1413).

With the central notion for a cognitive approach to metaphor, 'embodiment', introduced and explained, we now explore CMT in detail and its utility for investigations into 'metaphorical' motion.

2.3.2 Metaphors and Metaphorical Expressions

Within the conceptual metaphor framework, an important distinction is made between a 'linguistic metaphor' and a 'conceptual metaphor'. One useful approach is to view both as separate elements in a two-layer relationship such that, at the 'surface' level is the linguistic 'metaphorical expression' and, at the 'deeper' level resides the 'conceptual metaphor' which underlies and sanctions it (Schäffner 2004).

Further, multiple metaphorical expressions can be generated from a single conceptual metaphor. For example, Lakoff and Johnson (1980) offer, among others, the following expressions for the concept ARGUMENT and the conceptual metaphor ARGUMENT IS WAR:[24]

16a) *Your claims are **indefensible**.*

16b) *He attacked **every weak point** in my argument.*

16c) *I **demolished** his argument.*

16d) *He **shot down** all my arguments.*

(Ibid:4)

What is most important here is that these are not simply ways of *talking* about arguing, they are, in fact, ways of *thinking* about arguments. That is, there are positions to be defended, attacks to be made, plans and strategies to be developed and executed and, ultimately, arguments, like wars, to be won or lost (Ibid: 4).

There are, according to Lakoff and Johnson (1980), many different types of conceptual metaphors including, for example, *orientational* metaphors, *conduit* metaphors, *ontological* metaphors etc.

[24] In order to facilitate clear and immediate distinctions between conceptual metaphors and metaphorical expressions in discussions on the subject, the former are conventionally represented in upper case form (i.e. LIFE IS A JOURNEY) as too are the individual concepts concerned with the metaphor (i.e. LIFE, JOURNEY).

With orientational metaphors such as HAPPY IS UP; SAD IS DOWN, complex concepts such as emotional states etc. can be understood in terms of spatial orientations and give rise to such expressions as in 17a – 17d:

17a) *My spirits **rose**.*

17b) *You're in **high** spirits.*

17c) *I'm feeling **down**.*

17d) *He's really **low** these days.*

(Ibid:15)

Conduit metaphors are easily demonstrated by examining common linguistic expressions relating to language, meaning and communication; ideas or meanings are seen as objects, the linguistic expressions are containers and communication is seen as an activity of sending or receiving, as in 18a) – 18c):

18a) *I **gave** you that idea.*

18b) *His words **carry** little meaning.*

18c) *It's hard to **get** that idea **across** to him.*

(Lakoff and Johnson 1980:11)

Through ontological metaphors, we can view events, activities, emotions and ideas etc. as discrete entities and substances. For example, through the metaphor INFLATION IS AN ENTITY, where rising prices of an economy are construed by the noun *inflation*, we can refer to and understand the experience in more concrete terms, as exemplified by the following expressions 19a) – 19c):

19a) ***Inflation is lowering** our standard of living.*

19b) *We need to **combat inflation**.*

19c) ***Inflation is taking its toll** at the checkout counter and gas pump.*

(Ibid: 26, my emphasis).

The clearest description of metaphor, then, is that it 'is understanding and experiencing one kind of thing in terms of another' (Ibid: 5). More specifically, we think metaphorically

because our conceptual system is metaphorical in nature; that is, we understand one (often more abstract) concept by relating it to, or *connecting* it to, another (often more 'concrete') concept through a process of *conceptual mapping*, which follows from the general assumption in Cognitive Linguistics that 'meaning resides in conceptualisation' (Langacker 2009: 46).

2.3.3 Conceptual Mapping and Unidirectionality of Metaphor

Two important notions for the Cognitive Metaphor Theory are 'source domain' and 'target domain'. As discussed above (§2.3.2), the mapping of knowledge across these domains enables us to think and talk about abstract concepts by exploiting the knowledge we have about more concrete concepts.

However, as Day (1996) indicates, this mapping process is highly systematic in nature:

> A key concept in attempts to understand metaphors in human language is the belief that they are *not wholly random* in construct but rather *follow patterns and* **rules** which may be discovered and determined.
>
> (Day 1996:4, my emphasis).

Further, this systematicity is governed by the 'Principle of Unidirectionality' in which there is a directional asymmetry of mapping between source and target domains, from the former to the latter but, crucially, this mapping does not work in the opposite direction (Saeed 2009: 263).

The cognitive metaphor LIFE IS A JOURNEY, is a good example of how this unidirectionality functions, where the concept LIFE is often described by the concept JOURNEY, as in the following expressions 20a) – 20d):

> 20a) *They're **embarking on** a new career.*
>
> 20b) *Are you **at a cross-roads** in your life?*
>
> 20c) *I was bogged down in **a dead-end** job.*
>
> 20d) *The baby **is due** next week.*
>
> (Ibid: 362, my emphasis)

However, Saeed (2009) demonstrates that to invert the direction of the mapping, that is, to express the concept JOURNEY in terms of the concept LIFE, would result in non-conventional metaphorical expressions, such as 21a) and 21b):

21a) *Our flight was born (i.e. arrived) a few minutes early.*

21b) *By the time we got there, the boat had died (i.e. gone)*

(Ibid: 363).

Figure 2.6 is a useful schematisation of this unidirectionality from source to target domain as given by Demi (2008) regarding the concepts LOVE and JOURNEY:

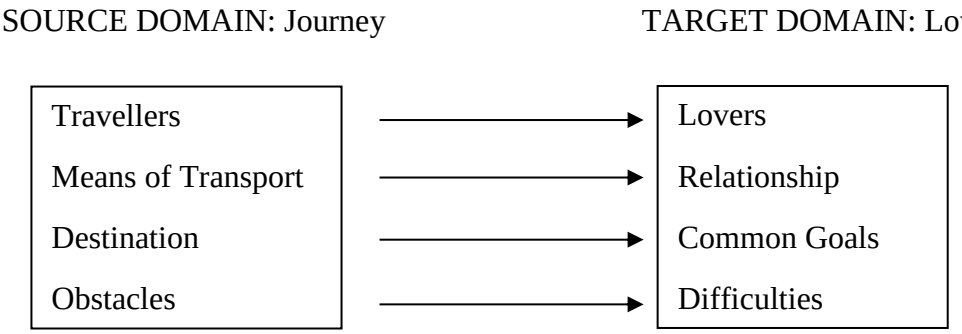


Figure 2. 6: Schematisation of unidirectionality from source to target domain.

Here, lovers are described as travellers who, in times of difficulties in the relationship, may see it as a '*long, bumpy road*; their common goals may seem unachievable if they feel they are '*spinning their wheels*'; the relationship may even terminate if it *hits a dead-end street* and the two decide to *go their separate ways* (Lakoff and Johnson 1980: 45).

CMT proved to be such a useful framework and was employed by so many scholars investigating motion in language that it gave rise to another important category other than the previously described *fictive* and *factive* motion: *metaphorical* motion.

2.3.4 A New Category of Motion in Language: Metaphorical

Before continuing the discussion of metaphor and conceptual mapping and how the theory has been employed in investigations into motion in language and, in particular, sensory domains, it is perhaps beneficial to return briefly to motion and language as described thus far, particularly to the notions of *fictive* and *factive* motion.

As was discussed in previous sections of this chapter (§2.2.2.2), 'factive' motion is described as motion that actually takes place as in 22a), while 'fictive' motion describes

'the dynamic predication of physical yet static entities such as roads or cables' etc. (Caballero & Ibarretxe-Antuñano (2015: 155), as in 22b):

22a) *Pat* ***swam into*** *the cave* (Aske 1989: 6).

22b) *The road* ***climbs over*** *the hill* (Caballero & Ibarretxe-Antuñano (2015: 155).

If factive and fictive motion are seen from the perspective of CMT, two points are immediately noticeable. Firstly, both involve concrete entities such as people, roads, cables or fences etc. and, secondly, both belong to the domain of motion.

However, as research into motion in language expanded to include more abstract entities, the category of *metaphorical* motion emerged. Two clear examples of this phenomenon are offered by Ozçaliskan (2004) in 23a) and 23b).

23a) *Ideas* ***run*** *through my head*

23b) [*The*] *hours* ***crawl*** *by*.

(Ozçaliskan 2004:76)

A clear distinction between *fictive* and *metaphorical* motion, then, is that the former concerns concrete entities as described above; whereas the latter concerns more abstract concepts such as emotions, economies, ideas, time etc. (Caballero & Ibarretxe-Antuñano 2015: 155).

Therefore, *metaphorical* motion is deemed such as it concerns a target domain (e.g. taste or smell) unrelated to motion, but in which motion is used to describe abstract concepts (Caballero 2009a TB: 1).

As will be discussed in the following sections, many scholars have recognised the utility of CMT in their investigations into sensory perception and sensory description in language, often adding to, refining, or, in some cases, rejecting the notion of unidirectionality of metaphorical mapping. Some have searched for and identified conceptual metaphors which are prevalent in 'general' language, while others focused attention on those underlying and sanctioning metaphorical language in more specific areas such as, among others, architecture, oenology and sports commentary. Others still were not so interested in the

metaphors underlying metaphorical expressions in language but, instead, in the patterns of mapping cognitive metaphors from one domain of knowledge to another.

The next section of this chapter will explore the utility in terms of investigating figurative language that CMT and the notions of *fictive* and *metaphorical* motion afford to the study of metaphor, language and perception in domains unrelated to motion.

2.3.5 Metaphors in Language and Metaphorical Mapping

Various scholars from different research traditions and perspectives have employed CMT to explore genres as diverse as poetry, tennis match reports, wine reviews, political speeches, beer commercials and architectural reviews.

One of the goals most commonly shared by these researchers has been to discover what types of metaphors underlie the language used in a given genre. Through the collection and analysis of the metaphorical expressions in a given text, certain themes emerge which allow the researcher to develop categories of cognitive metaphor from which these linguistic expressions are said to arise.

Another aim concerned the directional patterns of metaphorical mapping, especially across sensory domains such as vision, touch, smell and hearing in order to demonstrate that these senses are not equal in terms of their utility for describing complex sensations like tastes and aromas, for example.

2.3.5.1 Metaphors Underlying Language

One of the most common metaphors that emerge from investigating many different genres is anthropomorphic metaphor. That is, inanimate entities such as wines (Suárez-Toste 2007), and states (i.e. nations etc. in political speeches) (Schäffner 2004), as well as actions in tennis matches (Caballero 2012) are described as having physical and/or personality characteristics usually associated with people.

The following examples 24a) and 24b) from the domains of wine and tennis matches clearly illustrate this phenomenon:

Wine

24a)

> [A certain wine of the 2001 vintage] does not possess the *muscle*, volume, or weight of the 2000, but it is a beautifully etched, elegant, intensely mineral wine offering hints of white flowers, citrus oils, and earth in its dense, *full-bodied*, chewy *personality*. Like its older *sibling*, it will be delicious in its first 3-4 years *of life*, then close down, to re-emerge 10-12 years later.
>
> (Suárez-Toste 2007: 58, my emphasis)

Tennis Matches

24b)

> I just can't understand why Fed doesn't use his *vicious* back hand slice more often.
>
> Nadal serving 2-1 bends a *nasty* lefty serve for an ace.
>
> (Caballero 2012: 713, my emphasis)

Another very common metaphor is used to describe inanimate beings such as buildings etc. as if they were animate, typically animals, as can be seen in 24c) from the domain of architecture:

Architecture

24c)

> The scheme consists of three discrete elements. The largest is a long, pod-shaped form [...]. *Nuzzling* one end of the huge pod is a 350-seat IMAX theatre [...]
>
> (Caballero 2009:283)

2.3.6 Metaphorical Mapping Patterns in Sensory Language

Having briefly outlined some important studies employing CMT and the notion of unidirectionality, the discussion will now turn towards the more specific and relevant path of investigation for this particular research project, namely descriptive and evaluative texts concerning sensory experiences such as smell, taste, hearing and vision.

The importance of the senses for thinking has long been recognised and has also been the subject of investigation for scholars across many disciplines, such as philosophy, psychology, anthropology, cognitive science and neuroscience. Caballero and Paradis (2015) propose that the common thread that ties all such studies together is the belief that 'the *sensual* dimension of cognition is the starting premise' (Caballero and Paradis 2015: 3, my emphasis). Borghi and Cimatti (2010) view cognition as 'grounded first in *sensation*, then in action, and finally in language' (Borghi and Cimatti 2010: 772, my emphasis).

The prevalence of the interconnections, and to a high degree, the interdependence, between all the senses is clearly described by Paradis and Eeg-Olofsson (2013):

> We cannot taste something without smelling something, and we cannot taste something without feeling something, and over and above everything is the sight of something.
>
> (Paradis and Eeg-Olofsson 2013: 38).

A natural assumption to be made from such statements would be that, due to the importance and prevalence of metaphorical language for describing and understanding sensory domains, cognitive mapping of language concerning the senses would have received much attention. To date, however, most work done on sensory perceptions and language has concerned the sense of vision and involved traditional conceptual metaphor studies, and despite the fact that 'embodiment is at the heart of perception' it 'has been largely neglected by scholars' (Caballero and Paradis 2015:2).

The tide of research attention is currently turning, however, towards the other senses, namely smell, taste and touch (Ibid: 5). Investigations into the metaphorical mapping across the senses, and their importance for our understanding and description of sensory experience, are greatly aided by research carried out into the condition 'synaesthesia' and into the notion of 'synaesthetic metaphor'.

2.3.6.1 Synaesthesia and Metaphor – Cross-Mapping of the Senses

As has been seen with metaphorical use of language across domains of knowledge as diverse as tennis matches and emotions etc., the patterns of mapping across the senses are thought not to be at all random but, in fact, are considered highly systematic and, as will be seen, many studies have also shown them to be hierarchical in nature.

Firstly, however, a brief excursus into the phenomena 'synaesthesia' and 'synaesthetic metaphor' is perhaps prudent before a more detailed discussion of metaphorical mapping across the sensory domains mentioned above takes place.

'Synaesthesia' is regarded as so important by neuroscientists Vilayanur Ramachandran and Edward Hubbard (2001) that it is considered no less than 'a window into perception, thought and language' (Ramachandran and Hubbard 2001:3). These scholars even suggest that it may have played a vital role for the initial impetus for a proto-language in our ancient ancestry through the cross-wiring of different brain areas (see Ramachandran and Hubbard 2001 and Ramachandran 2012 for a more detailed discussion).

The condition is described as a 'blending of sensation, perception and emotion' (Ramachandran 2012: 75) in which the synaesthete 'experiences sensations in one modality when a second modality is stimulated' (Ramachandran and Hubbard 2001: 4), causing them to 'taste colours, see sounds, hear shapes or touch emotions in myriad combinations' (Ramachandran 2012: 75). For example, the sensory experience of vision (i.e. of a particular colour) could be stimulated by the sensory experience of hearing a particular tone (for example, C-sharp may be blue) (Ramachandran and Hubbard 2001: 4).

However, just as metaphor is not the reserve of rare and highly gifted literary artists but, as has been discussed, is widespread in our everyday language, so too is synaesthesia prevalent in our everyday metaphors.

Further, just as metaphor is crucial for meaning, synaesthesia is, likewise, vital for the understanding of, and communication about, our sensory experiences.

A 'synaesthetic metaphor' is, then, a metaphor concerned solely with the senses and one in which one sense modality (e.g. vision) is mapped onto another (e.g. hearing). Our everyday language is replete with these types of metaphors, such as 'loud colours' (audio-visual synaesthetic metaphor), 'sweet smells' (gustatory-olfactory synaesthetic metaphor), and 'dark sounds' (visual-audio synaesthetic metaphor).

As was discussed in previous sections of this chapter (§2.3.3) in relation to the systematicity in terms of directional mapping of source and target domains central to CMT, the mapping processes of synaesthetic metaphors are also far from random but, rather, adhere to a strict system of patterning.

2.3.6.2 Sensory Mapping Patterns and Synaesthetic Metaphor

Early investigations into synaesthetic metaphor, and which motivated many subsequent studies, were carried out by Ullmann (1945, 1957, 1964), who investigated this phenomenon in poetry. From his observations, it was proposed that, in sensory perceptions in metaphorical extensions (i.e. touch, taste, smell, sound and vision), a hierarchy was evident, which is schematised as:

touch > taste > smell > sound > vision

A similar, but not identical, pattern was reported by later studies (e.g. Classen 1993 and Day 1996) and the following hierarchical and directional pattern of sensory perceptions being expressed in synaesthetic metaphors was offered:

smell/taste > hearing/vision > touch

Thus, the sense modalities of smell and taste tend to be described in terms of hearing or vision which, in turn, would typically be described in terms of the sense modality of touch.

Table 2.8 shows some examples of the synaesthetic metaphors reported by Day (1996).

Example	Primary Sense (talked about)	Secondary Sense (sense 1 described as)	Notation	Interpretation
a sour smell	smell	taste	smell > taste	'smell goes to taste'
a humid green	vision	touch	vision > touch	'vision goes to touch'
the bitter chuckles	hearing	taste	hearing > taste	'hearing goes to taste'
a sharp crack	hearing	touch	hearing > touch	'hearing goes to touch'
a heavy explosion	hearing	touch	hearing > touch	'hearing goes to touch'

Table 2. 8: Mapping patterns of synaesthetic metaphors in English.

What is immediately noticeable from Table 2.8 is that touch appears as a secondary sense, i.e. the sense in which others are expressed, more often than any of the other sensory domains.

Further, some very interesting results emerged from this study in terms of synaesthetic metaphors for English, i.e. how sensory experiences are described in that particular language.

Firstly, Day (1996) reports that 'touch is the most common sense things are expressed in' and that 'tactile sounds' are most common synaesthetic metaphors (Day 1996: 12). In other words, the most prevalent general synaesthetic metaphors are along the lines of '**hearing > touch'** (i.e. hearing described in terms of touch), as in 'a harsh sound' or 'a soft word'[25].

[25] Although Ramachandran and Hubbard (2001) appeared significantly later than this particular study, this finding reported by Day (1996) is clearly noticeable in their explanations and descriptions of synaesthesia and its importance for proto-language development. These scholars frequently expressed visual and auditory stimuli through the tactile sense of touch as in '*sharp* changes in visual direction', '*sharp* inflection of the tongue on the palate', and '*sharp* phonemic inflections' (Ramachandran and Hubbard 2001: 19). That is to say, 'sharpness' is a *tactile* sense, but here it is used to describe *visual* and *auditory* sensory experiences as well as *motion*. In terms of sensory metaphorical mapping, the directions **vision > touch** and **hearing > touch**

Secondly, due to the impoverished olfactory lexicon in English, describing any of the other senses in terms of smell is 'extremely rare' and there is a general trend to describe smells in terms of objects or tastes.

Thirdly, Day (1996) found that the sense of taste was the least commonly placed in a synaesthetic metaphor.[26]

2.3.7 Synaesthetic Metaphor and the Conceptual Preference Principle

In the more recent study carried out by Shen and Gadir (2009), Day's (1996) categorisation was further refined to formulate the *Conceptual Preference Principle* and also presented was the concept *synaesthetic metaphorisation* in which the preference for metaphorical sensory mappings was determined by whether perception did or did not involve direct contact by the perceiver. The 'lower' modalities of touch and taste, for example, require direct contact; whereas, the 'higher' modalities of vision and hearing do not. The Conceptual Preference Principle (henceforth, CPP), therefore, is a unidirectional mapping from lower to higher senses and expressions such as 'soft light' and 'caressing music', where vision and sound are described in terms of touch and are considered so prevalent in everyday language because they follow the preferred pattern, which is also consistent with Day's (1996) findings.

2.3.8 Challenges to the CMT

In this section, some of the limitations of the CMT, as highlighted by various scholars, will be discussed. Although an in-depth discussion of all the challenges posed to the theory is beyond the scope of this study, some of the most contentious areas will be presented.[27] These include: the primacy of the source domain over the target domain for the interpretation of conceptual metaphors; the unidirectionality of conceptual mapping across these domains; the imprecision of analysis of traditional approaches to CMT which resulted in a far too minor role of metonymy in the formation of linguistic metaphors; and, also, the fabricated nature of examples often employed as support for the theory.

2.3.8.1 Hierarchy of the Senses and Unidirectionality

In all the studies discussed above (§2.3.6), the researchers have, to one degree or another, supported the suggestions and findings first proposed by Ullmann (1957, 1964), although

---

are clearly involved – which is consistent with Day's (1996) and Shen and Gadir´s (2009) finding that 'touch is the most common sense things [i.e. senses] are expressed in'.

[26] The author does not provide any explanation but, rather, simply states the qualitative finding.

[27] The reader is referred to Deignan (2005), Goatly (1996) for a more comprehensive account/discussion.

his original categorisation and mapping patterns were periodically refined to the point where the Conceptual Preference Principle was forwarded by Shen and Gadir (2009).

However, the observations and findings from a more recent investigation by Paradis and Eeg-Olofsson (2013) into metaphorical language used to describe sensory experience in the genre of wine reviews, call into question the CPP, i.e. the hierarchical unidirectional mapping in synaesthetic metaphor, which permits expressions such as *soft light* (touch > vision) or *caressing music* (touch > sound) but according to which expressions such as *light softness* and *musical caressing* are not possible as they run contrary to the hierarchy i.e. they follow the mappings vision > touch and sound > touch, respectively (Paradis and Eeg-Olofsson 2013: 35).

These researchers point out firstly that there is no consensus in the literature on what defines a 'higher' or 'lower' modality and they further question how the sense of touch can be considered more 'accessible' than the sense of smell or taste and, perhaps most intriguingly, why the sense of vision is not considered the most accessible modality.

More importantly, perhaps, they challenge the 'natural' direction of conceptual mapping as going from 'lower and more accessible concepts onto higher and less accessible' concepts, reporting that a clear conceptual preference pattern in the use of the descriptors in their corpus was not evident (Ibid: 37). Further, they argue that more than one sense is involved in the source domain. For example, the sense of sharpness in the phrase 'a *sharp* smell' does not solely involve a notion of touch as the primary sense (i.e. source domain) but, rather, experiences from perceptions across sensory domains of touch, taste, smell and vision are involved. What is argued for, instead, is 'a monosemy approach where synaesthetically flexible notions are described as mappings onto the same lexical concepts for the different sensory perceptions' as 'no conceptual primacy exists in the realm of sensory perceptions' (Caballero and Paradis 2015: 6). This proposal contradicts the polysemic approach of CMT in which a word has a literal meaning and an extended metaphorical meaning (Ibid: 6).

2.3.8.2 Primacy of the Source Domain

A similar challenge to the CMT and Conceptual Preference Principle is forwarded by Caballero (2009), which was one of the first comparative studies of fictive and metaphorical motion across a variety of domains. These included wine reviews, tennis match reports and architectural reviews. Initially, these would seem unrelated; however,

one aspect of these texts which binds them together is that they are all of a descriptive and evaluative nature.

As motion verbs are used to evaluate or describe activities or events in these domains through metaphor, it could perhaps be assumed that the metaphors used in all of these domains and corresponding genres of texts are similar. Caballero (2009) found that this, in fact, was not the case. What emerged from this study was that different metaphors for the same motion verb were evident and varied, largely, according to the genre in which it was found.

Before expanding upon this finding and its relevance for the CMT and its corresponding CPP, an important distinction should be made in relation to motion verbs and expressions of motion for descriptive and evaluative purposes in the domain of tennis match reports. As would be expected in texts from this genre, motion descriptions are abundant. However, Caballero (2009) focused on the use of motion in non-literal descriptions of notions such as victories, losses, player performances and player progression through a tournament etc., as in 25a) – 25c):

> 25a) Safina *reaches* career-best in Australia (performance)
>
> 25b) Roddick *gallops past* Robredo (victory).
>
> 25c) Mirza *cruises through* first round match-up (progression).
>
> (Caballero 2009: 3, my emphasis).

Unlike Paradis and Eeg-Olofsson (2013), who completely rejected the unidirectional mapping from source to target domain, Caballero (2009), although maintaining the importance of the source domain, elevates the target domain in terms of importance in the interpretation of metaphor.

One particular motion verb, 'to sweep', serves as a good example as it appears in the domains of tennis 26a), architecture 26b) and oenology 26c):

> 26a) Tsonga was in scintillating form as he *swept past* Juan Monaco 6-4, 6-4, 6-0.
>
> 26b) Zapata's supermarket is a beautiful object – it hums with kinetic energy, *sweeping along and up* the street like an elegant, silvery comet.

26c) [Wine has] a decisive core of citrus acidity that *sweeps through* to the finish.

(Ibid: 7, my emphasis)

Caballero (2009) suggests that three different metaphors underlie the motion predicate in each of the domains. Firstly, the metaphor WINNING EASILY IS MOVING FAST AND EFFORTLESSLY could be proposed for the tennis match victory in 26a); secondly, the metaphor FORM IS MOTION underlies the architectural description in 26b); and lastly, the researcher formulates the metaphor PRESENCE/PERCEPTIBILITY [of acidity] IS MOTION and expands this to INTENSE PRESENCE IS FORCEFUL, CONTINUOUS MOTION for the wine's description in 26c) (Ibid: 7).

One very important consequence of this finding is that the basic tenet of unidirectionality of mapping, in which knowledge of the source domain takes prominence over knowledge of the target domain, is called into question as the interpretation of the conceptual metaphor is heavily constrained by knowledge of the target domain (Ibid: 8).

2.3.8.3 CMT and the Role of Metonymy

Deignan (2005) argues that not enough attention to detail is paid in traditional analyses of metaphor which results in a rather over-simplistic account of the phenomenon. Further, by subjecting the theory to a heightened precision of analysis, she shows a more nuanced picture in which metonymy is given a far less subordinate role to metaphor both in linguistic metaphor formation and, also, in cross-domain conceptual mapping.

Andrew Goatly (1996) also recognises the significant role metonymy plays in metaphorical language use and regards metonymy as providing the 'foundations on which the metaphorical edifice is built' (Goatly 1996: 57).

Deignan (2005), echoing Goatly's sentiments, views the two phenomena as 'so closely intertwined…that it is a difficult and probably unnecessary exercise to try to disentangle [them] in every analysis' (Ibid: 71); metaphor, it is suggested, not only very often contains *some* element of metonymy but, in fact, that component is quite frequently *crucial* to the meaning of the metaphorical expression (Ibid: 53, my emphasis).

Metonymy, like metaphor, is pervasive in our everyday language, it is primarily a referential device or strategy which allows us to use one entity to refer to, or more specifically, to *stand for*, another, and can help in comprehension (Saeed 2009: 85; Lakoff

and Johnson 1980: 36, emphasis in original). The process of metonymy enables us, then, to 'take one well-understood or easily perceived *aspect* of something to represent or stand for the thing as a *whole*' (Gibbs 1994: 320, my emphasis). Further, Yule (2006) points out that many metonymies are highly conventionalised and that it is our familiarity with metonymy that makes our understanding of metonymical uses of language possible (Yule 2006: 108).

A common metonymy is THE PART FOR THE WHOLE, in which one particular part of an entity may be used to represent the whole; some examples include:[28]

> 27a) The *automobile* is clogging our highways. (= the *collection* of automobiles)
>
> (Lakoff and Johnson 1980: 36, my emphasis)

Just as there are many types of cognitive metaphors, there are, also, many types of metonymies, such as, for example, INSTITUTION FOR PEOPLE RESPONSIBLE (27b and 27c) and PRODUCER FOR PRODUCT (27d):

> 27b) *White House* vows to fight media 'tooth and nail' over Trump coverage.
>
> (= the people responsible for running the Trump presidential administration).
>
> (Reuters: Jan 23, 2017, my emphasis)[29]
>
> 27c) Normally, no gifts are accepted unless it has been previously agreed with the *palace*.
>
> (= the people working for the British royal family, particularly in their public relations)
>
> (Deignan 2005: 54, emphasis in the original)
>
> 27(d) I'll buy you that *Rembrandt*.
>
> (= the *painting* produced by the painter Rembrandt)
>
> (Saeed 2009: 366, my emphasis)

[28] Just as cognitive metaphors are conventionally represented in upper case form (e.g. LIFE IS A JOURNEY), conceptual metonymies are also presented in this format.
[29] http://www.reuters.com/article/us-usa-trump-priebus-idUSKBN1560RM

It is important at this juncture to point out that metonymy shares certain characteristics with metaphor: it is a conceptual process; as mentioned above, may often be conventionalised; and can be used to create new lexical resources in language (Saeed 2009: 365). One major point of departure between the two phenomena, however, is that, while metaphor concerns mappings across different conceptual domains, the conceptual links of metonymy generally involve one single conceptual domain (Saeed 2009:365 and Deignan 2005: 55).

However, as mentioned above, traditional approaches to CMT placed metonymy in a subordinate position to metaphor, which Deignan and others regard as an incorrect classification as there is often an overlap between the two; in other words, what could be described as a cognitive metaphor could also, when more closely examined through the prism of CMT, be regarded as a case of metonymy.

For example, a very common cognitive metaphor is EMOTIONS ARE TEMPERATURES, which motivates expressions such as 28):

> 28) I vividly remember having a *heated* debate with my boss.
>
> (Deignan 2005: 59, emphasis in the original)

Initially, *heated* in this expression appears to be used metaphorically by virtue of a perceived cross-domain mapping from the physical experience of temperature to the abstract domain of emotions (in this case, *anger*). However, Deignan shows that, because a rise in bodily temperature is actually physically experienced when we get angry, the mapping involved is, in fact, metonymical in nature and not metaphorical. Further, Lakoff (1987) acknowledges this point and proposes a general metonymical principle in which the *effects* of an emotion can stand for that emotion (Deignan 2005: 59, my emphasis).

An obvious implication for CMT is that mappings which have their grounding in physical experience (i.e. embodiment) can, in fact, be considered metonymical and not metaphorical, potentially reducing the scope of metaphor to only those expressions involving concepts of a more abstract nature, such as ARGUMENT IS WAR or AN ELECTION IS A HORSE RACE (Deignan 2005: 60). However, Deignan also proposes that this metaphor-metonymy split is still far too crude a classification and that it is more profitable to view their relation from an interactional and interdependent perspective.

2.3.8.4 Metaphor and Metonymy: Interactive and Interdependent Phenomena

Goossens (1995, 2002), examined a corpus of figurative conventionalised expressions from dictionary entries concentrating on the interaction between metaphor and metonymy and developed four potential types, of which Deignan (2005) suggests only two are sufficiently common to discuss:

a) Metonymy *within* Metaphor

b) Metaphor *from* Metonymy

Goossens suggests the first type ('metonymy within metaphor') of interaction is evident in metaphors with a 'built-in' metonymy (Goossens 2002: 363) such that 'a metonymically used entity is embedded in a (complex) metaphorical expression' (Ibid: 367). A typical example is offered in 29):

29) Bite one's *tongue* off.[30]

(Goossens 2002: 363)

Tongue here is used as a metonym for the *speech faculty* as a whole (Goossens 2002: 364) and is contained within the metaphorical expression (Deignan 2005:61). Therefore, from the perspective of importance, the metaphorical expression and the contained metonym are mutually dependant and, thus, equally important.

A much more common type of interaction between metaphor and metonymy, Goossens (1995, 2002) found, is the second type 'metaphor *from* metonymy'. Here, a metaphorical expression begins as a metonymy which then undergoes a metaphorical transfer to another conceptual domain (Goossens 2002; 356); or rather, the metaphorical expression produced maintains its link to its metonymic origin (Goossens 2002: 361). The phrasal verb in 30) is offered as an example:

[30] Goossens offers the Gricean implicature 'I'm terribly sorry for having said something so foolish, rude, or the like' for this expression (Goossens 2002: 364).

30) [To] remain *closed-lipped*.[31]

Goossens (2002: 362)

Deignan (2005) holds Goossens work to be a major contribution to our understanding of metonymy in general, while providing particularly useful insights into the interaction between metaphor and metonymy in many expressions and stresses that these two phenomena should not be considered as distinct categories but, rather, as residing on separate locations along a metaphorical-metonymical continuum (Deignan 2005: 63).

2.3.8.5 Metonymy and its Implications for Cross-domain Mapping

As was shown in the previous section, closer examination of the relation between metonymy and metaphor revealed the two phenomena to be significantly intertwined, and indeed interdependent, inevitably resulting in a re-evaluation of metonymy as being more equal in importance to metaphor than had traditionally been the case.

This heightened importance of metonymy is further supported by other observations made by Deignan (2005) in relation to the effect this phenomenon has on one of the core tenets of CMT: cross-domain mapping.

Deignan (2005) investigated corpora from two different source domains, the first being PLANTS, producing cognitive metaphors such as IDEAS ARE PLANTS and COMPLEX ABSTRACT SYSTEMS ARE PLANTS; the second, LIGHT AND DARK, where *light* would typically be used to talk about knowledge and things which are known, and *dark* for negative emotions (Deignan 2005: 183).

Inconsistencies were found which were suggestive of a dichotomy of coherent transfer in which the semantic relations evident in the source domain were only maintained in the target domain in 'pure' metaphors, classified by Deignan as metaphors for which it is hard to postulate a metonymical basis (Deignan 2005: 173). Contrastingly, in 'metonymic'

[31] Goossens acknowledges that the interpretation of this expression is potentially ambiguous in that it could be seen as metonymical if the meaning is 'remain silent', with the closeness or fully closed position of the lips being the metonym for inhibiting speech; alternatively, it may be interpreted metaphorically if the subject is actually speaking but withholding the relevant or desired information (Goossens (2002: 362).
It could be argued that this example is more idiomatic if slightly modified to 'remain tight-lipped'; although the meaning remains the same.

metaphors, deemed to be those linguistic metaphors which contain some element of metonymy, mapping patterns were less coherent (Deignan 2005: 171-173).

As mentioned above, one of the central pillars of CMT is that there is a systematic replication in the target domain of logical relations evident in the source domain (Deignan 2005:162), which is captured by Lakoff's Invariance Principle:

> Metaphorical mappings preserve the cognitive topology (that is, the image-schema structure) of the source domain, in a way consistent with the target domain.
>
> (Lakoff 1993: 215)

Deignan argues that, to be consistent with the Invariance Principle, metaphorical expressions of the same semantic category should exhibit identical connections in both the source and target domains as 'the relationships in one semantic field can be exploited for the development of senses in another' (Deignan 2005: 170).[32]

Some typical lexemes in the source domain of plants include *plant* (verb), *offshoot* (noun), *seed* (noun), and *branch* (noun), examples of which are given in 31a) to 31c):

> 31a) The *seeds* of his great ideas were *planted* in his youth.
>
> 31b) He views chemistry as a mere *offshoot* of physics.
>
> 31c) Mathematics has many *branches*.
>
> Lakoff and Johnson (1980: 47, emphasis in original)

Deignan also found these words in her corpus of plant lexis, along with others, including *flourish*, *bud*, *blossom*, *bloom*, and *flower* (Deignan 2005: 175); examples of which are provided in 32a) to 32e):

> 32a) From her earliest schooldays, the *budding* young star wanted to turn her back on what she described as 'a boring life in Pinner'.
>
> 32b) …social deserts where communities once *bloomed*.
>
> 32c) …creating a more favourable and positive environment in which business can *flourish*.
>
> 32d) Demand is *blossoming* in the luxury market.
>
> 32e) That influence *flowered* when Rome appointed him archbishop.
>
> (Deignan 2005: 179-180)

[32] Relationships here are: synonymy, antonymy and hyponymy.

What is immediately noticeable in these examples is that the relation of synonymy evident in the source domain is preserved in the target domains of the linguistic metaphors as they all contain the sense of growth and development (Deignan 2005: 175).

Various lexemes belonging to the domain of plants whose senses (i.e. *growth* and *development*) are antonymous to those in 32a) to 32e), such as *wither*, *wilt* and *shrivel*, were also seen to maintain this antonymous relation in metaphorical uses in the target domains, as exemplified in 33a) to 33c). Further, as seen in 33a), *wither* and *flourish* often appear in the same citation being used antonymously (Deignan: 2005 180).

> 33a) Tyranny flourishes in some lands but *withers* in others.
>
> 33b) Wild generosity often *shrivels* up in the cold wind of reality.
>
> 33c) The market *wilted* in line with softer overseas bonds.
>
> (Deignan 2005: 181)

Deignan found, then, for the investigation of semantic relations of lexis in the corpus from the domain of plants, the data were largely supportive of Lakoff's Invariance Principle, and by extension, one-to-one mapping of elements central to CMT, as 'our knowledge about plants and their behaviour is mapped onto various target domains, all of which seem to have an inherent structure that includes an element of development (Deignan 2005: 175).

The same, however, cannot be said for the domains of LIGHT and DARK and the metonymic metaphors that are realised by these two lexemes.

It is perhaps both prudent and useful at this point to explore in more depth the notion of metonymic linguistic metaphors. An example of a metonymic metaphor, is KNOWING IS LIGHT/KNOWING IS SEEING. At first glance, it may not be clear as to how this cognitive metaphor could be classified as 'metonymy based'. However, Deignan proposes that, as there is an experiential basis for the way we talk about *light* and *dark*, where *light* is used to talk about things which are known to us and *dark* about those which are not, there is a metonymical basis for their figurative uses (Deignan 2005: 183).[33]

The second investigation carried out by Deignan (2005) into cross-domain mappings focused on linguistic metaphors based on the semantic theme of *light* and *darkness*. For

[33] It is assumed that, when there is light, we can see things around us; when there is darkness, we cannot. See the discussion of Metaphor *from* Metonymy (§4.1.2.2.2) above for more on classifying metonymy based metaphor.

each of these, three cognitive metaphors emerged from the study, which are shown in Table 2.9.

Light Metaphors	Dark Metaphors	Semantic Theme
KNOWN IS LIGHT	UNKNOWN IS DARK	Knowledge
GOODNES IS LIGHT	EVIL IS DARK	Good/Evil
HAPPINES IS LIGHT	UNHAPPINESS (and NEGATIVITY) IS DARK	Emotions

Table 2. 9: Cognitive metaphors for *light* and *dark*.

For *light* metaphors, Deignan reports that, by far the most frequent was KNOWN IS LIGHT, examples of which are given in 34a) and 34b), and that it was rare to find metaphors of this lexeme to talk about emotions (Deignan 2005:184).

KNOWN IS LIGHT

> 34a) The course considers selected issues in geomorphology, climatology and biogeography in the *light* of recent research.
>
> 34b) An examination of Haig's attitude towards his personal staff sheds *light* on this subject.
>
> (Deignan 2005: 186)

Contrary to what would perhaps be expected for two lexemes with such a clear relation of antonymy in literal uses, the contrasting cognitive metaphor UNKNOWN IS DARK was not reported as the most common for the lexeme *dark*; rather, the semantic theme of emotions was most typically described by the corresponding cognitive metaphor UNHAPPINESS (or NEGATIVITY) IS DARK, examples of which are given in 35a) and 35b).

UNHAPPINESS (or NEGATIVITY) IS DARK

> 35a) He recalls those *dark* days when he was beset by disillusionment with the world of film.
>
> 35b) The organisers hope to demonstrate that the *dark* cloud of recession is finally lifting.
>
> (Deignan 2005: 188, emphasis in the original)

The uneven distribution across semantic themes (i.e. of knowledge, emotion and good/evil) of metaphorical meanings based on the lexemes *light* and *dark* can also be seen in synonyms of these lexemes.

For example, a synonym for the literal sense of *dark* is *gloomy*, as in 36a) and 36b):

> 36a) The mood is quite *gloomy* and I think people are becoming really desperate.
>
> 36b) The outlook is particularly *gloomy* among manufacturers.
>
> (Deignan 2005: 189, emphasis in the original)

The metaphorical meaning of *gloomy* in these two examples is a clear mapping to the target domain of emotions. However, Deignan reports that, in the corpus, this lexeme is never used metaphorically to talk about the other two domains of knowledge and good/evil (Deignan 2005: 189).

Further, the semantic relation of synonymy evident in the literal senses of *light* and *bright* was only mapped across to one of the three possible domains, emotions, as it was used to express happiness or optimism, as shown in 37a) and 37b):

> 37a) There was *brighter* news…
>
> 37b) Prospects for investment looked *bright*.
>
> (Deignan 2005: 189, emphasis in the original)

One of the main reasons, Deignan proposes, that *light* and *dark* show such limited cross-domain mappings of semantic relations is that they are represented by different parts of speech: *light* most commonly appears in nominal form, while *dark* is typically adjectival.

Also, as there is a significantly uneven distribution of cognitive metaphors across the semantic themes for *light* and *dark* (e.g. *light* is used far more in the domain of knowledge; *dark* in the domain of emotions), there are, by extension, few cases of antonymy, (Deignan 2005: 189).

Further, it is also reported that, even when there is convergence in terms of parts of speech and metaphorical meaning, the semantic relation of antonymy seen between the literal *light* and *dark* is not necessarily evident in metaphorical expressions; for example, *in (the) light of* is not an antonymous metaphorical expression of *in the dark* (Deignan 2005: 189).

Nevertheless, the common thread that sews all the linguistic metaphors together in Deignan's corpus of *light* and *dark* lexemes is that they are all metonymy based, as opposed to 'pure' metaphors, i.e. those which do not contain an element of metonymy. As shown, there is a clear discrepancy between the two types in terms of coherency of source-to-target domain mappings; in the latter, it is clearly evident, while in the former, it is severely limited. It could be argued, then, that the traditional CMT view of 'wholesale' mapping of elements from the source to target domain, as predicted by Lakoff's all-encompassing Invariance Principle, may be (over)due a refinement which not only takes metonymy into account but, also, predicts mapping patterns of a more dichotomous nature: those typical of 'pure' and those of 'metonymical' metaphors.

2.3.8.6 Method of Data Collection: Captured in 'the Wild' or Produced in 'Captivity'?

Apart from specific limitations highlighted by Deignan (2005) in relation to the CMT as outlined above, she also calls into question the methods of enquiry traditionally employed by theorists such as Lakoff and Johnson (1980). These scholars, Deignan offers, tended to examine data elicited from informants, which could result in rare and unnatural examples. Further, they also relied on their own intuitions of language rather than investigating naturally occurring data which would eliminate the unreliability and subjectivity of one's own intuitions of language (Deignan 2005: 27).

Other researchers whose work has influence on the present study avoided these hazards to data authenticity by extracting examples from collections of texts in which it was not known whether or to what extent the linguistic phenomenon under investigation was present. Slobin (2008) utilised the British National Corpus, newspapers and novels etc. while Cifuentes-Férez (2014) compiled corpora from two novels. As will be discussed in-depth in the following chapter, this study has followed suit by developing two considerably large corpora from naturally occurring data.

The present study parts from Slobin (2008) and Cifuentes-Férez (2014) as Slobin (2008), although investigating a range of languages and genres of texts, did not, however, provide any statistical data in relation to the number of motion events investigated or instances of visual motion yielded from them. Only reported upon was whether or not a particular Path complexity combination was instantiated for a given language in the corpora he investigated. Furthermore, Cifuentes-Férez (2014), investigated only two sources from one genre, a novel and its translation, and examined 224 instances of visual motion. The present

study explores a range of sources, investigates two corpora, totalling almost one million tokens, analysed a total of 7,561 metaphorical motion events across two languages, yielding a total of 1,962 instances of metaphorical motion.

2.3.9 Conclusion

In this chapter, we have introduced and discussed in detail the theoretical foundations of our study. The evolution from Gruber's (1967) initial observations of the syntactic and semantic similarities between verbs of motion and verbs of seeing to Talmy's (2000) systematic account of the phenomenon, including the notions of *fictive* and *factive* motion events, was of particular importance.

The subsequent division of non-literal motion to form a second sub-type, *metaphorical* motion, in order to account for more abstract entities was also presented along with its theoretical underpinnings, Cognitive Metaphor Theory. A comprehensive, although not exhaustive, critique of the theory was provided in which various limitations were presented such as: the primacy given to the source domain over the target domain; the lack of rigour in traditional analyses; the subordinate role afforded to metonymy in metaphorical expressions; and the often fabricated nature of the examples employed to support the theory.

The various components of motion events, of which *Path* is most relevant to our research, were presented and the utility of Talmy's (2000) complex categorisation of its constituents for calculating complexity was also shown.

Finally, the modification of Talmy's original sensory Emanation Paths to include, *organoleptic* Paths, was proposed in order to accommodate investigations into the use of motion expressions in texts pertinent to the present study, namely those concerned with describing gustatory and olfactory sensations.

In the following chapter, we present our particular methodology for sourcing and capturing these texts from the specific genre of craft beer reviews. The various techniques developed for performing our analyses, with the specific intention of exploring variety and complexity in organoleptic Paths of motion, will also be discussed in detail.

Chapter 3 – Methodology

3.0 Introduction

The methodology and three-stage process of design, construction and analysis of the corpora for this research project are presented and individually discussed in this third chapter of the thesis.

Part One focuses on corpus design and is chiefly concerned with implementing those theoretical elements that enable the researcher to clearly establish the boundaries of the genre under investigation and, by extension, those texts that can be considered suitable for inclusion in it. However, this initial section of the chapter will begin by introducing the reader to the field of corpus linguistics, its approach to investigating linguistic phenomena and both the role of and benefits gained by the corpus linguist performing these inquiries.

The discussion advances in Part Two to the more practical phase of corpus construction. More specifically, the software program employed and its tools are introduced, as are their varying levels of utility for this research project. The identification and selection of the various candidate sources, along with the justifications for their inclusion in or exclusion from the corpora, are also described in this section.

The third and final part of the chapter is dedicated to investigating the two monolingual corpora and the process of extracting data extracted from them in relation to metaphorical motion events in the domain of craft beer reviews. As was the case in Part Two, the particular tools utilised to conduct these investigations will also be introduced, discussed and evaluated here.

Part One: Corpus Design

3.1 Corpus Linguistics, Corpora and Corpus-based Translation Studies

3.1.1 Corpus Linguistics and Corpora

Corpus linguistics (hereafter, CL) is broadly defined by George Yule as 'the study of language in use by analysing the occurrence and frequency of forms in a large collection of texts typically stored in a computer' (Yule 2010:285).

Although this may be a useful initial description of the sub-field, defining these 'large collection[s] of texts' or 'corpora' is actually, according to Meyer (2004), 'a more interesting question than one would think' (Meyer 2004: xi). It could be proposed that there is a certain degree of flexibility of definition according to where one may place emphasis along the broad-narrow spectrum of definition.

Further, Saldanha (2005) points out that there is, in fact, 'no unanimous agreement on the necessary and sufficient conditions of texts to be a corpus' (Saldanha 2005: 57) suggesting that the primary reason for the absence of one concrete definition concerns the diversity of important aspects as viewed by different scholars.

For example, Wilson and McEnery place more importance on the quality of representativeness a corpus may provide through careful sampling so that the language or language variety is maximally represented therein (Wilson and McEnery 1996: 87). One important limitation of defining a corpus as such, according to Saldanha, is that it is not easy to evaluate and may fluctuate according to the use to which the corpus may be put.

The view forwarded by Leech (1992) is that a corpus is simply 'a helluva lot of text, stored on a computer' (Leech 1992: 106), obviously identifying size and medium as fundamental characteristics.

Meyer (2004) suggests that the definition of 'corpus' has evolved over time and that it is now generally considered to be 'a body of texts made available in *computer-readable form* for the *purposes* of linguistic analysis' (Meyer 2004: vii, my emphasis). The importance here is placed on both the purpose of the corpus and the medium through which it can be developed, stored and analysed.

3.1.1.1 A Synthesis of Definitions: Bowker and Pearson (2002)

Although all the above definitions could be considered valid to varying degrees in that they contain important criteria such as purpose, representativeness, size and medium etc., there is one element that is not present in any: *authenticity* of the data. The characteristic 'authenticity' limits the inclusion of texts to ones that are 'naturally occurring' or texts that have not been 'created or elicited for the purpose of linguistic data' (Saldanha 2005: 58). Bowker and Pearson (2002) include this property along with various selection criteria and propose the following definition for 'corpus':

> A large collection of authentic texts that have been gathered in electronic form according to a specific set of criteria.
>
> (Bowker and Pearson 2002: 9).

As will be seen in following sections, it is this all-encapsulating definition which guided the design and compilation of the corpora investigated in the present study.

3.1.1.2 The Corpus Linguist: Confined within a Paradigm or Free Practitioner of its Tools?

As Meyer (2004) suggests, the corpus linguist is not simply one who studies language within the confines of a particular linguistic paradigm, Corpus Linguistics, somewhat akin to Sociolinguistics or Psycholinguistics, for example. Rather, when considering the actual types of analyses that she or he performs, CL appears to be more of 'a way of *doing* linguistics' than a separate paradigm within the broader field of Linguistics (Meyer 2004: xi, my emphasis). More formally, perhaps, CL could be viewed, then, as 'a methodological basis for pursuing linguistic research' (Leech 1992: 105).

The corpus linguist, then, could be more accurately viewed as one who develops large collections of texts, stores them in electronic format and has the means to skilfully analyse them in order to gain valuable insights into potentially any given linguistic phenomenon/a.

In short, these large collections of texts, or corpora, 'provide the data for linguistic study; and corpus linguistics the tools and methodologies' (Kenny 2001:105).

3.2 Corpus Design and Compilation Process

As was discussed in earlier sections of this thesis (§1.2.1), one of the main aims of this study is to compare Path complexity in language concerning perceptions of taste and smell in the genre of craft beer description in both Spanish and English.

The first task for such a study, it could be argued, is to establish the criteria for inclusion of any given candidate text in the corpus-development stages. Perhaps counterintuitively, it is not at the micro level of the texts that one should begin but, instead, at the macro level of the *genre* and the precise definition and description of same. Therefore, the overall concern of this sub-section is to explore and define the concept GENRE.[34] This will be achieved by focusing on those characteristics that may be collectively employed as a diagnostic tool for gauging whether or not a given text may be accurately and justifiably placed into a particular genre or not.

3.2.1 Challenges in the Literature: Ambiguity of Labelling Texts 'Tasting Note' or 'Review'

The design and implementation of the diagnostic tool used in the current research was motivated by somewhat ambiguous uses of the labels 'tasting note' and 'review' in studies concerning texts of wine description and evaluation, a genre very closely related to the texts of this current research project. In fact, in some studies (e.g. Caballero (2007); Caballero and Ibarretxe-Antuñano (2015); Paradis and Eeg-Olofsson (2013)), and often ones by the same researcher, these labels appear exclusively of the other; contrastingly, in others, they seem to behave in a more synonymous manner.

3.2.1.1 'Tasting Note'

The exclusive use of 'tasting note' (often shortened to 'TN') can be seen in Caballero (2007) and Caballero (2009) where 'review' does not feature at all, as exemplified in 46a)-46c) and, also, 47):

> 46a) The present paper explores the use of motion verbs in the *descriptive*-plus-*evaluative genre* of the wine *tasting note.*
>
> (Caballero 2007: 2095, my emphasis).

> 46b) …I describe the way such verbs are used in the *tasting note genre* and the reasons motivating this use.
>
> (Ibid: 2096, my emphasis).

[34] We follow here the convention in Cognitive Linguistics of representing concepts in upper case form, as was introduced in Chapter Two: Literature Review.

3.2.1.2 'Review'

The above exclusive use of 'tasting note' is contrasted in Caballero and Ibarretxe-Antuñano (2015), in which it does not feature once and the authors' preferred term is 'review', as exemplified in 48):

> 48) …we use a 600,000-word corpus comprising tennis, *wine* and architectural *reviews* …
>
> (Caballero and Ibarretxe-Antuñano 2015: 155, my emphasis)

Note also that 'tasting note' does not appear in the article at all, even though the researchers state that one of the corpora investigated was a collection of texts from the domain of wine which were of a *descriptive* and *evaluative* nature.[35]

3.2.1.3 Synonymy: 'Tasting Note' and 'Review'

However, it is in other studies that the distinction between the two labels becomes even more problematic as they appear to be used interchangeably, that is, as synonyms of each other. This can be clearly seen in 49a) and 49b), taken from Paradis and Eeg-Olofsson (2013) and titled 'Describing Sensory Experience: The *Genre* of Wine *Reviews*':

> 49a) A wine *review* is a type of text in which the wine critic both *describes* and *evaluates* wines.
>
> (Paradis and Eeg-Olofsson 2013: 23, my emphasis).

> 49b) While activations of sensorial experiences are considered to be of crucial importance for symbolisation generally…, they play an absolutely crucial role in *descriptions* of wine in *tasting notes*. After the wine critic has completed the tasting procedure, it is his or her task to transform the sensory perceptions into language … and to write up a *review* that both *describes* and *evaluates* the experience.
>
> (Ibid: 24, my emphasis).

One point of departure between these two examples is that, in the latter, not only are the two terms employed, they actually appear in contiguous sentences within the same paragraph and, further, they appear to be in a synonymous relation.

[35] It is acknowledged that 'review' is preferred in Caballero and Ibarretxe-Antuñano (2015) over 'tasting note' as it is more generic in nature and, due to the different genres involved, 'tasting note' would not be applicable to the domains of tennis or architecture.

Although there does not seem to be uniformity in the literature in relation to the term ‘tasting note’ or ‘review’ to most accurately label the texts which describe and evaluate a given product, one could propose that there is an implied distinction between the two. It could be suggested that both have the task of description while it is more probable that ‘review’ is employed at the point of evaluation. Therefore, it was decided to adopt this label for the text genre of the current research project and the following sections will provide further support for this decision.

3.2.2 Text Inclusion/Exclusion: Design & Implementation of a Diagnostic Template

Having discussed the problem of ambiguity of text labelling above, attention will now be given to the diagnostic template that was developed for this research project to ensure a high degree of similarity across the texts of which the two monolingual corpora used in the current project were constructed.

Presented in Table 3.1 is the tabular-style template that was designed to patrol the borders of the genre by only admitting into the study those texts that satisfy the criteria therein. A detailed discussion of each criterion is provided below the table.

Characteristic		Source A	Source B	Source C	Source D
Communicative Purpose	**Description** (of product)	✓	✓	✓	✓
	Evaluation (of product)	✓	✓	✓	✓
Situational Context	**Communicative Structure** (appearance – aroma – taste)	✓	✓	✓	✓
	Topic/Theme (craft beer)	✓	✓	✓	✓
	Writer (expert/knowledgeable)	✓	✓	✓	✓
	Audience (interested; less knowledgeable)	✓	✓	✓	✓
	Relationship (unidirectional opinion/information transfer)	✓	✓	✓	✓
	Goal (communication of assessment of product)	✓	✓	✓	✓

Table 3. 1: Diagnostic tool for text inclusion in genre for both monolingual corpora.

The elements of the diagnostic template presented in Table 3.1 were developed principally from the work of Vijay K. Bhatia (1993) and John Swales (1990). Swales, taking the theoretical perspective of discourse analysis, constructed a comprehensive definition of the concept GENRE, which can be condensed into a list of five fundamental criteria:

1. A genre is a class of *communicative events*.
2. The principal criterial feature that turns a collection of communicative events into a genre is some shared set of *communicative purposes*.
3. Exemplars of instances of genres *vary in their prototypicality*.
4. The rationale behind a genre establishes constraints on allowable contributions in terms of their *content, positioning* and *form*.
5. A discourse community's nomenclature for genres is an important source of insight.

(Swales 1990: 45-58, my emphasis)

3.2.2.1 Communicative Events and Communicative Purposes

For Swales (1990), and also for Bhatia (1993), a genre is a type of *communicative event*, which he describes as an event in which 'language (and/or paralanguage) plays both a significant and indispensable role' (Swales 1990: 45).

Along with language, the communicative event consists of a discourse, including its *role* (i.e. communicative *function* or *purpose*), and its participants, along with the cultural and historical environment in which the discourse is produced and received (Swales 1990: 46, my emphasis).

In order for a collection of communicative events to be classified as a genre, Swales argues that it is essential for them to share a set of *communicative purposes*. Further, as it is assumed that 'genres are communicative vehicles for the achievement of goals' (Swales 1990: 46), it is imperative that this shared set of communicative purposes remains constant in the genre, even if other elements do not.

Therefore, for Swales, the constant, or 'privileged' property for a given genre is the set of shared communicative purposes, while the features of varying prototypicality are elements such as audience expectations, form, structure and content (Swales 1990: 52). [36]

[36] As will be shown, this was found to be the case with texts from the genre of craft beer reviews as they can vary somewhat in their form, structure and content from one source to another; some contain only text, others photos; some are more narrative in nature, others shorter and highly precise and economical in product description and evaluation. However, the *communicative purpose* remains constant: assess a product from the perspective of visual appearance and organoleptic qualities and communicate that assessment to an audience.

3.2.2.2 Bhatia's 7-Step Genre Analysis Model

The seven-step genre analysis model developed by Bhatia (1993), is also a useful diagnostic tool for the inclusion or exclusion of texts in this study.

Although it is primarily aimed at analysing unfamiliar genres for the purposes of description and categorisation, it can be equally applicable, one could argue, to this particular study, which concerns a genre already somewhat familiar to this researcher but which aims, at least at this stage, to adequately classify texts as either belonging or not to the genre of craft beer description and evaluation.

This is a comprehensive model of analysis which considers genre from many perspectives, including: social, psychological, linguistic, contextual, content, and structural.

Step 1: Placing the Given Genre-Text into a Situational Context

This first step emphasises the researcher's intuition about the text(s) in question and calls upon his/her encyclopaedic knowledge of the world in order to perform an initial and superficial analysis of the texts for genre identification (Bhatia 1993:22).

As I have experience with texts of a descriptive and evaluative nature from the domain of wine and craft beer, I was able to recognise, at least informally, that the texts in question may belong to the genre of 'tasting notes' or 'reviews'.

Step 2 - Surveying Existing Literature

In order for the analyst to gain a deeper understanding of the genre, it is important to review the literature pertaining to the genre and others closely related to it, which will include linguistic analyses, theoretical discussions and, also, useful methods of investigation.

This step has already been taken in this particular study as a relatively in-depth survey of work carried out by respected authors and researchers (e.g. Lehrer (2009); Caballero (2007); Caballero and Ibarretxe-Antuñano (2015); Paradis and Eeg-Olofsson (2013)), focusing on the domain of winespeak, or *oenology* (Silverstein 2004), was performed.

Step 3 - Refining the Situational/Contextual Analysis

The next step in the model is to identify and describe both the writer and her/his audience along with the relationship between the two and the expected goals (Bhatia 1993: 23). It is also at this stage that the topic/theme of the texts is described and defined.

For example, Caballero and Ibarretxe-Antuñano (2015) provide the information necessary to satisfy this particular step for the domain of wine:

> [this] genre falls within reviewing practices: [its] main goal is to describe and evaluate an…entity (wine) for an audience that may or may not have any previous knowledge about [it], yet is interested in having an assessment written by a knowledgeable source.
>
> (Caballero and Ibarretxe-Antuñano 2015: 155)

In this short passage, the writer (the knowledgeable source) and the audience (the interested readers) are clearly present; likewise, the relationship (unidirectional opinion and information transfer) and expected goal (the communication of the assessment of a product, wine) are also evident.

The texts of a very similar nature in the domain of craft beer also feature all of these situational/contextual characteristics. Therefore, it could be proposed that one of the main differences between the two closely related genres is the *theme* or *topic* (i.e. wine Vs craft beer).

Step 4 - Selecting Texts for the Corpus

This fourth step concerns the selection of texts for the corpus to be compiled for investigation. However, this task is directed more at those researchers encountering or investigating an unknown genre for the first time and whose prime concern is to explore and identify its typical features. Therefore, it could be considered less challenging for this study as the genre is already known to the researcher, although the task still remains of selecting the texts.

Step 5 - Study Institutional Context

By studying the *institutional context* of a genre, the conventions governing the linguistic, social, cultural and academic/professional aspects can be investigated. These elements frequently determine the construction and structural layout of the texts particular to the genre.

Through an examination of the institutional context of texts compiled for a pilot-corpus of craft beer reviews, it was possible to determine that the construction and structural layout of texts of a descriptive and evaluative nature in the domains of wine and craft beer are very similar in various ways.[37]

[37] The pilot study was conducted on a small sample corpus of craft beer reviews (totalling 20,216 tokens) from a total of nine online sources. Some of these are craft beer brewers' websites, while others are taken from critics' websites and blogs. The contributors, including their contributions in token counts were: The Beer Nut (12,444), Holden's Brewery (326), A Perfect Pint (1,862), Prince of Wales Foxfield Brewery

Firstly, they are both short; texts in the domain of wine typically consist of between 10 and 100 tokens, as outlined by Silverstein (2004); for craft beer, texts, although sometimes reaching up to 300 words, characteristically consist of between 100 and 200 tokens.

Secondly, they both follow a highly systematic structure of information transfer of organoleptic experience as was described by Lehrer (2009) in order to accurately reflect the temporal dimension of the three main phases of the actual tasting experience: appearance – aroma – taste.

Step 6 - Linguistic Analysis

After following the steps laid out above, which take a socio-cultural and contextual perspective, the analysis can take a more linguistic approach. This particular step is further subdivided into three separate levels: lexico-grammatical features, text-patterning or 'textualisation', and structural interpretation of the text-genre.

A statistical examination of the lexico-grammatical features could be carried out on the texts of a genre in order to determine (or indeed to exclude) typical features of this kind. For example, tenses, clauses or word-classes would be explored. Although Bhatia (1993) advises that these features will not yield any important information regarding the communicative purpose (i.e. the most important identifying feature) of the genre, they would, nonetheless, provide important linguistic information of the genre in question (Bhatia 1993: 25).

A given genre may exhibit 'textualisation', or typical patterns in how the various elements are combined. For example, in scientific writing, it is common for noun phrases appearing in the latter stages of a text to be more complex than those appearing at the earlier stages. Critically, however, it is not the frequency of these patterns that is important but, rather, their *function.* In the case outlined here, Bhatia (1993) suggests that the reason for the varying complexity in noun phrases in scientific writing is to introduce the reader gradually to the language of the genre (Bhatia 1993: 29).

The *structural interpretation* of the text-genre concerns the manner in which the information is presented. Although certain aspects of the texts in a given genre may vary, Bhatia suggests that a consistency is maintained by skilled writers of the genre in terms of how they organise and present their overall message (Bhatia 1993: 29). Further, if one

(1,207), Adnams PLC Sole Bay Brewery (1,821), Alameda Island Brewing Company (668), Mark Dredge (1,068), 2 Kids Brewing (367), White Hag Brewing Company (453).

considers that the most important element in identifying a given genre is the shared *communicative purpose*, then it is not difficult to see how the *communicative structure* also aids in its transmission to the reader(s).

These organisational strategies are influenced by the socio-cultural context in which the genre is developed (Singh et al 2012: 375).

Step 7 - Specialist Information in Genre Analysis
The seventh and final step in Bhatia's (1993) model of genre analysis concerns the utility of accessing specialist knowledge in order to validate the findings of a given genre study.

Similarly to Step 4 of this model, this particular task is directed more at those researchers who may not be sufficiently familiar with the genre under investigation. However, it was less challenging for this study as specialist knowledge was developed through in-depth research into the area and, also, by communicating with prominent authors such as John Duffy (The Beer Nut) and Caroline Hennessy and Kristin Jensen (*Sláinte* – The Complete Guide to Irish Craft Beer).

3.3 Applying Bhatia's Genre Analysis Model to Texts in the Craft-Beer Corpora

In this section, examples are given of how the diagnostic template was implemented in the process of selecting actual texts for inclusion in the two monolingual corpora used in this research project.

In order to illustrate the method for the inclusion of a given text in this study, two randomly selected texts (in English) will be examined utilising Bhatia's model of genre analysis.

Text 1 was taken from The Beer Nut Blogspot.com and Text 2 from the website Pohjala Beer.com. The reason for selecting these two texts was twofold: firstly, the sources in which they are found are not identical (a blog Vs a more static corporate website) and, also, although they share certain characteristics, they are not totally identical. Most obviously, Text 1, given in 50), is of a more narrative style;[38] Text 2, given in 51), is considerably less so and more overtly states each of the various elements of a tasting experience (i.e. appearance, aroma(s), taste(s) etc.).

50) Text 1

[38] This approach, it could be argued, allows for a more 'real-time' description of the product than that of Text 2.

[T]his is *La Corne du Bois des Pendus Black*: 8% ABV and declining to give itself a style, other than, well, "black". It's not even black, either, more a reddish brown. The topping is a steady mousse, not dissimilar to the head on a stout, and it has the same sort of dense creaminess. The flavour is in that direction too, though very much on the sweet side, with milk chocolate and rosewater, building to a heavy perfume that sits uncomfortably on the palate. The sweetness increases as the beer goes, turning to saccharine, aftershave and some half-memory of lurid milkshakes from my childhood, made from chemicals that are doubtless illegal now. Anyway, it's not great. More than anything, I kept thinking it's *unBelgian*: this is not how Belgians normally make beer.

Source: https://thebeernut.blogspot.com

51) Text 2

Bänger - Imperial stout with prunes, vanilla, and habanero chillies

Beer - A banging Imperial Stout brewed with prunes, vanilla, and habanero chillies.

Appearance - Jet black with a quickly fading dark brown head.

Nose - Prunes, burnt dark sugar and dessert wine appear, with hints of vanilla and cherries following.

Taste - Dark chocolate and dried prunes come out first, followed by a strong Turkish coffee and stewed blackcurrant jam. Vanilla supports, followed by a long, lingering - BÄNG - from the chilli. Just enough to shock your taste buds and leave you wanting more.

Malts - Pale malt, Munich malt, Special B, Crystal 300, Crystal 150, Crystal 200, Carafa type 2 special, Chocolate malt, Chocolate Rye, Oats

Hops - Magnum, Northern Brewer, Prunes, Vanilla pods, Habanero chilli

Source: http://pohjalabeer.com/en/beers-specials.html

3.3.1 Communicative Purpose

As suggested by Bhatia (1993) and Swales (1990), the most important criterion for genre identification is the shared set of *communicative purposes* and, as discussed in earlier

sections, the *communicative structure* with which these are transmitted also plays an important role.

The two texts above clearly share the same communicative purpose, which is the description and evaluation of a craft beer product from a more knowledgeable source to his or her audience/readership.

Although, it could also be argued that the evaluative element, or rather the *opinion* the writer holds for the product, is more prominent in Text 1, taken from a blog, than in Text 2, taken from a website. For example, Text 1 contains various phrases and vocabulary expressing reviewers' sentiments, such as: *it's not even black, either; sits uncomfortably on the palate; lurid; aftershave; illegal*. Text 2 contains far fewer representations of this kind, perhaps only one: *Just enough to shock your taste buds and leave you wanting more*.

It is important to reiterate at this point that these inconsistencies across texts do not mean that they belong to different genres as Swales and Bhatia both stress that the fundamental characteristic, namely the communicative purpose, must remain constant while other elements may vary.

3.3.2 Communicative Structure

The *communicative structure* of both texts is also similar and generally follows the pattern: appearance – aroma – taste, consistent with the temporal dimension of the actual sensorial experience of the tasting event (Silverstein 2004, Lehrer 2009).

It is also worth noting that another structural characteristic outlined by Silverstein (2004) for wine tasting notes/reviews, namely token count per text (10-100) is also very similar to those of the above examples: Text 1 consists of 132 tokens, while Text 2 has 129 tokens.

3.3.3 Linguistic Analysis

Lehrer (2009) proposes that there is 'a great overlap in basic vocabulary' between the domains of wine and beer (and, in fact, other domains such as food, perfume and music). This can also be seen in the two sample texts, albeit to a much lesser degree, as both authors make use of the descriptor 'chocolate'.

The characteristic most strikingly shared by both texts is that the sense of movement prominently features in the description of the products.

For example, in Text 1, the author employs verbs such as *sit*, *go*, *turn*, *increase*[39] and *build* (to), adjectives such as *steady*[40], and nouns such as *direction*. Likewise, in Text 2, similar linguistic items can be seen: adverbs such as *quickly* and *lingering*, and verbs such as *fade*, *appear*, *follow* and *come out*.

3.4 Significance of Analysis Process for this Research Project

The most obvious benefit gained from this two-stage inclusion/elimination process was that any text referred to as 'tasting note' or 'review' in online sources from the domain of craft beer could be isolated from other types of texts (e.g. biography of the author, historical descriptions of products etc.) found in that same source. They were, therefore, initially regarded as potentially eligible for inclusion into a corpus for investigation, pending further, more rigid, analyses consistent with the genre diagnostic tool (Table 3.1).

The second stage, however, permitted the filtering out of those initially selected texts that, in fact, after subjecting them to the diagnostic tool, did not satisfy the essential criteria namely the communicative purpose and communicative structure (i.e. the reflection of the temporal dimension of organoleptic experience) and the various lexico-grammatical features as exemplified in section 3.3.3.

3.5 Web Genres and Web-mediated Craft Beer Reviews

Discussed above are the measures taken in order to ensure the inclusion in this study of only those texts which satisfy the strict criteria of the genre diagnostic tool. However, thus far, the term 'text' has been uniquely employed to refer to those appearing in 'traditional' or printed format but, as will be seen in the second part of this chapter, the texts examined in the present study were extracted from internet sources and, as such, appear in digital format. Therefore, it is important at this juncture to briefly explore this web-genre and compare it with its 'traditional' counterpart, highlighting some distinguishing characteristics between the two and, more importantly, identifying those commonly shared features which, ultimately, allow the digital texts to be considered sufficiently similar in nature to be included in this project.

[39] It could be proposed that this suggests intensification in a single place (i.e. development without movement or 'static' development) as 'motion events' also include 'maintenance of a stationary location' as per Talmy (1985: 60) and discussed here in section 2.1.
[40] See above point.

3.5.1 Web-mediated and 'Traditional' Genres

Nielsen and Askehave (2005) identify a fundamental difference between print and digital genres in that the former acts solely as a text but that the latter acts as a text and, also, as a medium through which the reader can navigate. Further, 'although many web genres have printed counterparts…, the medium adds unique properties to the web genre in terms of production, function and reception' (Nielsen and Askehave 2005: 125).

These scholars do not regard web-mediated genres as simply traditional genres transferred to the Web but, rather, as different from print genres by virtue of exploiting the feature of 'hypertext', the main medium employed for the presentation of information on the internet (Ibid: 126). A defining feature of this tool is that it provides direct pathways between non-hierarchical text blocks within and across web pages through the use of links.[41] This type of navigation enables non-linear information transfer from the sender to the reader and, by extension, allows the latter to engage in 'hyper-reading' of web-mediated texts, greatly reducing the element of linearity associated with 'traditional reading' (Ibid: 126).

However, Finnemann (1999) rejects this linear-nonlinear polarity between 'traditional reading' and 'hyper-reading', suggesting that it is misleading and that the process of reading digital texts and printed texts are not so dissimilar:

> […] it is wrong in the implicit assumption that the reading process is solely and completely controlled by the order of letters on the paper. You are, as a reader, free to skip a passage, to jump, to skim, to go to the end, to search, browse, and to focus on selected passages – as a reader you have a variety of possible approaches and ways of reading.
>
> (Finnemann 1999: 22)

Finnemann (1999) proposed, then, a two-modal process of reading web-mediated texts, in which the reader shifts back and forth between 'reader mode' and 'navigation mode' by exploiting the hypertext system. Taking this approach into account, Nielsen and Askehave (2005) produced a two-dimensional genre model, upgrading the 'unidimensional' Swalesian model of 'traditional' reading to also capture the unique characteristics of the

[41] Nielsen and Askehave (2005) define a 'link' as a 'clickable object (for example appearing as an icon or as underlined/highlighted text as in "read more") which allows the navigator to go from one place to another on a web page or a web site'.

navigation or ‘hypertext’ mode. Nielson and Askehave’s schematic representation of this new model is reproduced here in Figure 3.1 and subsequently discussed.

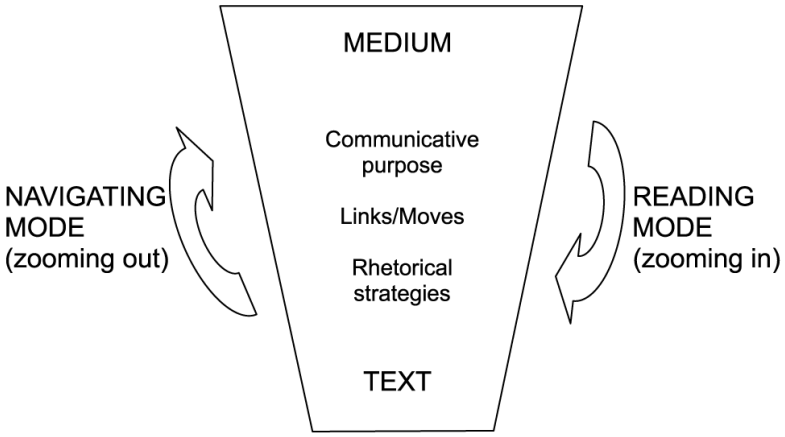


Figure 3. 1: Nielson and Askehave’s (2005) two-dimensional genre model.

This revised genre model captures the circular nature of shifting between reader and navigation modes where, in the former, the reader ‘zooms in’ and uses the digital document in a traditional fashion (i.e. simply for reading) and, in the latter, becomes a navigator ‘zooming out’ of the text to use the document as a medium through which to navigate (Nielson and Askehave 2005: 128)

However, perhaps of most importance to the present study and, by extension, the diagnostic tool described in earlier sections, the central tenets of qualification for texts to a particular genre remain constant: the communicative purpose (Swales’ ‘privileged’ property), the ‘moves’ (i.e. the communicative structure) and the rhetorical strategies (i.e. content, style, form etc.).

Furthermore, these scholars also recognise that the medium does not always play such a significant role in classifying a genre as the status and function of a text often remains unchanged: an uploaded PDF file of an annual report, they maintain, is still an annual report.

It could be argued, then, that the same is the case for web-mediated craft beer reviews as, although in digital format and frequently offering the user the two-dimensional option of reader mode and navigator mode through the hypertext system, the central elements of communicative purpose and situational context as laid out in the genre diagnostic tool (Table 3.1) remain unaffected.

With the boundaries of the genre now clearly constructed and the filtering process of text inclusion/exclusion established, attention can now turn to their implementation during the development stage of the corpora consisting of those texts that successfully qualified.

The methods and tools employed to perform this task will also be the focus of the following, second, part of this chapter.

Part Two: Corpora and Corpus Development

3.6 Introduction

In this section, the two monolingual corpora of craft beer reviews created for the present study will be introduced (firstly the English corpus and later the Spanish corpus) along with the various methods of finding relevant sources from which to retrieve suitable texts. The techniques of gradually developing the corpora to the desired size using a range of tools will also be discussed and a detailed introduction to the online software program employed in this project both with its benefits and limitations will be provided.

Throughout the section, attention will also be given to the various problems encountered at the different stages of corpus development and, where possible, the solutions found to resolve them.

Firstly, however, it is important to mention at this point that the quality assessment for source inclusion is, in fact, a two-fold process. Initially, any candidate source is tested for text suitability by applying the diagnostic tool as discussed earlier (§3.2.2). Upon satisfying the criteria laid out in the template, the source itself must prove to be compatible with the software program (and its various tools) used in this research project, *Sketch Engine*.

As will be shown, many sources were considered (for the English corpus) but only four were actually selected by virtue of satisfying the textual and software compatibility requirements and, also, due to practical time limitations of the project.

It should also be pointed out here that, although some of these sources were found using the 'seed word' list in *WebBootCaT* (see §3.7.2.1), others were explored by virtue of being recommended by expert writers and authoritative bodies in the industry of craft beer production and commentary.[42]

These sources and the corpora developed from them will be briefly introduced below and the section will close with a more in-depth comparison of the two corpora in relation to selective and descriptive criteria.

[42] Authors such as John Duffy (The Beer Nut), Caroline Hennessy and Kristin Jensen (*Sláinte* – The Complete Guide to Irish Craft Beer and Cider) and Mark Dredge (The Best Beer in the World: One man's globe search for the perfect pint; Craft Beer Tasting Kit: Everything you need for a beer-tasting party; Craft Beer World: A guide to over 350 of the finest beers known to man).

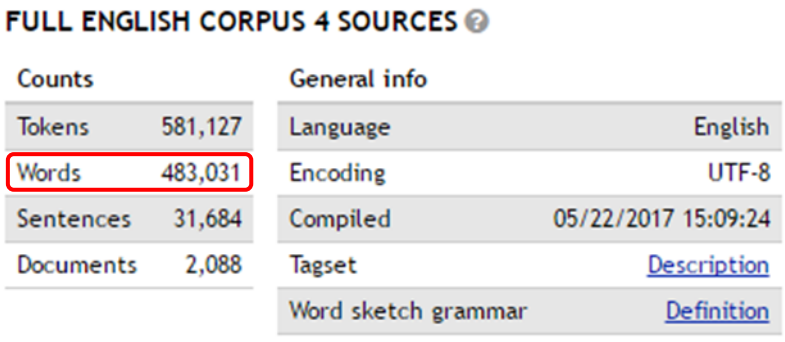
3.7 The English Corpus of Craft Beer Reviews

The English corpus of craft beer reviews developed for this research project was compiled from four online sources and consists of 483,031 tokens (see Appendix E). The original desired size of each of the two corpora was 500,000 tokens due mainly to the fact that much of the analysis of the project would be qualitative and manual, ultimately limiting the amount of text that could be realistically analysed.

Further, the maximum token count allocated to my account in Sketch Engine was one million and as 'space' was needed throughout the project for uploading and testing potential sources and texts etc., it was decided that a limit of c.480,000 tokens would be applied to each of the two corpora. However, it is important to point out that this has become less of a limitation as the maximum placed on one's account can be increased, allowing the possibility of further expanding the present corpora for future research and projects whose scopes exceed that of the current study.

This large corpus consists of four sub-corpora that were originally developed independently; saved in Word documents and, later, modified (i.e. enlarged or reduced) to achieve the desired size; and, finally, uploaded as one Word file to the online corpus investigation tool Sketch Engine.[43]

Figure 3.2 shows a print-screen image of some basic extra-textual information for this corpus as given in Sketch Engine and Table 3.2 provides both the word counts of each sub-corpus compiled, the sources of each corpus and the country of origin of each of these sources.



FULL ENGLISH CORPUS 4 SOURCES

Counts	
Tokens	581,127
Words	483,031
Sentences	31,684
Documents	2,088

General info	
Language	English
Encoding	UTF-8
Compiled	05/22/2017 15:09:24
Tagset	Description
Word sketch grammar	Definition

Figure 3. 2: Print-screen image of all four sources for English corpus of 483, 031 words.

[43] Although all four sub-corpora were uploaded to Sketch Engine in one file, it was also possible to upload them individually; however, as one important factor of the project was to compare two corpora (Spanish and English) of equal size, uploading one file facilitated more accurate and immediately visible information in this regard.

No.	Domain Name	Country	Web Link	Tokens
ENGLISH				
1	The Beer Nut	Ireland	https://thebeernut.blogspot.com.	127, 381
2	Draft Magazine	U.S.A.	http://draftmag.com/	126,849
3	A Perfect Pint.Net	U.S.A.	http://www.aperfectpint.net/	100,181
4	Beer Connoisseur	U.S.A.	https://www.beerconnoisseur.com	126,181
Total word count for English Corpus = **483, 031**				

Table 3. 2: summary of sub-corpora developed from English sources.

3.7.1 Source and Author Representation: Some Considerations

As the investigations and trials progressed during the study, it was found that issues such as restrictions placed on the software program by various sources coupled with time restrictions dictated that from only four sources could texts be extracted. Nevertheless, as one source (The Beer Connoisseur.com) is a website with 39 different reviewers, five female and 34 male, and another (Draft Mag.com) also had various contributors, any potential implications of the reduction in terms of language representation or, indeed, of author idiosyncrasy were not deemed to be significant.

Before providing a more detailed discussion concerning the various stages of firstly sourcing the relevant texts and later developing a corpus from them, it is perhaps prudent to introduce the specific software program and its various tools that were employed to perform all necessary tasks to achieve these ends.

3.7.2 *Sketch Engine*: Online Corpus Development and Management Program

The software program employed in this research project was the online corpus manager and analysis software tool *Sketch Engine*. This is a multi-function resource which allows the researcher, among other tasks, to search the internet for highly relevant sources of texts, compile corpora consisting of those texts, and to investigate the developed corpora to gain insights into, potentially, any given linguistic phenomenon/a.

However, despite the benefits of having this software tool at one's disposal, developing corpora is, nevertheless, still a multi-stage, time-consuming process consisting of a series of diverse tasks. Those steps taken to complete that process and the individual tools that can be utilised in Sketch Engine will be outlined and discussed below.

3.7.2.1 Stage One: Casting the Net – Developing an Effective Seed-Word List

There are various ways to develop corpora using Sketch Engine. For example, if a text document is already available, it can be directly uploaded to the system in various formats, such as a PDF or a Word document etc.

However, as there was no pre-compiled corpus of craft beer reviews available to upload, another approach was required. The option most relevant for this project, then, was to make use of the tool *WebBootCaT* in Sketch Engine, which allows the researcher to build a corpus directly from sources found on the internet.

One of the main advantages of this resource is that considerable time can be saved as the laborious task of manually copying individual texts from online sources (i.e. websites and blogs etc.), pasting them for storage in, for example, Word documents and later uploading them to Sketch Engine for examination is not required. Also, extra-textual information such as the sources of the texts and word counts etc. are automatically recorded and included in the file.

3.7.2.1.1 Building Corpora with WebBootCaT

There are three ways a corpus can be built using the WebBootCaT option in Sketch Engine:

1. by providing some typical words that identify the topic or the domain
2. by imputing a list of URLs (i.e. addresses of particular web pages)
3. by downloading a complete website

As will be shown, the first two proved to be profitable during this project while the third option of downloading a complete website was found to be considerably less so.

As the first stage in the corpus development process was to search the internet for relevant sources of texts for the corpora, it was decided to develop a well-refined list of keywords, termed 'seed words', that are typical of the domain of interest and which, to WebBootCaT, define the topic under investigation (Sketch Engine 2017).[44] In the present case, these were terms from the domain of craft beer. The program launches a 'crawl' of the Web by placing the seed words into a 'tuple' (usually consisting of three seed words) which is then sent as a single query to a search engine that, in turn, retrieves seed URLs that the search engine finds (Kilgarriff et al 2014: 28), extracts new URLs from the links in the retrieved pages, follows the new links to retrieve more pages, and so on (Bernardini et al 2006: 18).[45]

To illustrate, in the review section of URLs offered by WebBootCaT during the development of the Spanish corpus of the current project, the results were grouped together by virtue of containing three seed words in a given query (i.e. a tuple), for example:

i. Query: *evaluar, gusto, vista*

ii. Query: *crítica, tacto, vista*

iii. Query: *cerveza artesanal, crítica, vista*

The seed word list developed for the domain of craft beer was extracted from a pilot corpus of 20,000 tokens from the same domain and previously developed in the early stages of the project.

Using the *Wordlist* function in Sketch Engine, 20 words were selected from this pilot corpus to be used in the search of relevant online sources. This number of seed words selected is determined by the WebBootCaT function in Sketch Engine, and is the maximum permitted in a given search.[46] Table 3.3 shows the seed words extracted for English from the pilot study.

ABV	character	hopped	mouthfeel	saison
aftertaste	"craft beer"	IPA	"Pale ale"	stout

[44] https://www.sketchengine.co.uk/user-guide/user-manual/corpora/create-a-corpus-from-the-web/#toggle-id-1

[45] A 'tuple' is used for grouping data together so that it can be used as a single thing (http://openbookproject.net/thinkcs/python/english3e/tuples.html).

[46] Terms containing more than one word (e.g. 'craft beer') need to be placed in full quotation marks so that the system would consider them as one unit in the search process.

blonde	hop	lager	Pilsner	wheat
brewed	hoppy	malty	Porter	yeast

Table 3. 3: 20 seed words used to search for relevant online sources.

This approach yielded hundreds if not thousands of URLs, which was considered far too many; therefore, it was decided to adjust the search criteria in the *Advanced Settings* function of WebBootCaT to try to elicit a more manageable number of URLs.

Fig. 3.3 shows a print screen image of the refinements made to the standard settings for this function and Table 3.4 provides a summary of the original settings and their corresponding modifications.

Advanced Filter Option	Original Setting	Modified Setting
Max. URLs per Query	20	**5**
Min File Size (in kB)	5	**500**
Min Cleaned File Size	1	**500**
Min. Unique Keywords (types)	10	**18** (out of 20)
Min. Keyword Ration	0.1	**0.5**

Table 3. 4: Summary of the original settings and their corresponding modifications.

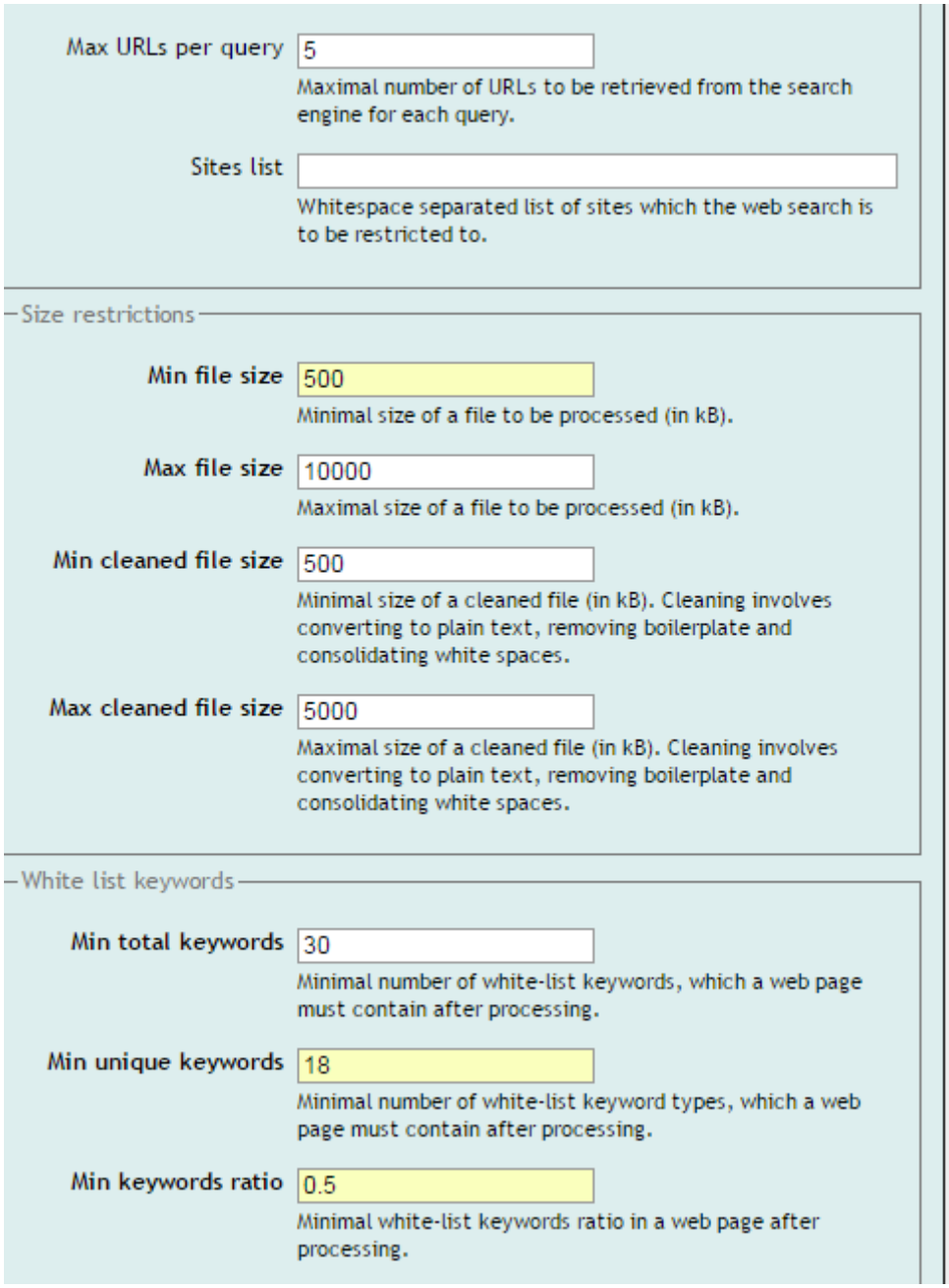


Figure 3. 3: Refinements to standard settings for WebBootCaT in Sketch Engine.

This refined search yielded approximately six hundred hits, from which a total of 9 sources (i.e. URLs) were selected (see Table 3.5) on the basis of being sufficiently relevant to the domain of craft beer and of containing texts which would satisfy the criteria for genre inclusion.

No.	URL
1	http://www.greatbritishfoodmagazine.com/blog/the-best-british-lagers
2	https://www.beeradvocate.com/beer/profile/3753/57678/
3	http://brewpublic.com/uncategorized/50-must-try-hoppy-beers/
4	https://www.ratebeer.com/beer/slaapmutske-dry-hopped-lager/84804/
5	http://www.firestonebeer.com/beers/products/pale-31
6	https://www.craftbeer.com/craft-beer-muses/warm-up-with-craft-beers-spring-seasonals
7	http://pohjalabeer.com/en/beers-specials.html
8	http://www.beeroftomorrow.com/hoppy-wheat-beers/
9	http://www.theporterhouse.ie/beers-hophead.php

Table 3. 5: URLs selected from seed word search in Sketch Engine.

3.7.2.1.2 Candidate Sources Found Not Using WebBootCaT and Seed Word Lists

As mentioned above (§3.6), WebBootCaT was not the only method by which candidate sources were retrieved in this research project but, rather, it was used in conjunction with recommendations offered by experts in the industry of craft beer production and commentary and, also, general online searches. A list of such recommended sources is given in Table 3.6.

	Candidate Source	Recommended By
1	https://thebeernut.blogspot.com.es/	Mark Dredge
2	http://draftmag.com/reviews/	Mark Dredge
3	http://www.ratebeer.com/beer/westvleteren-12-xii/4934/.	Mark Dredge John Duffy
4	http://allaboutbeer.com/reviews/	Mark Dredge
5	http://boakandbailey.com/	Mark Dredge
6	https://www.beeradvocate.com	John Duffy
7	http://www.blogaboutbeer.com	Geek and Gadget World

Table 3. 6: Recommended sources for craft beer reviews.

Having described how some promising candidate sources were secured, I will now discuss how some of these sources were disqualified on theoretical grounds, i.e. for containing texts which did not satisfy the criteria for genre inclusion or for more practical reasons of incompatibility with the software program and time limitations of the project.

3.7.2.1.3 Disqualification of Candidate Sources: Genre Criteria Not Satisfied

Some sources employ systems of evaluation in which a product is awarded a score on a point scale ranging, typically, from 80 to 100 (100 being superior and 80 being those which could be improved somewhat). However, one observation made, shown in Figure 3.4, from Tastings.com, was that, even though a product had been awarded a score considerably low down the scale, the author does not comment on those areas in which the product may be lacking.

Briefly, then, in texts such as these, there is an imbalance in the critique with only the positive elements remarked upon, ultimately violating one of the two elements (i.e. the

evaluation of the product) of the 'privileged' property of the genre, namely the communicative purpose as laid out in the diagnostic tool for text inclusion in the genre.

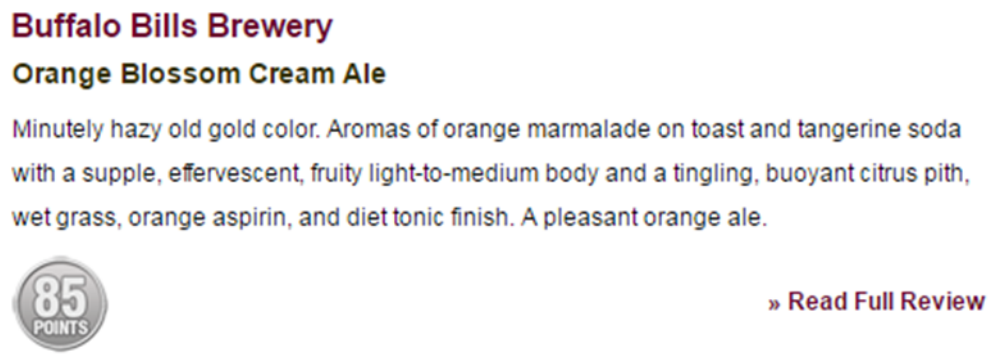


Figure 3. 4: 'Unbalanced' [47]review; violation of genre's communicative purpose.[48]

Other candidate sources were removed from the project on the basis that they contained excessively long reviews which, ultimately, were deemed to be considerably 'diluted' texts and, therefore, also unsuitable. 'Diluted' here signifies that the relevant information (i.e. sensory descriptions/product evaluation) was dispersed across a (relatively) large body of text.

Examples of these sources include Beers of the Month Club.com. and Beer Reviews.co.uk, reviews from the latter of which were also noted to have been lacking in important information, such as descriptions of product appearance.

The contrasting issue arose of sources containing texts that were very short and, as a consequence, were considered to be insufficiently informative. Such examples include Craft Beer World.co.uk and The Hop Review.com.

3.7.2.1.4 Disqualification of Candidate Sources: Website Ban on Indexing

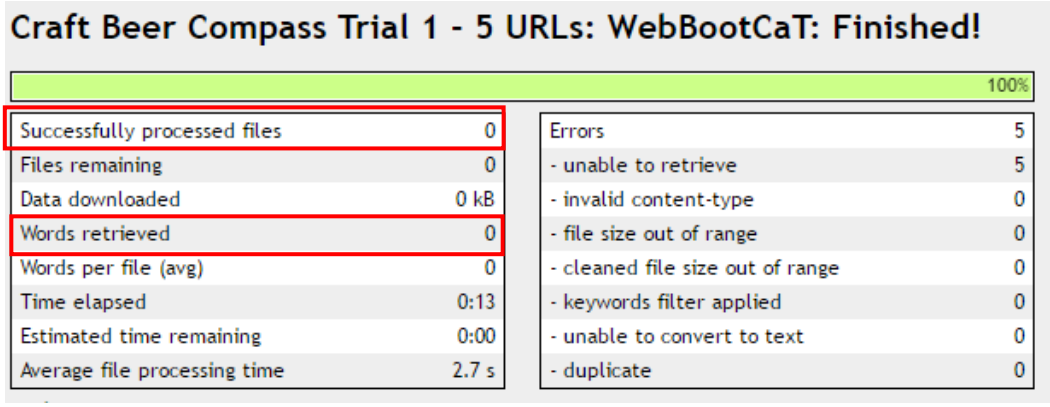
The former reasons for source exclusion from the study could, perhaps, be classified as being more of a theoretical nature in the sense that they do not satisfy the requirements as laid out in the genre criteria. However, the issues discussed in the present section could be deemed to be more 'practical' as they concern, among others, time limitation issues and the indexing injunctions some websites place on, and which are honoured by, programs such as WebBootCaT. In other words, such candidate sources passed the first round of qualification but not the second.

[47] Source: http://www.tastings.com/Calendar-Beer/Review-2017-06-19-New-Release-Beer.aspx
[48] Although there is an option in this example to 'Read Full Review', the entirety of the text is as presented here and no additional text is given in the linked web page.

One of the main technical issues encountered in this project which resulted in a source not qualifying for inclusion concerns 'empty' corpora being returned by Sketch Engine. That is, after using both search options (Website and URL) in WebBootCaT, the system returned corpora that contained no files and, by extension, did not retrieve any words.

Craft Beer Compass is a good case in point.

Introducing five URLs from this source firstly into the URL search option in WebBootCaT and later into the Website search option, the software returned a corpus containing no files or words etc. Figures 3.5 and 3.6 are print-screen images of the results from both attempts to build a corpus from this particular source.

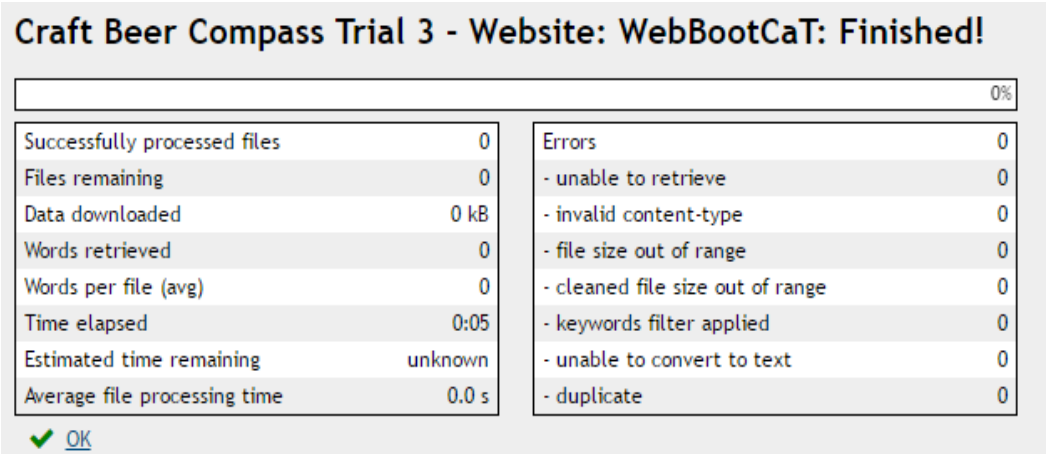


Craft Beer Compass Trial 1 - 5 URLs: WebBootCaT: Finished!

100%

Successfully processed files	0	Errors	5
Files remaining	0	- unable to retrieve	5
Data downloaded	0 kB	- invalid content-type	0
Words retrieved	0	- file size out of range	0
Words per file (avg)	0	- cleaned file size out of range	0
Time elapsed	0:13	- keywords filter applied	0
Estimated time remaining	0:00	- unable to convert to text	0
Average file processing time	2.7 s	- duplicate	0

Figure 3. 5: empty corpus returned by URL option for 5 URLs of Craft Beer Compass.com.



Craft Beer Compass Trial 3 - Website: WebBootCaT: Finished!

0%

Successfully processed files	0	Errors	0
Files remaining	0	- unable to retrieve	0
Data downloaded	0 kB	- invalid content-type	0
Words retrieved	0	- file size out of range	0
Words per file (avg)	0	- cleaned file size out of range	0
Time elapsed	0:05	- keywords filter applied	0
Estimated time remaining	unknown	- unable to convert to text	0
Average file processing time	0.0 s	- duplicate	0

OK

Figure 3. 6: 'Empty' corpus returned by *Website* - 5 URLs of Craft Beer Compass.

One potential explanation for the inability of WebBootCaT to retrieve any files from this domain concerns a specific metadata command, deemed 'The Robots Exclusion Protocol', which website owners can put in place in order to ban search engines from indexing their

webpages (Yoast.com).[49] This is a simple command in .txt file format and, when a search engine encounters a website, it first consults this file in order to discover which URLs it has permission to access and which it does not; an example of a blanket ban command on a site is provided here:

```
User-agent: *
Disallow: /
```

The string 'User-agent: *' indicates that the command applies to all robots of a search engine; 'Disallow: /' informs the search engine that it does not have permission to visit any of the website's URLs (Robots txt).[50]

Bernardini et al (2006) advise that several issues need to be considered when a website crawl is being performed which concern, for example, 'efficiency', 'customisation', 'file handling', and perhaps most relevant to this discussion, 'politeness'. These scholars suggest that it is imperative that all directives stipulated by a developer in the website's robot.txt. file be respected (Bernardini et al 2006: 18). It is, therefore, most likely that Sketch Engine returned 'empty' corpora for various candidate sources (i.e. web domains) approached during this early stage of the project due to metadata restrictions put in place by webmasters and, also, by the 'politeness' obligations honoured by WebBootCaT.

However, as four web domains satisfied the two-phase qualification process for inclusion in the research project as outlined above, and, also, contained a sufficient number of reviews from which a corpus could be developed, it was decided that the search for sources would be discontinued and that construction of the corpus would begin using those four sources (The Beer Nut, Draft Mag, The Beer Connoisseur and A Perfect Pint).

3.7.2.2 Other Considerations for Using Sketch Engine for Corpus Development

In this section, the refinements and adjustments made to the software's default settings which resulted in the inclusion of the sources used in the study will be discussed.

Therefore, it has more of an advisory function to other researchers wishing to carry out similar tasks such as developing corpora from similar online sources.

3.7.2.2.1 Text Size Too Small

Those researchers working with smaller texts such as those investigated in this research project, may discover that, whether using the URL or Website search options in

[49] https://yoast.com/ultimate-guide-robots-txt/#what-is-robotstxt
[50] http://www.robotstxt.org/robotstxt.html

WebBootCaT, the software may return an empty corpus, as shown in the print-screen image in Figure 3.7 for the source Draft Magazine.

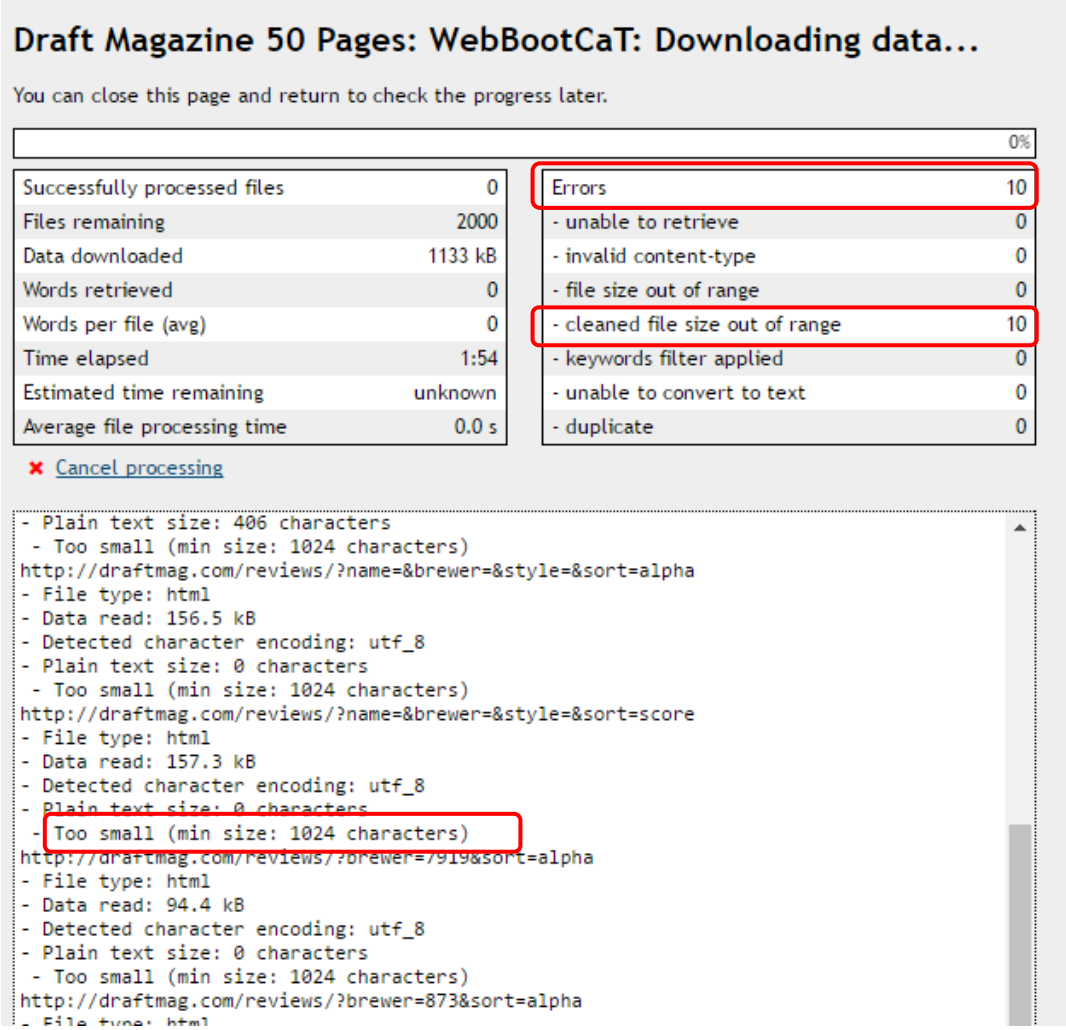


Figure 3. 7: Error types reported for insufficiently large texts with *Website* option.

This problem, however, has a very simple and straightforward solution which is, in the advanced settings tab in WebBooTCaT, to reset the default setting of 500kB for both 'minimum file size' and 'cleaned file size' (as was originally shown in Figure 3.3) to 0kB.

3.7.2.2.2 Website Option: Excessively Large Corpora and Lack of Control in Development

The 'blanket' approach of using the Website search option in WebBooTCaT may not be the most profitable for a study such as that carried out in this research project, in which the researcher wishes to build a 'pure', or focused, corpus of texts from a very specific genre.[51]

[51] 'Pure' here signifies that only texts from the genre be permitted into the corpus and not 'surrounding' text typically found on many websites and blogs etc. such as prices of products, locations of brewing, brewers' histories etc., text that goes beyond 'boiler-plate' text is excluded

Further, even, for the larger websites and blogs, if one refines the search to a particular 'path', such as 'reviews', for example, it nevertheless often proves to be far too encompassing. The corpus size produced and the time taken for compilation (although this is not as important) are often too great: at least 1 million tokens were retrieved from a single source Draft Mag under the path of 'reviews'.[52]

Another issue to consider with the Website search option is that the software will search up to 2,000 pages (i.e. URLs) in any given source that contains at least that number. However, the consequence of this approach is that researcher control is diminished as it does not appear possible to reduce the number of pages and, by extension, the 'purity' of the texts returned is also considerably compromised.

3.7.2.2.3 Source Type: Individual Blogs Vs Corporate Websites

As has been mentioned throughout this chapter, there are two main types of sources from which the corpora have been compiled for this study: individual blogs and corporate websites.

It was found, however, that the URL search option in WebBooTCaT was more suited to blogs than to the alternative option Website.

The craft beer blog The Beer Nut is an illuminating example of this point and, by selecting the 'Website' search option in Sketch Engine, and also employing the 'file size' and 'cleaned file size' limitations of 0 as previously discussed, the software returned with no files or tokens, as shown in Figure 3.8:

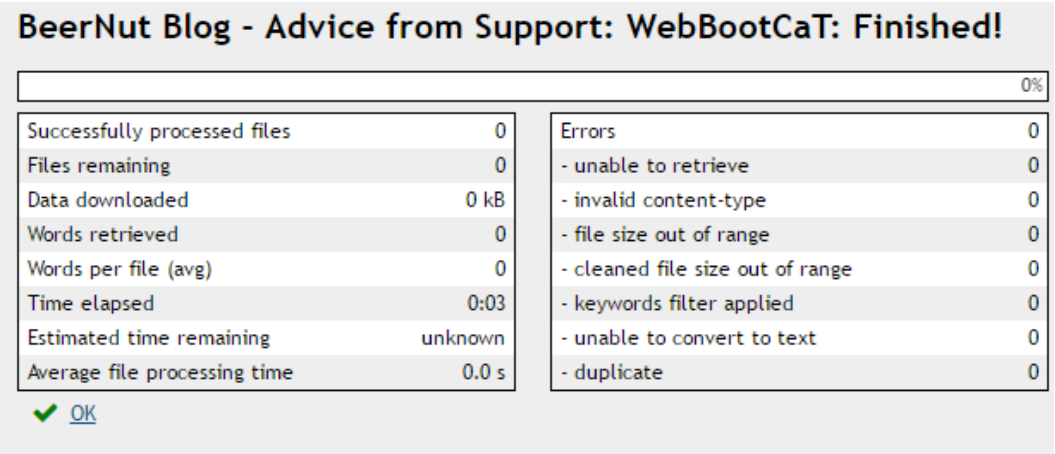


Figure 3. 8: 'Empty' corpus created for The Beer Nut with *Website* in *WebBootCaT*.

[52] The specific 'path' used was http://draftmag.com/reviews/

Although the precise explanation for this problem was not fully revealed in the study, it is presumed that the metadata issue, as outlined above (§3.7.2.1.4), may deny access to that particular search option while not placing a ban on the other, URL, option.

Contrastingly, the URL search option was very successful and it was decided that this would be the preferred approach for all such source types in the project.

3.7.2.2.4 Sources with 'Embedded' URLs: Irrelevant Text Yielded by Software

The researcher must also exercise vigilance when extracting texts from those sources which contain 'embedded' pages (i.e. those pages which are only accessible by further clicking on each particular product image or title presented on any given page).

The website All About Beer is a good example of a source with this type of information presentation.

Figure 3.9 shows the data returned by Sketch Engine after creating a corpus using the Website option in WebBootCaT; while Figure 3.10 is a two-part print-screen image of both an expanded KWIC (KeyWord In Context) segment for the singular noun *Wicklow* (in red) and, below, the corresponding text fragment on the original internet source (All About Beer. Com).

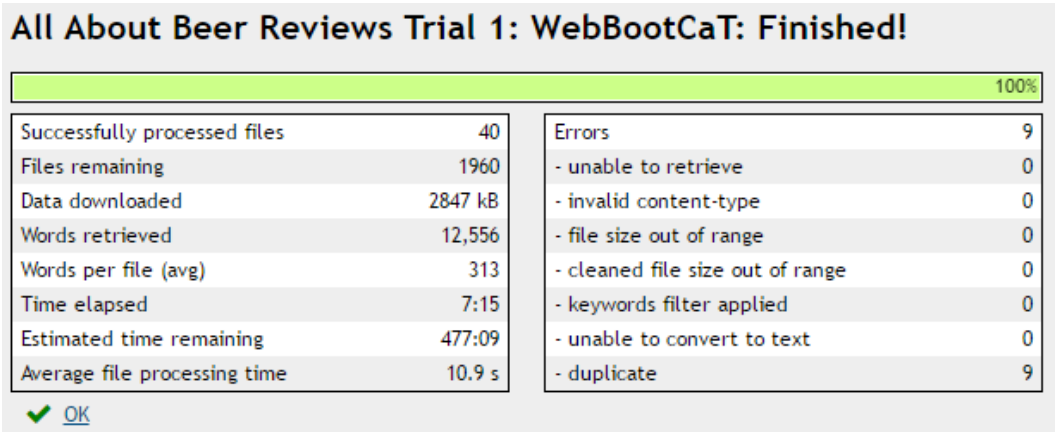


Figure 3. 9: corpus information in Sketch Engine for All About Beer website.

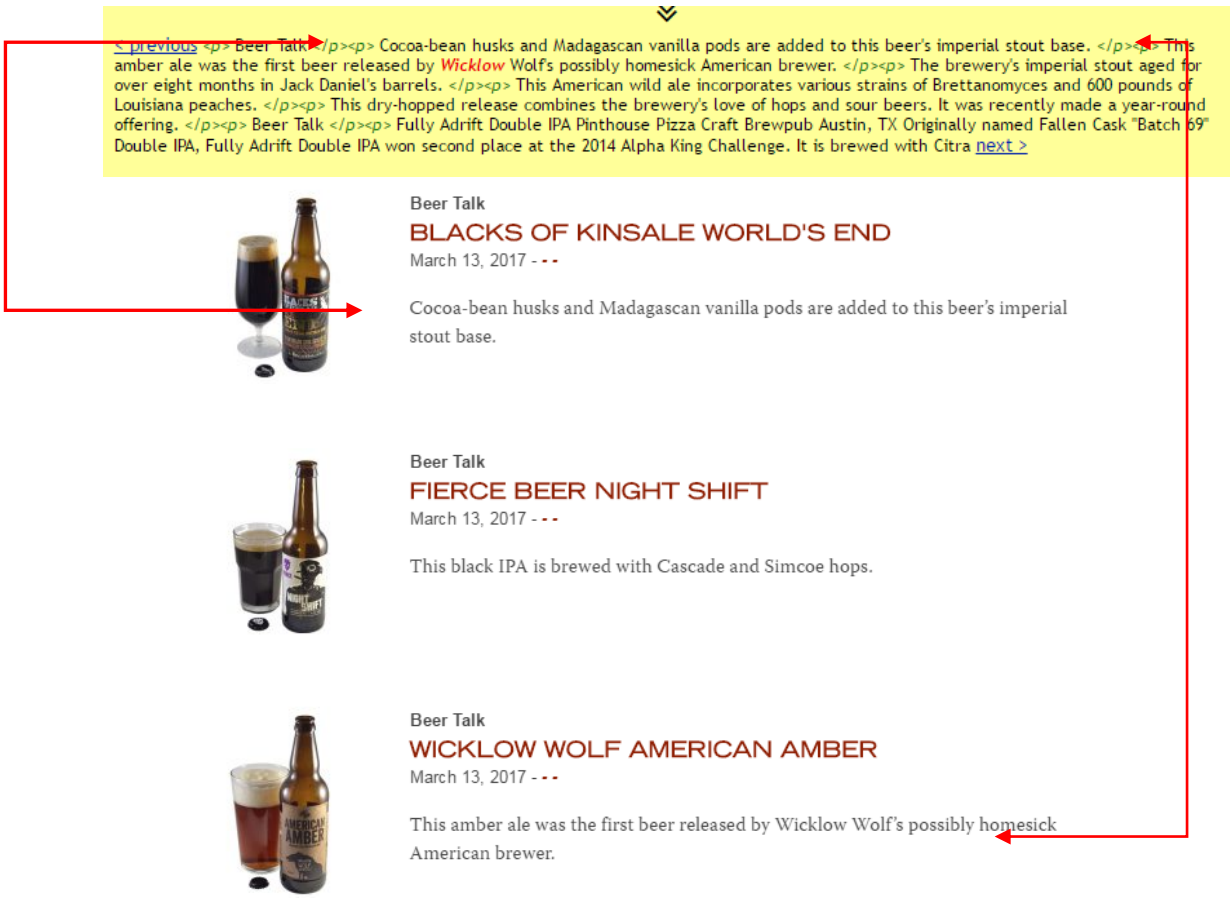


Figure 3. 10: Expanded KWIC search for *Wicklow* and corresponding text in original source.

At first glance, this snippet (in yellow) seems like a normal segment from a typical product review found on a craft beer website or blog. However, closer examination reveals that, although each of the sentences can be found on the same page of the website, they are in fact the opening sentences for different products and not a continuation of the same product review. However, even more confusingly, the sentence beginning with 'Fully Adrift Double IPA' is the opening sentence for a product which appears several pages later (page 10) but, nonetheless, appears as if it were part of the same text in the segment offered by Sketch Engine.

3.7.2.2.5 Solving the Problem: 'Manual' URL Extraction

It could be suggested that the only way to include a website with the same method of embeddeding texts as that found in All About Beer is to 'manually' open each individual embedded webpage and copy/paste its URL into Sketch Engine. Naturally, this would significantly increase the time and effort needed to develop a corpus from that particular source and would, by extension, somewhat reduce the utility of the software. Consequently, due to time restrictions of the project, this type of source was not considered for inclusion.

3.7.2.3 General Conclusions on Software for Corpus Development

In general, the software program Sketch Engine is considered a very valuable and useful resource for developing corpora.[53] However, as has been shown in this section, some of its search tools can prove more effective than others depending on the type of source and the specific needs of the researcher.

Nevertheless, the researcher employing this software program, as is perhaps the case with all similar tools at one's disposal, needs to always exercise caution by cross-checking, where possible, the data returned by the system and the information found in relevant sources. Further, it was found throughout this research project that it is imperative that the researcher develop clear strategies, sometimes through a process of trial-and-error, for employing the software and capitalising on its utility.

3.7.3 Process Employed for Developing a Large English Corpus for Present Study

In this section, I will outline and discuss the particular steps taken to develop a single large corpus of English-language texts for the domain of craft beer reviews.

3.7.3.1 Developing Individual Corpora in Sketch Engine

For the three sources The Beer Nut, The Beer Connoisseur and A Perfect Pint, the URL search option in WebBooTCaT was employed.

As each webpage (i.e. each URL) in The Beer Nut contains multiple texts, only 16 URLs were required to be copied from this source and later introduced into Sketch Engine, which resulted in a corpus of 127,381 tokens.

The Perfect Pint corpus was compiled using 22 URLs; however, as this was the totality of the source, the total word count of the corpus was somewhat less than the other three at 100,181 tokens.

Lastly for this particular approach, The Beer Connoisseur corpus was developed by introducing 670 URLs into Sketch Engine, producing a corpus of 126,181 tokens.

The word counts given here, with the exception of A Perfect Pint, were all achieved by compiling an intial corpus for each domain and, later, modifying it according to whether it required reduction or expansion; this process is outlined below in section 3.7.3.2.

[53] As will be seen in following sections, it is also useful as a corpus management and investigation tool.

For the source Draft Mag, the Website search option in WebBootCaT was employed using the following path 'http://draftmag.com/reviews/', which the system uses to search all pages (up to 2,000) under this particular path. A corpus of 126,500 words was developed from this source after completing the final modification process as outlined in the section below.

3.7.3.2 Downloading Corpora from Sketch Engine, Save to Word & Modify

In this section, I will outline the specific eight-stage process of downloading a corpus from Sketch Engine, saving it in Word format and modifying it to the desired size to be later reuploaded to Sketch Engine for investigation.

Downloading the Corpus

The downloading process consists of the following eight steps:

1. In the Home page of Sketch Engine, select the 'Edit' option of the corpus to be modified.
2. Select 'Download Corpus' from 'Manage Corpus Options' on left of screen.
3. Select 'Plain Text' option.
4. In Download Folder, select 'Open With' and 'WordPad'.
5. Save as 'Open Office XML' document.
6. Close document.
7. Right-click on document again and select 'Open With Word 2016'.
8. Click Save As Word Document.

The document is now saved in Word format and, after being adjusted (i.e. reduced/increased), is ready to be re-uploaded to Sketch Engine as a stand-alone corpus or added to an existing, larger one.

This process was performed on all four sources until a single large corpus was created in Word format and re-uploaded to Sketch Engine and consisted of some 483,031 words.

With the process of developing the English corpus for this research project now discussed in detail, along with the main problems encountered and solutions developed to overcome them, attention can now turn to the Spanish corpus developed for this comparative study of Path complexity.

3.7.4 Developing the Spanish Corpus

As may be expected, the techniques and strategies established during the development process of the English corpus were easily applied throughout the Spanish phase, considerably reducing the time and effort needed to complete this stage.

This period, then, consisted of the following tasks: (a) the translation from English to Spanish of the seed word list used with WebBootCaT; (b) a search for URLs containing those seed words; and (c) the compilation of a corpus of Spanish craft beer reviews.[54]

However, it is perhaps most sensible and useful to firstly provide a brief description of the 'behind the scenes' processing which the software program performs in order to compile a corpus and, by extension, allow the researcher to explore it.

Sketch Engine and Corpus Compilation

When the researcher has completed the collection phase of the large body of texts that s/he wishes to investigate and uploads this corpus to Sketch Engine, a multi-stage process of corpus compilation begins. One of the first tasks involved here is to split the whole corpus into sentences using a tool deemed a 'sentence segmenter' (Bird et al 2009: 263), the text is then further divided into 'tokens' (typically a word form or punctuation mark) using a (often) language-specific 'tokeniser' which is sensitive to the idiosyncrasies of a given language; 'don't', for example, is calculated in Sketch Engine as consisting of two tokens (Sketch Engine 2018).[55]

One of the most important tools employed during the corpus compilation phase is a 'part-of-speech (hereafter, POS) tagger', which allocates a word class or lexical category 'tag' to each word in the corpus (Bird et al 2009: 179). For example, the English determiner 'the' receives the tag 'DT', while a singular or mass noun is given the tag 'NN' (Sketch Engine 2018).[56] The collection of tags that are used for this natural language processing task is called a 'tagset' (Bird et al 2009: 179). The current default (i.e. recommended) tagset that Sketch Engine employs for English is the 'English Penn Treebank part-of-speech tagset', a modified version of that originally developed by Helmut Schmid (Stuttgart University) and which is in its second edition (Sketch Engine 2018).[57] The default Spanish tagset employed

[54] The diagnostic tool developed to test text suitability was also implemented throughout the selection process of any candidate sources (i.e. websites).
[55] https://www.sketchengine.eu/user-guide/glossary/?letter=T
[56] https://www.sketchengine.eu/english-treetagger-pipeline-2/
[57] https://www.sketchengine.eu/english-treetagger-pipeline-2/

in Sketch Engine is the 'Spanish FreeLing tagset' version 2.0 and an example of one of its tags is 'N.FS.', representing singular, feminine nouns: (Ibid).[58]

There are, however, some limitations to these POS taggers in terms of accuracy and Manning (2011) proposes a success rate of slightly above 97% (Manning 2011:1). This results in an error rate of 3%, which, at first glance, may appear very low but, when considering that some corpora are very large, such as the British National Corpus (BNC) exceeding 100 million tokens, the implications can be significant as the actual number of tagging errors can be quite high. For the BNC, this would result in three million errors; for the two corpora investigated in the present study of approximately 500,000 tokens each, the potential total number of wrongly tagged words runs to 15,000 each.

A detailed presentation and account of all the types of errors that can be committed by a POS tagger is beyond the scope of this study. However, Kenny (2001) identifies one common issue: the erroneous categorisation of homographs (Kenny 2001: 34). Manning (2011) classifies such errors as a 'lexicon gap' (where, for example, a noun is incorrectly tagged as a verb) proposing that the underlying issue is that the tagger simply cannot employ context, which a human annotator can use, to determine a word's meaning and grammatical category, in order to override a word's lexical features (Manning 2011: 6). In section 3.11.3.2, I discuss how this form of error emerged during the data analysis phase of the project and what steps were taken to correct it.

3.7.4.1 Translation of the Seed Word List from English to Spanish

Table 3.7 shows the original seed words used for English and their Spanish equivalents; also provided here are the sources for these translations.

[58] https://www.sketchengine.eu/spanish-freeling-part-of-speech-tagset/

English	Spanish	Source
"craft beer"	*Cerveza artesanal*	General Internet
hop	*Lúpulo*	Collins Dictionary
ABV	*ABV, volumen de alcohol, contenido de alcohol*	Linguee
IPA	*IPA*	Linguee
"Pale ale"	*Pale ale*	Linguee
Tasting note	*Nota de cata*	Linguee
character	*Carácter*	Linguee
hoppy	*Con lúpulo, Lupulado,a*	Linguee
yeast	*levadura*	Collins Dictionary/Linguee
malty	*malteado,a*	Linguee
lager	*cerveza rubia*	Collins Dictionary
stout	*cerveza negra*	Collins Dictionary
wheat	*trigo*	Collins Dictionary
hopped	*contiene lúpulo, contenido de lúpulo*	Linguee
mouthfeel	*sensación en boca*	Linguee
aftertaste	*regusto*	Linguee
saison	*saison*	Linguee
Porter	*cerveza negra*	Collins Dictionary
Pilsner	*Pilsen*	Linguee
blonde	*Rubia*	Linguee

Table 3. 7: Translation from English to Spanish of seed word list.

3.7.4.2 Search for URLs/Websites in Spanish and Refinements to Seed Word List

The results yielded for this seed word list contained far too many unrelated hits (i.e. URLs). Some consisted solely of websites which are only interested in selling products such as craft beer, whiskey, wine, chocolate, etc. and did not contain texts belonging to the specific genre of this study, i.e. texts which share the same criteria as laid out in the diagnostic tool for inclusion/exclusion. It appears, then, that a seed word list containing many entries is perhaps not the most profitable way of yielding sufficiently appropriate hits.

3.7.4.2.1 Refining the Seed Word List and Introducing a 'Blacklist'

It was decided to refine the search by reducing the seed word list and by including a 'blacklist' of words. This 'blacklist' tells the system to exclude any URLs that contain any

words specified by the researcher. The blacklist here consisted of: *precio* (price), *comprar* (to buy), and *vender* (to sell), and, in the advanced settings option, the acceptance of these words, 'max type', was set to zero so that not one would appear.

The refined seed word list consisted of the following:

i. "*nota de cata*"
ii. *reseña*
iii. "*cerveza artesanal*"
iv. *crítica*
v. *evaluación*

The results for this refined search proved far more appropriate than those yielded from previous approaches; although there were some, but very few, unwanted entries from somewhat related domains such as whiskey, which were easily removed.

Summarising, then, it would appear that an improved search strategy, for Spanish at least, should consist of the following elements:

i. a shortened seed word list (perhaps 3-5 types)
ii. a blacklist of certain undesired keywords
iii. a list of 20 URLs per query

A final search was performed employing this search strategy and all of the hits were reviewed to find those sources most appropriate to this study. A list of sources (URLs) was then compiled and divided into two sections. The first consisted of those sources deemed most suitable, which totalled eight, and the second contained those which may perhaps be considered but would need to be further explored, there were nine in this category.

3.7.5 Spanish Corpus: Sources and Contributions

From the above-discussed process, a corpus of 481,500 tokens was developed for Spanish (see Appendix F) from a total of eight sources. The information for this corpus is provided in Table 3.8.

No.	Domain Name	Country	Web Link	Tokens
SPANISH				
1	***A**mante **d**e **L**úpulo*	Spain	https://amantedelupulo.wordpress.com/	c.42, 000
2	***C**erveteca-**J**ab*	Spain	http://cerveteca-jab.blogspot.com.es	c.42, 000
3	***C**ervezas **d**el **M**undo*	Spain	http://cervezasdelmundo.blogspot.com.es	c.47, 000
4	***C**erveza **e**n **E**cuador*	Ecuador	https://cervezaenecuador.wordpress.com	c.12, 000
5	***D**orado **y** en **B**otella*	Spain	http://www.doradoyenbotella.com/	c.85, 000
6	***H**iposurinatum*	Spain	http://hiposurinatum.blogspot.com.es	c.159, 000
7	***H**umulus **L**upulus*	Spain	https://humuluslupulus.net	c.51, 000
8	***M**undo **B**irruno*	Spain	http://mundobirruno.blogspot.com.es	c.51, 500
Total Word Count for Spanish Corpus = c.481, 500				

Table 3. 8: summary of large sub-corpora developed from Spanish sources.

3.8 Comparability of the English and Spanish Corpora

Apart from the elements included in the genre diagnostic tool presented in Table 3.1 and discussed in §3.2.2, which collectively ensure a high degree of uniformity across all texts included in this study, some other selection and descriptive criteria proposed by Atkins, Clear and Ostler (1992) also prove to be useful for maintaining a high degree of corpus comparability.

Table 3.9 offers a summary of these relevant selection and descriptive criteria.

Corpus & Web Domains	Time Frame		Authors		Twitter Followers
	From	To	Male	Female	
ENGLISH					
The Beer Nut	2005	Pres.	1	-	7,774
Draft Mag	2005	Pres.	N/A	N/A	93,400
A Perfect Pint	2008	Pres.	1	-	5,102
Beer Connoisseur	?	Pres.	34	5	32,100
SPANISH					
Amantes del lúpulo	2013	2015	2	-	1,578
Cerveteca de Jab	2010	Pres	1	-	N/A
Cervezas del Mundo	2008	2017	N/A	N/A	N/A
Cerveza en Ecuador	2015	Pres.	N/A	N/A	219
Dorado y en Botella	2012	Pres.	1?	?	2,394
Hiposurinatum	2008	Pres.	2?	-?	N/A
Humulus Lupulus	2013	Pres.	1	-	5,112
Mundo birruno	2013	Pres	1	-	1,794

Table 3. 9: Descriptive criteria for Spanish and English corpora.

One of the most noticeable features of Table 3.9 is that there is a considerable underrepresentation of female authors throughout the sources in both languages. There are no female contributors in any of the Spanish sources while in the English-language sources only five are recorded.[59]

[59] In some of the sources (e.g. Draft Mag, Cervezas del Mundo, Cervezas de Ecuador) no micro-level information was available in terms of gender distribution of authors of craft beer reviews.

As mentioned in the Introduction chapter, the rise in the number of micro-breweries in Ireland began in 2005 and the majority of today's micro-breweries appeared from 2009. As can be seen in Table 3.9, the web-domains from which the corpora of the current study were developed all came into existence approximately during the same time-frame: from 2005-2015. However, it has also to be acknowledged that there are some differences between the English-language websites and their Spanish counterparts. For example, there are considerably more Twitter followers of the English sites than for Spanish, which, perhaps, is due to the English-language sources being in existence, in some cases, for up to ten years more than some Spanish websites.

In terms of reception matrices, and in particular Twitter followers, there is great variation both across the two corpora and within each one. Draft Mag has the largest number of Twitter followers at 93,400, while Cervezas en Ecuador has only 219. Further, only one domain in Spanish has a followership exceeding 5,000, while all four sources in English have at least this number.

However, despite the differences outlined above, both corpora share other criteria such as the intended readership, which is unrestricted to a specific size; it is typically unknown (i.e. personally) to the author of the review but is, nevertheless, defined by a common interest (i.e. receiving expert knowledge of desired products); and is classified as 'adult' by virtue of being targeted at potential readers of at least 18 years old. Lastly, all of the texts of both corpora are 'full' or unabridged texts.

3.9 Beyond Corpus Development to Corpora Analysis

Having discussed the development of both monolingual corpora for this research project, and the main challenges faced and solutions found to overcome them, attention can now be given to the subsequent tasks and strategies cultivated to allow the effective investigation and extraction of all required data from the two corpora. This will be the focus of the third and final part of this methodology chapter.

Part Three: Corpus Investigation & Data Analysis

3.10 Introduction

In this section, I focus on the analytical tools created and the methods of applying them throughout this phase to both extract the required data from my corpora and, later, to analyse it. As with previous discussions in this chapter, attention will first be given to the English-language corpus followed by its Spanish counterpart.

3.11 Extracting Potential Motion Verbs from the English Corpus

The first task in the process of extracting data from the corpus was to identify, retrieve and, ultimately, build a list of, candidate verbs of motion; this three-stage process is outlined below and subsequently discussed:

1. Produce a general list of *all* lexical verb types;
2. Extract candidate motion verbs from the above list;
3. Investigate each lemma returned in concordance lines to determine, through context, the actual use of the verb (i.e. motion or non-motion).

3.11.1 General List of all Lexical Verbs in Corpus

A general list was compiled of all lexical verbs present in the English corpus of craft beer reviews. This was performed by selecting the *Wordlist* function in Sketch Engine; however, no POS tags were used at this stage but, rather, the search attribute 'word' (see Figure 3.11 for a print-screen image). This approach produced a list, presented in order of frequency, of all 6,030 word types present in the corpus; this list was then manually searched and a total of 489 types (accounting for 44,237 tokens, or 9.21% of the overall corpus) of general lexical verbs were retrieved and recorded in a Word document (see Table 4.1 in Chapter 4).

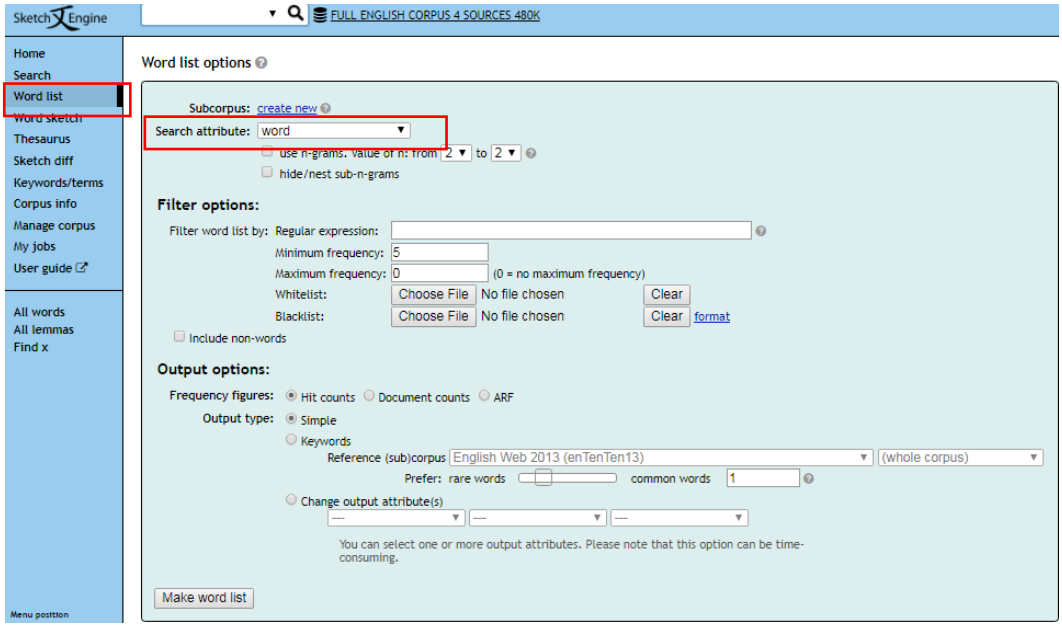


Figure 3. 11: Developing a word list in Sketch Engine's *Wordlist* function.

3.11.2 Refining from the General to the Motion Verb

From the general list of lexical verbs, another, more refined, list was compiled. This second list consisted of only those verbs which could be considered as 'certain' or 'very likely' to express motion (e.g. go, weave, follow, launch etc.).

A total of 94 types were retrieved with frequencies ranging from 721 instances ('to come') down to a single instance ('to whirl'). They can be individually viewed in Table 4.2 in Chapter 4. These verbs were further subdivided into two classes: Manner and Non-Manner verbs. This tentative classification was based upon whether or not the verb expressed a manner of motion (e.g. run, bound, burst, creep etc.) or not. For Manner verbs, a total of 77 types (82%) were identified and for Non-Manner verbs, a total of 17 types (18%) was recorded.

In order to investigate each form (present, past, future etc.) of these lemmas, a total of 6,538 concordance lines, spread across 382 search pages, would have needed to be viewed.

The most important benefit of employing the three-stage method described above is that the mammoth task of potentially searching some 44,237 concordance lines was reduced to one involving just 6,538 lines.

The former would have been required if I had simply chosen the Wordlist function and, by using the search attribute 'tag', investigated all forms of all verbal lemmas present in the corpus in individual concordance lines.

3.11.3 Performing Analyses on Motion Verbs: Some Considerations

Once extracted from the corpus, it is possible to view each instance of any given verb in a concordance line by selecting the advanced search options of 'lemma' and the specific 'part-of-speech' tag 'verb', as shown in the screenshot image for the verb 'to finish' in Figure 3.12.

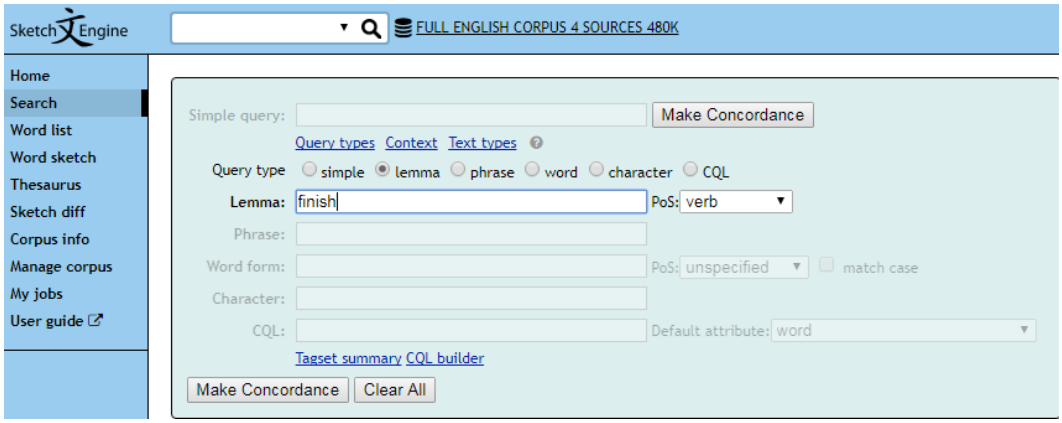


Figure 3. 12: Print-screen image of lemma search for the verb 'finish'.

3.11.3.1 Slipping Through the Net

However, it was discovered during the data analysis phase that some verbs, or certain instances of motion events regarding those verbs, were not captured for two main reasons.

Firstly, they were not initially considered by me to be verbs of motion (e.g. *slice*, *slash* and *lull*), in the early rounds of this analysis phase in which only a verb list was constructed with no contextual information to aid in ascertaining each instance's particular meaning. Secondly, the software did not include these instances in the list specified by the tag 'verb' due to the issue of incorrect tagging as discussed earlier (§3.7.4).

3.11.3.2 Resolving the Problem – Recapturing the 'Unseen' Motion Verbs

When performing analyses on verbs that were captured in the original list of potential motion verbs, I noticed that the segments in which they appeared sometimes contained a motion verb which did not feature (for the two reasons outlined above) in that list.

In order to rectify this issue and include them in the analyses, the strategy employed was to underline all such motion verbs whenever they appeared in a given segment analysis, record them in a separate document along with the full segment in which they were found, and later return to include them in the analyses. In total, there were 42 instances for these initially 'unseen' candidate motion verbs.

For the latter situation which concerns the software, the verb 'snake' is useful to illustrate the problem. When searching for this lemma using the POS tag 'verb' only three instances were returned; all of which were followed by the directional expression 'up to' (i.e. an EGD Path component and the Path component Vector TO).

However, I noticed in a text in which the focus was on another motion verb, the verb+Path component combination 'snake *through'* was present. Searching again for this lemma using the POS tag 'verb', the system still only returned the original three instances with the Path expressions 'up to'. It was decided, then, to unselect the POS tag 'verb' and change this option to 'unspecified', which resulted in a total of 11 instances being returned, three of which were those previously captured and a further six were not, including the verb+Path component combination 'snake *through'* (the remaining two were not verbs but nouns).

From that point, the search technique did not specify the POS tag 'verb' but was left as 'unspecified' which enables the software to identify all instances of a given form and the researcher can then determine which candidates should be considered a verb and which should not. This highlights again the importance of researcher vigilance when working with corpus analysis software and the latter's limitations concerning POS tagging, as outlined in earlier sections (§3.7.4).

Another contributing factor to the adjustments made to the original verb list was due to the fact that the motion verb, although expressing motion, did so for a sensory domain other than the two of interest in this study (i.e. gustatory and olfactory). The example in 52), from the domain of visual sensory experience, can illustrate such a removal decision:

> 52) The long-lasting, fluffy, ivory head ***falls*** slowly to thick foam on the surface that lasts all the way to the bottom of the glass.
>
> Source: A Perfect Pint[60]

The final motivation for the exclusion of certain types during the analysis phase was that some, although considered to be 'motion' verbs, were, in fact, found not to express motion. The segment in 53) provides a clear example of this phenomenon:

[60] www.aperfectpint.net

53) The flavour ***follows*** the aroma: fruit forward.[61]

Source: The Beer Connoisseur[62]

With all these additions and exclusions performed, a second more refined list of motion verbs was compiled providing information found in the original candidate list such as number of concordance lines examined etc. However, this second collection also included other useful data such as the number of different types of Path component + Ground combinations (e.g. Vector or Vector+EGD etc.) for a given verb and also the combined number of instances observed of those types for the verb in question. This refined list is provided in Table 4.3.

3.11.4 Number of Verbs, Concordance Lines and Frequencies of Types in Corpus

The total number of English verb types into which investigations were actually carried out in this research project was 82 (see §4.1.3 and Table 4.3 for more information).

The total number of concordance lines that would have required analysis for all these verbs totalled some 4,582. However, this was considered far too large a number and would not be achievable within the time limitations of the study and so a method of reducing this number while maintaining a high degree of representativeness was devised by employing the 'random sample' search option in Sketch Engine.

All instances would be examined for those verbs with a frequency of up to 50; from 50 to 100 instances, the number would be capped at 50; and for all those verbs which exceeded 100, a cap of 150 was placed.

This strategy resulted in a total of 3,298 concordance lines being examined from which 1,329 instances of metaphorical motion events were extracted.

With the techniques for capturing and viewing motion verbs in concordance lines developed, it was then possible to create an effective and comprehensive method of analysis of the Path complexity evident in the motion events in which they featured; this is the topic of the next section.

[61] The verb 'follow' here is not viewed to express one entity pursuing another but, rather, that one entity is similar to another in that certain characteristics of the flavour are identical to those of the aroma.
[62] https://beerconnoisseur.com/

3.11.5 Data Analysis Records: Creation, Development and Refinement

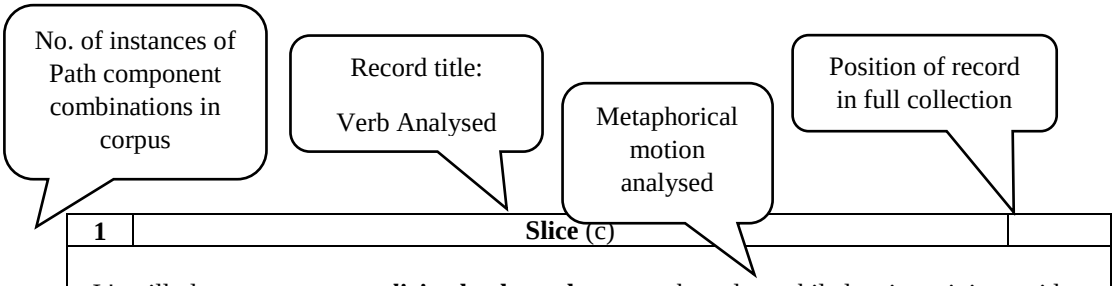
One of the main innovations in this research project, in terms of analysis methods, was the development of a comprehensive 'data record' in which the most important information for any given metaphorical motion event could be captured and examined.

The motivation for developing such detailed data analysis records was both to maintain a high degree of systematicity throughout the analysis phase and, also, to provide the reader with adequate information to understand the analysis process and, finally, to more easily critique or comment on the decisions and suggestions made in relation to same.

However, it was also motivated by the desire to rectify some issues of clarification of motion event and Path component classification observed in the literature.[63]

Figure 3.13 is an example of such a data analysis record (for English) and is followed by a detailed explanation of the information provided therein (see Appendix C for all English data analysis records).

[63] By way of illustration, in Cifuentes-Férez (2014), the example 'looking left and right along the bench' (Cifuentes-Férez 2014: 225) is analysed as consisting of two Deictic Paths (left, right), one *Conformation* (along) and one Ground (bench) (it is not clear whether a boundary crossing is assumed here or not). However, applying Talmy's (2000) Path descriptions, the Ground could be viewed as a 'bounded extent' along which the Figure (observer's gaze) moves and which is, therefore, not a boundary crossing event but, rather, the Vector MOVE ALENGTH A BOUNDED EXTENT (Talmy 2000: 54). It must be noted, however, that when later reporting overall findings, for the same example, Cifuentes-Férez (2014) labels it a Vector and not a Conformation (Cifuentes-Férez 2014: 226). Secondly, Slobin (2008) dissects an expression such as 'look ***into***' into two Path components (MOVE ***TO*** + A POINT AT THE ***IN***SIDE OF AN ENCLOSURE) (Slobin 2008: 209, my emphasis). However, reporting his findings, he categorises this 'complex' Path expression as a simple, single Conformation on two occasions, as in the following: 'look out ***into***' and 'look past X ***into*** Y' (Ibid 210, my emphasis).



1	**Slice** (c)	

It's still plenty sour, a tang ***slicing*** **backwards across** the palate while leaving a juicy residue on the lips, and inside this there's a crunchy Granny Smith apple flesh flavour.

Abstract Figure		Ground		Path Type & Component(s)		**C**	Verb Type	Sensory Experience	Source
1	Flavours: tang	1	palate	1	Deictic BACKWARDS		M	Gust.	TBN
					Vector – traversal - ALENGTH		Type		
					<u>Motion-aspect formula</u> MOVE BACKWARD ALENGTH a bounded extent		2 Sat		

<u>Path Complexity</u>:
1 Deictic + 1 Vector 'alength' + 1 Ground

Comments:
Interpretation: The abstract Figure is viewed as moving in a backward direction across (i.e. along/alength) a non-abstract Ground object conceptualised as a bounded extent.
Alternative Interpretation: N/A
Path Component: Deictic + Vector – no boundary is crossed (no Conformation) – the directional adverb 'across' is evident but is interpreted as meaning 'along' or 'alength' and not crossing a boundary as in 'cross a bridge' etc.
Path Complexity: **Complex** – there are 2 Path elements 'stacked' here and just one verb.
Other: N/A

Figure 3. 13: Example of a Data Analysis Record for English metaphorical motion events.

3.11.5.1 General Information on Data Analysis Record

The title section of the record shows which verb is under examination (in this case 'slice'), the letter in brackets (in this case 'c') shows that it is the third instance of the verb in the Data Analysis Records document.

The number in the far left-hand box indicates the number of instances of the particular Path component combination for this verb observed in the corpus (in this case '1 Deictic + 1 Vector 'alength' + 1 Ground').

The upper right-hand box is allocated to the numerical position of the record in relation to the full collection of records produced (this may facilitate discussions with other linguists at a later stage).

The section immediately below the title contains the sentence with the metaphorical motion event under analysis with the motion verb and, where applicable, the Path component(s) highlighted in bold and italics, and bold, respectively.

Each of the semantic elements (Figure, Ground etc.) is provided in the record along with information regarding the source of the segment (in this case, **T**he **B**eer **N**ut), the sensory domain to which the metaphorical motion event pertains (i.e. **olf**actory or **gust**atory), whether or not there is a Manner verb or a Path verb evident, whether this verb is accompanied or not by a satellite (or multiple satellites), and whether the Path is considered to be simple (S) or complex (C) (i.e. if there is only one or more than one Path component 'stacked' onto one verb).

3.11.5.2 Path Complexity

The 'Path Complexity' section allows the researcher or reader to identify clearly and easily the Path-component combinations deemed to be present in the metaphorical motion event under investigation. This greatly facilitated the development of a 'summary' document (see Appendix A) of all types of Path component combinations found in the corpus so that comparisons could be made with studies performed both on factive motion events (Slobin 1996) and fictive motion events in other sensory domains, such as vision, (e.g. Slobin 2008, Cifuentes-Férez 2013, 2014).

3.11.5.3 Comments

The lower section of the record was included to comment upon any observations or issues encountered and, when needed, the justifications for choices made are also given here along with other important data related to the analysis; it typically consists of the sub-sections *Interpretation*, *Alternative Interpretation*, *Path Component*, *Path Complexity*, and *Other*.

3.11.5.4 Interpretation and Alternative Interpretation

Perhaps, however, the most important element of this particular section of the record is the *interpretation* of the metaphorical motion event as this provided the starting point for the analysis, and the basis on which all conclusions were formed.

This was found to be a very useful inclusion to the record as it facilitated my initial attempts at comprehending the metaphorical motion event as, very often, it was not a straight-forward task to perform due mainly to the elements (Figure, Ground etc.) being highly abstract entities.

It also obliged me to develop a systematic and consistent method of understanding and classifying the metaphorical motion event and, fundamentally, relating it, as closely as possible, both to Talmy's (2000) Path component types (i.e. Vector, Conformation, EGD etc.) and the examples offered by him for each one.

Further, from this short fragment of interpretation, the reader is also provided with a direct insight into my thinking in relation to the metaphorical motion event, which is hoped will facilitate any future discussions in relation to my analyses and decisions.

As is the case with analyses of the nature of those presented here, there is often more than one interpretation that could be, justifiably, offered. Therefore, in order to acknowledge this point, the section 'Alternative Interpretation' was included so that the reader may know that I have considered alternatives (where applicable) to my original opinion but, however, I have not remained neutral and have selected that which I felt was most valid even if, at times, the difference in plausibility between the two options was minimal.

3.11.5.5 Path Component

The 'Path Component(s)' element is intended to provide the reader with a clear and concise classification of those components of which the Path consists. It is also intended to provide the reader with a very brief justification for selecting the component in question based principally on Talmy's theoretical classifications.

3.11.5.6 Path Complexity

The 'Path Complexity' segment, again, provides the justification, based on the criteria forwarded by Talmy (2000), for the classification of the Path as being 'simple' (i.e. containing no more than one Path element, such as *through*, *up*, *across* etc.), or 'complex' (i.e. a Path which has at least two elements (deemed 'stacking' by Slobin and Cifuentes-Férez) such as UP and FROM, as in 51):

54) An enticing husky malt aroma whirls *up from* this beer's fluffy white head.

3.11.5.7 Other

Finally, another segment was included, 'Other', in which less systematic observations could be recorded, linguistic or conceptual phenomena specific to a given analysis could be discussed, or, indeed, any limitations of the analysis itself could be acknowledged.

With the method of investing the English corpus presented and discussed, attention can now be given to the Spanish phase.

3.12 Spanish

3.12.1 Extracting potential motion verbs from the corpus

The same process as outlined above (§3.10.1) for extracting all general lexical verbs from the English corpus and then refining that list to contain only those candidates which could potentially concern motion was also employed for the Spanish corpus of craft beer reviews.

The general list compiled of all lexical verbs present in the Spanish corpus of craft beer reviews totalled 507 types (see Table 4.6). The initial refined list of those candidate verbs of motion consisted of 83 types (compared with 94 in English); the verb *ir* ('to go') had the highest number of recorded instances in the corpus at 988, while the most infrequent ones recorded were the verbs *marcharse* ('to go away/leave') and *regresar* ('to return') with only two instances for each one.

The total number of concordance lines examined for the Spanish corpus was 4,263. However, with the data analysis phase complete, only 39 of the original 83 candidate verbs were deemed to concern motion; 42 were considered not to express motion and two are awaiting discussion with another professional linguist to make the final decision.

As was the case for the English corpus in which time restrictions would not permit the examination of all concordance lines retrieved from the corpus, a strategy was also employed in the Spanish sub-phase of analyses, using Sketch Engine's 'random sample' search option, which reduced the 7,841 potential concordance lines to a much more manageable but significant number of 4,263.

This total was achieved by investigating all instances of a given verb with a frequency count of up to 150; for all verbs exceeding this number (of which there were 12), a cap was placed of 150. This strategy produced a total of 633 instances of motion for the Spanish corpus (compared with 1,329 for English).

3.12.2 Spanish Data Analysis Records

The analysis records used to investigate and store the data retrieved from the Spanish corpus were to a large extent identical to those employed for English. However, there are important elements that are unique to these records such as: a section for the linguistic gloss of the original Spanish segment under analysis; a section which offers an idiomatic

translation into English of the original segment; and, also, a section which contains an original counterpart (for the verb) found in the English corpus.[64]

Figure 3.14 provides an example of the data analysis records used in the Spanish phase of investigations concerning the verb *emerger* (‘to emerge’) (see Appendix D for all Spanish data analysis records).

[64] This section was motivated by a desire to facilitate the analyses of the Spanish motion events, in particular, to help apply Talmy’s theoretical categorisations (such as Path Type and Components etc.) to the Spanish segments and, also just help justify the decisions/analyses/categorisations made.

No. of instances of Path component combinations in corpus

Record title: Verb Analysed

Metaphorical motion analysed

Position of record in full collection

3	***Emerger*** (b) **– emerge**/surface/appe	

El gas asciende de forma constante hasta la superficie, ***de*** *donde* ***emerge*** *un perfume fresco en el que se entrelazan malta dulce, cereal crudo, manzana madura, leves cítricos y un resquicio de miel. (Conf.)*

Gloss

de	*donde*	***emerge***	*un*	*perfume*	*fresco*
from	where	**emerge**.PRS.3SG	a	perfume	fresh

Translation

The gas rises steadily to the surface, **from** where a fresh perfume emerges in which sweet malts, raw cereal, ripe apple, faint citrus and a trace of honey are all interwoven.

Comparable English-Corpus Example

A light piney note **emerges** as it warms.

Abstract Figure		Ground		Path Type & Component(s)		**S**	Manner or Path	Sensory Experience	Source
1	*perfume fresco (fresh perfume)*	1	*Superficie (Surface of the beer)*	1	**Conformation** – *which is of the surface of [a volume]*		P	Olf.	HS
							Type		
					Motion-aspect formula MOVE FROM a point which is of the surface of a volume.		**+Sat**		

Path Complexity:

1 Conformation + 1 Ground

Comments:

Interpretation: The abstract Figure is viewed as moving from a point of a non-abstract Ground object conceptualised as a surface of a volume; thus crossing a boundary. This is most similar to Talmy's example (b iii) *the napkin* ***blew off of*** *the bed.*

Path Component: **Conformation** –boundary.

Path Complexity: Simple

Figure 3. 14: Example of Spanish data analysis record.

3.12.3 Other Documents of Importance for Data Recording

Apart from the data analysis records designed and employed throughout the analysis phase of this research project, three other documents were created for each of the two corpora in order to capture the findings yielded from the investigations of each. These documents are a summary table, a 'support' document and a document consisting of all the records and text removed in the early rounds of analyses.

3.12.3.1 Summary Document

In terms of highlighting the fundamental data and findings yielded from the investigations, the summary document (see Appendix B) is perhaps the most important. Recorded here, are the data in their most basic form, such as:

- The verb in question
- The Path component evident (i.e. Vector, Conformation etc.)
- The type of Path component (i.e. Vector 'ARRIVAL TO')
- The number of instances of this types
- The number of Ground elements (e.g. 0,1, 2 etc.) concerned with the Path component

Figure 3.15 is an extract from the summary document for the verb 'surge' taken from the English corpus and can be interpreted by 'reading' it horizontally from left to right, as such: [65]

The two far-left sections present the verb and its numerical position in the document

The Path component (in this case, Vector) and its specific type (in this case, a traversal type ALENGTH) is shown. The 'frequency' section shows two important elements: the 'individual' number of instances for a specific type of Path component (for Vectors, there could be traversal ALENGTH and arrival TO, for example) and the overall count for all the types of Vector for the verb in question. Lastly, the Ground section records the number of Ground elements concerned with the Path component in question.

Therefore, the segment given in Figure 3.15 can be 'read' in the following manner:

The verb in question is 'surge'; there were two Vectors recorded for this verb of the type ALENGTH and one Ground element. Cifuentes-Férez (2014) and Slobin (2008) recorded this type of information as:

[65] The full segment is: 'In the back, grassy hops swell as prickly bitterness **surges over** the tongue'.

1 Vector + 1 Ground

Cifuentes-Férez (2014:221)

No.	Verb	Path Component(s)	Path[66] Description	Frequency		Grounds
				Individ.	Total	
2	Surge	Vector	Traversal-ALENGTH 'over'	-	2	1

Figure 3. 15: extract from the Summary document for the English corpus.

3.12.3.2 'Support' Document

The 'support' document records (almost) all of the extracts of a given type/verb. For example, if there are 16 instances of Vector + 1 Ground for the verb 'dance', then only one is presented in the actual data analysis record and the 'supporting' 15 are stored in the 'support' document. This strategy allowed much time to be saved while also providing support data for the figures given in the data analysis record.

3.12.3.3 'Removed Records and Text' Document

Those verbs that were investigated in the analyses but were found not to express motion were removed and recorded in this document in order to lend support in any discussion in the relevant sections of the chapter. As was the case with the 'Support' document mentioned above, work on this document was postponed in the very final stages of the phase due to increasing time limitation issues.

[66] Path types are taken from the representative segment analysed in the data analysis records and, although in most cases they correspond with those of the same Path component type, they may not always do so; therefore, if each individual instance is required, the relevant document needs to be consulted.

3.13 Conclusion

In this chapter we have presented our methodology for designing, compiling and analysing our corpora of Spanish and English craft beer reviews. After an initial introduction to the field of corpus linguistics, we set about the design of the corpora.

The work of Bhatia (1993) and Swales (1990) proved to be very useful in establishing the boundaries of the textual genre by performing in-depth analyses of the unique characteristics of the texts, including their Communicative Purposes and the Situational Contexts. However, the limitation of Swales' 'unidimensional' genre model for capturing web-mediated texts, as exposed by Nielson and Askehave (2005), who developed a revised 'two-dimensional' view to web-genres, was also explored.

In the second part of the chapter, we turned the focus to the corpus-development stages in which we applied our diagnostic tool to both the identification and suitability of candidate sources and their texts. The online corpus development and analysis software program employed throughout the project, Sketch Engine, was introduced here also. Further, both the advantages of this tool in our study along with some of the important challenges encountered using the program and solutions found to overcome them, were also discussed.

In the third and final section of the chapter, we demonstrated our step-by-step process of filtering out the required units of analysis from our corpora: metaphorical motion events. The techniques employed to capture and record all relevant data along with the creation, development and refinement of the Data Analysis Records for both Spanish and English were also outlined.

In the following chapter, we will apply all of the approaches and techniques presented and discussed here to the two monolingual corpora of craft beer reviews. The main objective, then, will be to discover in which of the two corpora, Spanish or English, are organoleptic Paths of sensory motion greater in both variety and complexity.

Chapter 4 - Data Analysis

4.0 Introduction

This Data Analysis chapter will be presented in three sections with the aim of discussing all the information yielded from the two corpora of craft beer reviews investigated throughout this research project. The results presented here are predominantly, however, of a quantitative nature while qualitative data will be explored in the following chapter.

The initial section will focus on the data yielded from the English-language corpus while the second section concerns data from the Spanish corpus. The same approach, however, of presenting the data will be taken across both sections which, briefly, consists of beginning at the macro-level of the general lexical verbs, moving then to those verbs that express motion, and, finally, attention will turn to Path complexity observed in the motion events investigated in both corpora.

The third and final section will be more of a comparative nature as the data extracted from both corpora will be contrasted and discussed. It is, therefore, guided by one of the original objectives of this research project: to explore the complexity of gustatory and olfactory Paths of metaphorical motion events in the domain of craft beer reviews. The primary goal here is twofold: firstly, to present those elements which are common to both corpora and those which are unique; and secondly, to determine in which of the two corpora of craft beer reviews is Path complexity greater.

4.1 Presentation of Results – English Corpus of Craft Beer Reviews

In this section, all of the data yielded from the English corpus of craft beer reviews in terms of general lexical verbs, motion verbs and Path complexity, will be presented.

4.1.1. 'General' Lexical Verbs in the Corpus - English

As mentioned in Chapter 3 (§3.7), a corpus of 483,031 tokens was developed from four online sources of craft beer reviews in English. Table 4.1 presents in order of frequency the 489 verbal types, with a combined token count of 44,237 tokens (accounting for 9.21% of the overall corpus), yielded from the corpus.

‘General’ Lexical Verb List for English				
finish	inviting	contrast	delight	buoy
lingering	lends	prefer	retain	ranging
pours	pair	underlying	deepen	elevate
hints	released	backed	buzz	filtered
comes	dry	dash	slice	ease
end	builds	craft	grab	poke
warms	fall	combine	transitions	guide
bite	surprise	change	spent	striking
blend	tap	bottom	approach	crunch
take	rest	mellow	sniff	revived
find	shine	accentuate	tickles	hankering
tasting	begin	flower	conclude	knocking
give	lasting	root	rock	lies
bubbles	wafts	fleeting	boost	marry
couple	fan	shot	slow	surfaces
going	opens	display	mirrors	propping
adds	run	nutmeg	enduring	punctuate
expected	wraps	mash	infused	bolstered
serving	twang	cuts	tour	ensues
followed	fill	uses	lifts	shoots
smoke	leave	fizz	glowing	digs
peel	lace	push	derived	span
leaving	picked	satisfying	wallop	surge
foam	produced	coast	chill	cross
starts	burst	dull	tinge	sparks
part	dose	weave	trails	snap
present	enticing	flash	traces	prickle
takes	welcome	pull	perk	fight
burnt	sample	accompany	tanks	yielding
keep	sipping	emit	calls	express
haze	taking	stretch	polish	exudes
dominate	rise	packed	wolf	leaps
mix	dissipate	ride	peeking	flourish
summit	splash	counter	shine	settled
dried	stone	mark	fire	sport
poured	rind	tingling	export	skim
stand	swell	sweeps	damp	lurking
looking	touch	corner	extract	steer
label	notice	attenuated	detract	storms
emerge	want	acquire	jump	seep
highlights	air	head	serve	flutter
hit	process	seek	explore	hush
seem	overpowering	leans	evolve	tails
lead	swirl	shade	entwine	flanked
point	pop	meet	ushers	scrubs

‘General’ Lexical Verb List for English				
done	blossom	float	sharpen	jarring
went	sit	twist	alluring	loses
lasts	note	anchor	recall	nip
support	showcase	puckering	train	screams
course	whiff	issue	cover	struggle
set	check	reveals	separate	zippy
zest	age	swallowing	rolls	permeate
levels	punch	reach	tempers	expand
help	turn	clings	sneaks	snakes
put	trip	flows	load	recedes
cloying	overwhelming	draw	echoes	scraping
release	bottle	dishes	chips	chases
gets	arrived	tip	wisp	overrun
pick	accent	bunch	fast	sends
round	cool	bomb	spin	skip
lacks	missing	quenching	belt	brim
balances	bill	move	unleashes	maintain
brings	manage	pass	store	calms
offer	rush	culminate	bang	sucking
becomes	list	charge	nod	roaring
create	interest	stunning	tucked	dive
offering	appear	persist	draft	subside
restrained	barrel	deal	pool	tease
delivers	layers	exhibits	drift	squeeze
play	barrel	mingle	coat	shifting
wash	hopping	distracting	explodes	glaze
let	decide	dance	brushes	whirl
show	holiday	step	fuse	flit
bittering	faint	impact	grips	hum
pronounced	base	face	pace	clips
works	single	pinch	whisper	tread
carries	spring	launch	steak	pout
helps	smooth	wake	render	billow
brought	fit	line-up	disappear	bristles
close	greets	catch	legs	fleck
kick	suggest	strain	creeps	engulf
provide	please	matches	jam	sinks
muted	sense	meld	break	drawn-out
hits	continues	lineup	bracing	bounds
result	chest	press	beg	lightens
feature	cascade	land	spades	melts
wave	spread	thread	hover	conjure
remains	sticks	wait	stream	gathered
creating	hidden	blast	verge	floods
subdued	hangs	appealing	lay	latch

‘General’ Lexical Verb List for English				
complement	twin	contain	flying	soak
lower	grow	engaging	throw	drown
stuff	spiced	smack	beat	placed
hold	stage	view	profile	drops
edges	allow	capture	muddled	crackling
features	tend	invigorating	overtake	escapes
cut	settle	stuck	quaff	radiate
fades	table	return	drive	

Table 4. 1: General verbs extracted from English corpus.

4.1.2 English Motion Verbs

Table 4.2 presents in lemmatised form and in order of frequency all 94 ‘candidate’ motion verbs (types) extracted from the above ‘general’ verb list.

English Candidate Verbs of Motion – List							
No.	Verb	Freq.	Pages	No.	Verb	Freq.	Pages
1	come	721	37	49	boost	21	2
2	linger	581	30	50	ride	21	2
3	go	526	27	51	thread	21	2
4	leave	409	21	52	slow	20	2
5	finish	388	20	53	launch	19	2
6	hop	355	18	54	buoy	18	1
7	start	332	17	55	elevate	17	1
8	follow	296	15	56	step	17	1
9	emerge	204	11	57	creep	16	1
10	begin	202	11	58	drift	16	1
11	lead	156	8	59	nip	16	1
12	turn	130	7	60	tread	16	1
13	rise	109	6	61	shoot	15	1
14	run	105	6	62	dig	14	1
15	trip	95	5	63	hover	14	1
16	waft	93	5	64	tip	14	1
17	continue	84	5	65	cross	11	1
18	push	76	4	66	dance	11	1
19	release	75	4	67	ensue	10	1
20	wrap	74	4	68	escape	9	1
21	fall	72	4	69	skip	9	1
22	end	70	4	70	chase	7	1
23	pop	64	4	71	fan	7	1
24	move	60	3	72	flutter	7	1
25	spread	57	3	73	leap	7	1
26	pass	50	3	74	seep	7	1

English Candidate Verbs of Motion – List								
27	reach	48	3		75	twist	7	1
28	lean	47	3		76	fizz	6	1
29	weave	47	3		77	flash	6	1
30	roll	44	3		78	overrun	6	1
31	float	43	3		79	ease	5	1
32	return	38	2		80	edge	5	1
33	jump	35	2		81	spring	5	1
34	flow	34	2		82	stream	5	1
35	sweep	32	2		83	tail	5	1
36	rush	30	2		84	billow	4	1
37	swell	30	2		85	cascade	4	1
					86	skim	4	1
38	trail	30	2		87	bound	3	1
39	transition	30	2		88	charge	3	1
40	burst	29	2		89	clip	3	1
41	sneak	27	2		90	fly	3	1
42	spin	27	2		91	snake	3	1
43	explode	25	2		92	span	3	1
44	swirl	25	2		93	surge	3	1
45	drive	24	2		94	whirl	1	1
46	overtake	24	2					
47	wisp	23	2					
48	buzz	22	2					

Total number of verbs (types)	94	Manner	77
		Non-manner	17
Total number of concordance lines	6,538		
Total number of pages to be searched	382		

Table 4. 2: English 'candidate' verbs of motion – List 1.

Apart from the 94 types presented in Table 4.2, other data of interest to this research is also given such as the number of both non-manner verbs,[67] at 17 (18%), presented in the shaded sections, and, also, manner verbs,[68] at 77 (82%), presented in the non-shaded rows. As this list was compiled during the earlier stages of the data analysis phase, other useful information in terms of time management was also recorded such as the number of concordance lines that would potentially require examination (6,538) and their distribution across 382 pages, as presented by Sketch Engine.[69]

[67] A 'non-manner' verb is one which expresses only motion and does not include any information in relation to the manner in which the action is performed; 'move' would be a typical example.
[68] A manner verb is one which not only expresses motion but, also, the manner in which the motion was performed; 'creep' would be a typical example.
[69] The number of 'hits' per page can be set in Sketch Engine as per user preference.

4.1.3 A Refined Motion Verb List - English

As discussed in the Methodology chapter (§3.10), for various reasons, some additions and subtractions were made to the original list of candidate motion verbs and a more refined list was produced, presented here in Table 4.3.

English Verbs of Motion – List 2					
No.	Verb	Concordance Lines		Path Components	
		Total	Analysed	Types	Instances of Motion
Verbs from Original List					
1	linger	581	150	6	71
2	leave	425	150	2	29
3	follow	296	150	4	7
4	emerge	204	150	4	134
5	rise	109	109	7	47
6	run	105	105	5	55
7	waft	93	50	10	19
8	push	83	50	3	14
9	release	75	50	1	5
10	pop	91	50	4	9
11	move	73	50	5	9
12	spread	62	50	5	41
13	pass	55	50	1	3
14	reach	52	52	8	23
15	roll	46	46	7	16
16	float	54	54	8	17
17	jump	35	35	2	7
18	flow	50	50	5	39
19	sweep	52	52	4	19
20	rush	62	50	5	27
21	transition	30	30	1	1
22	burst	86	50	4	8
23	sneak	27	27	7	18
24	explode	25	25	2	10
25	swirl	66	66	10	41
26	drive	24	24	4	7
27	ride	58	58	8	35
28	thread	55	55	3	15
29	launch	34	34	1	3
30	step	38	38	5	8

English Verbs of Motion – List 2					
No.	Verb	Concordance Lines		Path Components	
		Total	Analysed	Types	Instances of Motion
31	creep	16	16	4	15
32	drift	16	16	6	15
33	tread	17	17	3	13
34	shoot	20	20	5	9
35	dig	23	23	2	10
36	hover	20	20	3	14
37	cross	30	30	1	1
38	dance	33	33	8	29
39	escape	14	14	3	5
40	skip	11	11	2	3
41	chase	15	15	4	9
42	fan	89	50	3	9
43	flutter	9	9	5	9
44	leap	15	15	5	10
45	seep	9	9	2	9
46	flash	51	51	4	15
47	overrun	7	7	1	7
48	ease	14	14	2	3
49	edge	206	150	1	1
50	spring	58	58	1	2
51	stream	12	12	7	11
52	tail	19	19	3	5
53	billow	14	14	2	9
54	cascade	46	46	2	5
55	skim	10	10	2	4
56	bound	7	7	4	4
57	charge	26	26	2	2
58	fly	6	6	1	1
59	snake	11	11	2	9
60	span	4	4	1	3
61	surge	14	14	5	9
62	whirl	6	6	1	1
New ‘Uncaptured’ Verbs					
63	stretch	47	47	6	39
64	nudge	9	9	3	3
65	swoop	2	2	2	2
66	bounce	7	7	3	4
67	skirt	2	2	1	2
68	slash	4	4	1	4

English Verbs of Motion – List 2					
No.	Verb	Concordance Lines		Path Components	
		Total	Analysed	Types	Instances of Motion
69	lull	1	1	1	1
70	pierce	4	4	3	3
71	tumble	11	11	6	7
72	dive	12	12	3	9
73	pool	19	19	3	13
74	endure	19	19	2	11
75	splash	69	50	7	37
76	land	31	31	2	17
77	balloon	23	23	2	8
78	hang	68	50	3	28
79	settle	66	50	2	9
80	slice	38	38	3	7
81	cut	107	107	4	44
82	wash	149	149	5	93
		4582	**3298**	**N/A**	**1329**

Total number of verbs (types)	82	Manner	73 (89%)
		Non-Manner	9 (11%)
Total concordance lines in corpus (for candidate motion verbs)	4,582		
Total number of concordance lines examined	3,298		
Total number of instances of motion	1,329	Mean per verb 16.21 (σ = 20.88)	Median 9

Table 4. 3: Refined list of verbs of motion in English corpus.

As can be seen in Table 4.3, the 82 verbs yielded from the corpus were distributed across a total of 4,582 concordance lines, of which 3,298 were analysed. The combined total of instances of motion observed concerning these verbs was 1,329. In terms of lexical granularity, 73 manner verb types (89%) were recorded and 9 non-manner verb types (11%). With 1,329 instances of motion expressed by the 82 types, the mean representation (i.e. type-token ratio, or TTR) in the corpus for these English motion verbs was 16.21 instances per verb (standard deviation = 20.88) while the median value was 9.

4.1.4 General Trends

The most frequently occurring type in the corpus was ‘linger’. This verb was distributed across 581 concordance lines, of which 150 were examined, producing six different types

of Path component+Ground combinations and a total of 71 instances of metaphorical motion.[70]

However, the most commonly employed verb of motion used by authors of English-language craft beer reviews to communicate their gustatory and olfactory experiences of the products reviewed was 'emerge' with 134 instances yielded from the 150 concordance lines investigated for this verb.

The least common verbs utilised to express organoleptic experiences produced by the craft beers critiqued were 'transition', 'cross', 'edge', 'fly', 'whirl', and 'lull', for each of which only one instance of motion was observed in the corpus of 483, 031 tokens.

Lastly, as can be seen in the lower section of the table 'New Uncaptured Verbs', from the original 42 candidates only 20 were deemed to express motion and were distributed across 688 concordance lines, of which a total of 635 were examined. From these 635 concordance lines, 341 instances of motion were observed and examined.

The maximum number of types of Path component+Ground combinations observed in the English corpus was ten ('swirl' and 'waft', with 41 and 19 instances, respectively) while 14 verbs had only one combination type (e.g. Vector + 1 Ground).

4.1.4.1 Specific Trends

The general trends outlined above concern the macro-level of organoleptic Paths, their complexity and the representation of different verbs expressing metaphorical motion in the corpus of craft beer reviews.

Another interesting trend emerged from the data analysis records at the finer, micro-level of Path analysis in terms of distributional differences between gustatory and olfactory descriptions. It was found that from the 304 data analysis records produced for the English corpus, 218 (72%, or almost two thirds) concerned the former sensory experience and only 86 (28%, or almost one third) expressed the latter.[71] As will be shown, an almost identical

[70] Verbs such as 'linger' in English and 'perdurar' (endure), 'permanecer' (remain/linger), 'persistir' (persist) in Spanish express stasis of a Figure and not movement and are captured by Talmy's Vector type 'BE_{LOC}AT a point'; see §2.2.3.2 for a more detailed discussion.

[71] As mentioned in the Methodology chapter (§ 3.7.3.1), when a verb under examination had more than one instance of a particular Path component+Ground type (i.e. 1 Vector + 1 Ground), only one example was selected to represent that type in the corresponding data analysis record; however, the sense described (i.e. gustatory or olfactory experience) was not a selection criterion and so the distribution of these two sensory modalities throughout the data analysis records is arbitrary.

distribution was observed for the Spanish data analysis records (see §4.2.4.1 and §4.3.4 for more). However, the findings presented here can only be considered tentative at this stage and a more in-depth investigation of both the data analysis records and the corresponding 'support' document would need to be carried out, which was not possible during this project due to limitations on time resources.

4.1.5 Organoleptic Path Complexity in Corpus of Craft Beer Reviews - English

From the 82 verbs (types) of motion yielded from the corpus and the 1,329 instances of motion events observed and analysed, a wide range of Path component + Ground combinations emerged for the description of organoleptic experience in the genre of craft beer reviews in English.

Table 4.4 provides the data yielded with respect to Path complexity, beginning with the least complex type 'bare verb + Minus-Ground' combination to the most complex '3 Paths + 2 Grounds'.

Path Complexity - English			
No.	**Path Component**	**Instances in Corpus**	**Example**
0 Path + 0 Ground			
	Bare	**234**	caramel, toast and a hint of chocolate *land* first
0 Path + 1 Ground			
	Bare	**71**	bouquet of spritzy orange and grassy hops *pierces* the nose
1 Path + 0 Ground			
	1 Vector	12	A thin layer of bready malts *reaches* **out**
	1 Conformation	1	the grapefruit really *pops* **out**
	1 Deictic	63	the beer *washes* **back**
	1 EGD	24	Biscuit flavors *splash* **down** first
		100	

Path Complexity - English			
No.	**Path Component**	**Instances in Corpus**	**Example**
1 Path + 1 Ground			
	1 Vector	422	Dry, husky barley *wafts* **to** the nose
	1 Conformation	354	eye-opening espresso aroma ***balloons*** **from** the pint glass
	1 Deictic	25	**Beneath** the sweet grains, a slow current of hops begins to surge
	1 Earth-grid Displacement	30	This brilliantly crystal-clear brew *sneaks* **up** the nose
		831	
2 Paths + 1 Ground			
	Vector + Deictic	5	a tang *slicing* **backwards across** the palate
	Conformation + Vector	1	A sharp hop aroma *creeps* **out from** this hazy orange brew's frothy white head
	EGD + Vector	27	this pale brew's faint bready, grainy aroma as it *snakes* **up to** the nose.
	EGD + Conformation	18	An enticing husky malt aroma *whirls* **up from** this beer's fluffy white head.
		51	
2 Paths + 2 Grounds			
	Vector FROM-TO[72]	7	mild husky grains barely ***waft*** **from** the glass **to** the nose,
	Vector + Deictic	2	Nutty bread crust flavors splash on the tongue first and *spread* **out below** a layer of clean bitterness.

[72] NOTE: Cifuentes-Férez (2014) classifies this as two Path elements but it is not quite clear how Slobin classifies it.

Path Complexity - English			
No.	**Path Component**	**Instances in Corpus**	**Example**
	EGD + Vector	1	Lemon rind notes *stream* **down** the tongue **over** a bed of cracker-like malts,
	Vector + Vector	27	Caramel flavors leap onto the tongue and *fan* **out over** a toasted bread base
	Vector + Conformation	3	I get a little bit of peach in the **middle**, before it all kinds of **tails off into** a hard bitterness and a watery finish.[73]
		40	
3 Paths + 1 Ground			
	Deictic +EGD + Vector	**1**	the piney hops, a slight ginger burn, and late, muted fresh ginger notes that *waft* **back up through** your sinuses.
3 Paths + 2 Grounds			
	Conformation + EGD + Vector	**1**	a touch of corn *reach* **from** this beer's creamy head **up to** the nose.
Total Number of Instances = 1,329			

Table 4. 4: Gustatory and olfactory Path complexity combinations in English corpus.

A total of eight different types of Path component+Ground combinations were observed in the English corpus and are summarised in Table 4.5.

[73] The abstract Figure (flavour) is viewed as moving firstly away from an abstract Ground object (middle of the tasting experience) and then entering into another abstract Ground object conceptualised as an enclosure/container (hard bitterness and a watery finish).

Path Component+Ground Combination	Absolute Frequency	Relative Frequency
0 Path + 0 Ground	234	17.61%
0 Path + 1 Ground	71	5.34%
1 Path + 0 Ground	100	7.52%
1 Path + 1 Ground	831	62.53%
2 Paths + 1 Ground	51	3.84%
2 Paths + 2 Grounds	40	3.02%
3 Paths + 1 Ground	1	0.07%
3 Paths + 2 Grounds	1	0.07%

Table 4. 5: Summary of all Path component+Ground combinations in English corpus.

However, the most noticeable feature of the data provided in Table 4.4 and Table 4.5 is that the majority of Path component+Ground combinations present in the corpus of English craft beer reviews consisted of one Path and one Ground element. This combination accounted for 831 of the total 1,329 instances of metaphorical motion observed, or 62.53%.

The least complex motion Path component combination possible, '0 Path + 0 Ground' was the second most common in the corpus with 234 instances, or 17.61% of all motion events recorded.

The most complex combination observed, although very rare in the corpus and only accounting for one instance (or 0.07%), consisted of three Path components and two Ground elements.

Also of importance is that the vast majority of instances of motion in the English corpus involved at least one Ground element in the motion event with 995 (75%) observed, while those not referring to any Ground element totalled 334 (25%) instances.

Figure 4.1 provides a data visualisation of the distribution of Path+Ground combinations as yielded from the English corpus of craft beer reviews for this research project.

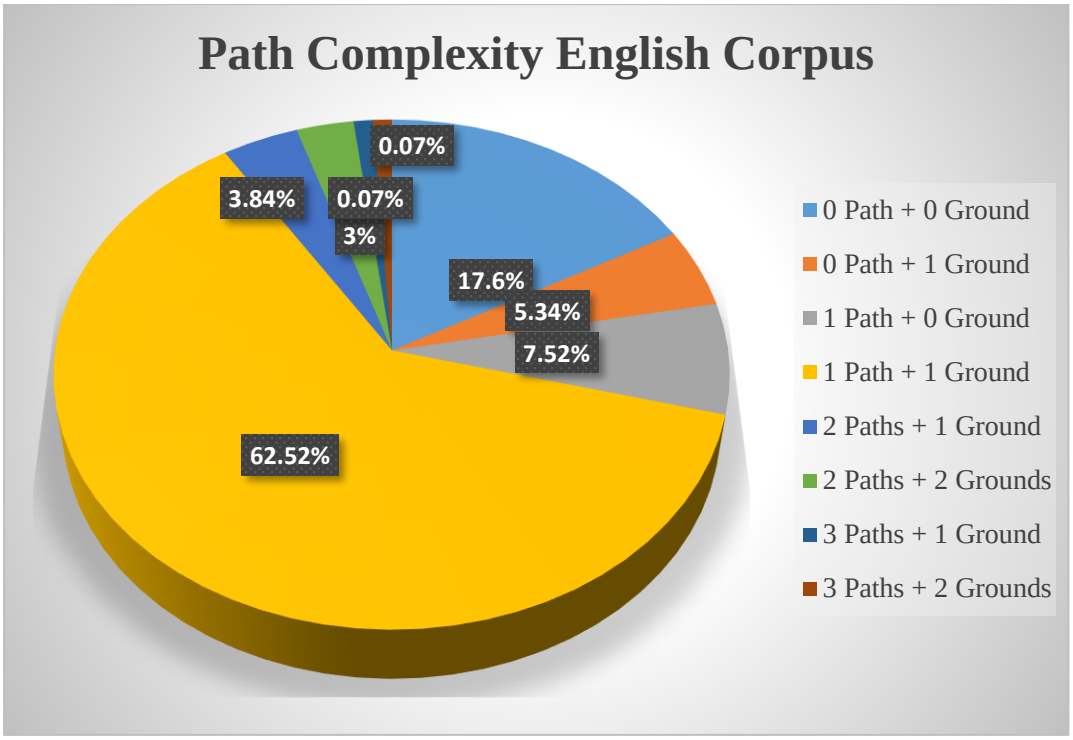


Figure 4. 1: Distribution of Path+Ground Complexity in English corpus.

4.2 Presentation of Results – Spanish Corpus of Craft Beer Reviews

In this section, all of the data yielded from the Spanish corpus of craft beer reviews in terms of general lexical verbs, motion verbs and Path complexity, will be presented.

4.2.1 'General' Lexical Verbs in the Corpus - Spanish

As mentioned in Chapter 3 (§3.7.5), a corpus of 481,500 tokens was developed from eight online sources of craft beer reviews in Spanish. An identical strategy of data extraction as that discussed above for the English corpus (§4.1) was followed. Therefore, a total of 507 lexical verbs were extracted from the corpus and are presented in lemmatised form in Table 4.5, ranked in order of frequency.

'General' Verbs List for Spanish			
lanzar	intentar	curar	deber
acabar	pasar	convencer	disfrutar
iniciar	disminuir	cuidar	registrar
dejar	traer	distinguir	funcionar
guardar	tener	describir	comercializar
estrellar	inspirar	conocer	retener
secar	asimilar	prometer	rezar
fermentar	considerar	resistir	agradecer
contar	dedicar	sonar	controlar
decantar	lograr	estar	beberse
vivir	continuar	asemejar	atrever

‘General’ Verbs List for Spanish			
embotellar	fundar	venir	sentar
aguantar	figurar	marcar	acertar
montar	disputar	agregar	predominar
prevalecer	maltear	sorprender	aparecer
aportar	seguir	envidiar	vestir
entrar	incorporar	complicar	cambiar
ceder	encargar	iniciarse	apostar
abundar	acentuar	valorar	apoyar
aflorar	introducir	denominar	dedicarse
destacar	apreciar	aderezar	desmerecer
invitar	procurar	estructurar	echar
acercar	detectar	notar	resultar
disponer	llamar	conservar	empalagar
desconocer	cubrir	parar	manejar
incitar	suponer	generar	trasladar
ganar	mantener	referir	conducir
calentar	saborear	encantar	tirar
proceder	curar	juzgar	madurar
salir	acentuar	encajar	comentar
curar	llevar	enfrentarse	llenar
llegar	diluir	alcanzar	ubicar
pinchar	fabricar	permitir	catar
reproducir	recurrir	importar	adivinar
aumentar	apostar	afirmar	definir
obtener	catalogar	jugar	distribuir
organizar	averiguar	tocar	pronunciar
terminar	superar	merecer	infusionar
moderar	tener	extender	ajustar
saltar	establecer	arriesgar	formar
charlar	ocultar	emitir	celebrar
apuntar	mostrar	mandar	pasarse
redondear	dar	escapar	trabajar
manifestar	dirigir	hablar	tostar
tratar	producir	inundar	confundir
verse	gozar	provocar	lupulizar
oler	interesar	proporcionar	contribuir
subir	parecer	producir	dibujar
relajar	adquirir	finalizar	dibujarse
decidir	abundar	ocupar	filtrar
estrenar	andar	crear	flotar
poner	reforzar	rondar	recorrer
pertenecer	apagar	esconder	reposar
repetir	servir	aflorar	aromatizar
caer	constar	ponerse	emplazar
degustar	descompensar	fundir	existir
quedarse	sugerir	estallar	recibir

‘General’ Verbs List for Spanish			
asar	idear	crecer	poseer
mezclar	matar	chocar	soportar
gustar	partir	afectar	persistir
tornar	concluir	impactar	corresponder
recordar	conformar	repartir	mejorar
restar	obligar	plantear	imaginar
poder	tomar	permanecer	consumir
visitar	invadir	quedar	impregnar
costar	extender	masticar	hacerse
desaparecer	descubrir	desembocar	repletar
espumar	descontrolar	explicar	caber
decir	secar	cuadrar	contraponer
elevar	surgir	emerger	tomarse
prestar	saturar	explorar	identificar
reducir	alimentar	aceptar	actualizar
realizar	presentarse	acostumbrar	ahumar
preferir	envolver	impregnar	ahumarse
dar	continuar	confirmar	cargar
haber	deslizar	temer	cumplir
hacer	exhibir	centrarse	participar
colocar	desconcertar	perder	verter
opinar	optar	integrar	enviar
recomendar	quitar	encontrarse	evitar
perdurar	ensamblar	percibir	comer
pensar	limitar	faltar	balancear
agregar	incluir	pillar	compensar
comprobar	exceptuar	sobrar	significar
aprobar	galardonar	calificar	limpiar
entender	bajar	hervir	lucir
ir	despedir	desear	pretender
requerir	eclipsar	cocinar	maridar
contener	entrelazar	innovar	conseguir
completar	juntar	abrir	ofrecer
ver	solicitar	publicar	moler
cosechar	determinar	lanzarse	soler
combatir	sustituir	disimular	coronarse
desarrollar	escribir	felicitar	
imponer	centrar	adherir	
observar	rodear	morir	
asociar	apuntar	anticipar	
desplegar	llevarse	impedir	
cerrar	agradar	ascender	
caracterizar	remontar	dudar	
impresionar	regalar	translucir	
ir	atender	influir	
intentar	asegurar	desvanecer	

‘General’ Verbs List for Spanish			
equilibrio	insistir	entrever	
calmar	esperar	despertar	
indicar	encontrar	adornar	
convertir	identificar	convertirse	
saber	clasificar	elaborar	
estudiar	conferir	evocar	
insistir	mojar	emplear	
proporcionar	probar	tratarse	
hablar	aguantar	liberar	
aprovechar	contrastar	resumir	
caramelizar	derivar	ocurrir	
compartir	presentar	templar	
prolongar	animar	dominar	
bautizar	sumar	demostrar	
recoger	vender	romper	
reservar	comprar	coronar	
reconocer	fabricar	rematar	
molestar	satisfacer	meter	
querer	proteger	nacer	
desayunar	pensar	variar	
envejecer	afincar	marchar	
sacar	elixir	marcharse	
experimentar	unir	potenciar	
combinar	escuchar	decepcionar	
defraudar	buscar	cenar	
denominar	desprender	regresar	
debatir	transcurrir	facturar	
contaminar	renombrar	localizar	
disipar	mencionar	dividir	
mirar	utilizar	asaltar	
reinar	sentir	cruzar	
destinar	empezar	atacar	
componer	consultar	irrumpir	
coincidir	comenzar	intuir	
preparar	suceder	pasteurizar	

Table 4. 6: ‘General’ lexical verbs in Spanish corpus.

4.2.2 From the General to the Motion Verb - Spanish

With the ‘general’ lexical verb list compiled, the second step in the process could be performed which was to filter from this initial list all verbs that could, potentially at least, express motion. This second list of these ‘candidate’ motion verbs is presented in Table 4.7.

Spanish Motion Verbs – List 1								
No.	Verb	Freq.	Pages		No.	Verb	Freq.	Pages
1	ir	988	50		37	atacar	32	2
2	dejar	822	42		38	decantar	32	2
3	quedar(se)	609	31		39	permanecer	32	2
4	pasar(se)	536	27		40	apuntar	31	2
5	presentar(se)	485	25		41	impregnar	31	2
6	llegar	439	22		42	concluir	29	2
7	seguir	293	15		43	conservar	29	2
8	llevarse	288	15		44	iniciar(se)	29	2
9	disipar	275	14		45	ascender	28	2
10	terminar	252	13		46	cerrar	28	2
11	acabar	161	9		47	irrumpir	27	2
12	empezar	156	8		48	escapar	25	2
13	venir	146	8		49	persistir	25	2
14	entrar	138	7		50	aflorar	23	2
15	comenzar	124	7		51	extender	23	2
16	salir	124	7		52	bajar	21	2
17	acercar	121	7		53	fundir	21	2
18	elevar	70	4		54	emerger	20	1
19	partir	52	3		55	prevalecer	16	1
20	dirigir	51	3		56	rodear	16	1
21	lanzar(se)	51	3		57	conducir	15	1
22	alcanzar	50	3		58	cruzar	14	1
23	finalizar	49	3		59	desembocar	14	1
24	caer	48	3		60	desplegar	12	1
25	filtrar	47	3		61	liberar	12	1
26	tirar	46	3		62	asaltar	11	1
27	aguantar	41	3		63	ceder	11	1
28	subir	41	3		64	manejar	11	1
29	andar	39	2		65	parar	11	1
30	continuar	39	2		66	deslizar	9	1
31	inundar	36	2		67	emitir	9	1
32	reposar	36	2		68	entrever	9	1
33	verter	36	2		69	restar	8	1
34	prolongar	34	2		70	estallar	6	1
35	rematar	34	2		71	saltar	6	1
36	surgir	34	2		72	recorrer	4	1
					73	perdurar	3	1
					74	marchar(se)	2	1
					75	regresar	2	1
Total number of verbs (types)			75					
Total number of concordance lines			7,478					
Total number of pages to be searched			413					

Table 4. 7: Candidate motion verbs in Spanish corpus.

As can be seen in Table 4.7, the initial list of motion verbs yielded from the Spanish corpus of craft beer reviews consisted of 75 types, which were distributed across a total of 7,478 concordance lines.

4.2.3 A Refined Motion Verb List - Spanish

However, during the data analysis phase it was found that many of these candidate motion verbs did not express motion or, in some cases, did not do so in relation to the two sensory Paths of focus in this study, namely gustatory and olfactory.[74] Further, as was the case with the English corpus, some other verbs not present in this original list were observed in various texts examined. Therefore, a refined list of motion verbs was compiled and all the related data was recorded and is presented in Table 4.8.[75]

Spanish Verbs of Motion –List 2					
No.	**Verb**	**Concordance Lines**		**Path Components**	
		Total	Analysed	Types	Instances of Motion
1	ir	988	150	2	2
2	dejar (se)	822	150	2	51
3	quedar(se)	609	150	3	31
4	pasar(se)	536	150	1	1
5	presentar(se)	485	150	2	29
6	llegar	439	150	3	15
7	venir	146	146	3	9
8	salir	124	124	1	3
9	acercar	121	121	1	1
10	elevar	70	70	1	1
11	dirigir	51	51	3	13
12	lanzar(se)	51	51	2	2
13	alcanzar	50	50	1	1
14	prolongar	34	34	2	8
15	surgir	34	34	4	21
16	permanecer	32	32	2	21
17	ascender	28	28	1	3

[74] An instance of a candidate motion verb expressing motion in the domain of vision (i.e. neither gustatory nor olfactory) in this study is '*[C]erveza tipo pilsener con muy poca espuma… **se disipa** poco a poco casi en su totalidad* (Translation: [this is a] typical pilsener beer with very little foam…slowly **dissipates**, almost altogether).

[75] Verbs such as 'linger' in English and 'perdurar' (endure), 'permanecer' (remain/linger), 'persistir' (persist) in Spanish express stasis of a Figure and not movement and are captured by Talmy's Vector type 'BE$_{LOC}$AT a point'; see §2.2.3.2 for a more detailed discussion.

Spanish Verbs of Motion –List 2					
No.	**Verb**	**Concordance Lines**		**Path Components**	
		Total	Analysed	Types	Instances of Motion
18	irrumpir	27	27	2	23
19	escapar	25	25	3	12
20	persistir	25	25	2	19
21	aflorar	23	23	2	22
22	extender	23	23	3	9
23	emerger	20	20	2	19
24	prevalecer	16	16	1	16
25	conducir	15	15	1	9
26	desembocar	14	14	1	13
27	desplegar	12	12	2	9
28	liberar	12	12	1	9
29	asaltar	11	11	2	8
30	deslizar	9	9	2	4
31	emitir	9	9	1	7
32	perdurar	3	3	1	1
33	entrar	138	138	2	22
34	percibir(se)	224	150	2	131
35	desprender(se)	79	79	3	74
36	desatar(se)	7	7	2	4
37	atravesar	8	8	1	1
38	brotar	4	4	2	2
39	invadir	15	15	1	7
		5339	2286	N/A	633
Verbs Investigated But Gustatory/Olfactory Motion not Observed					
40	seguir	293	150		
41	llevar(se)	288	150		
42	disipar	275	150		
43	terminar	252	150		
44	acabar	161	150		
45	empezar	156	150		
46	comenzar	124	124		
47	partir	52	52		
48	finalizar	49	49		
49	caer	48	48		
50	filtrar	47	47		
51	tirar	46	46		
52	aguantar	41	41		

Spanish Verbs of Motion –List 2					
No.	**Verb**	**Concordance Lines**		**Path Components**	
		Total	Analysed	Types	Instances of Motion
53	subir	41	41		
54	andar	39	39		
55	continuar	39	39		
56	inundar	36	36		
57	reposar	36	36		
58	verter	36	36		
59	rematar	34	34		
60	atacar	32	32		
61	decantar	32	32		
62	apuntar	31	31		
63	impregnar[76]	31	31		
64	concluir	29	29		
65	conservar	29	29		
66	iniciar(se)	29	29		
67	cerrar	28	28		
68	bajar	21	21		
69	fundir	21	21		
70	rodear	16	16		
71	cruzar	14	14		
72	ceder	11	11		
73	manejar	11	11		
74	parar	11	11		
75	entrever	9	9		
76	restar	8	8		
77	estallar	6	6		
78	saltar	6	6		
79	recorrer	4	4		
80	marchar(se)	2	2		
81	regresar	2	2		
82	apoyarse	20	20		
83	adentrar(se)	6	6		
		2502	1977		
Total number of verbs (types)			83	Manner	33
				Non-manner	50
Total concordance lines in corpus (for candidate motion verbs)			7841		

[76] One of the senses in English given in WordReference for this verb was ‘to permeate’.

Spanish Verbs of Motion –List 2					
No.	**Verb**	**Concordance Lines**		**Path Components**	
		Total	Analysed	Types	Instances of Motion
Total concordance lines analysed			4263		
Total instances of motion			633	Mean per Verb 7.63 (σ = 18.03)	Median 0

Table 4. 8: Refined list of motion verbs expressing and not expressing motion – Spanish.

As can be seen in Table 4.7, a total of 83 types were recorded, distributed across 7,841 concordance lines, of which 4,263 were examined. The combined total of instances of motion observed concerning these verbs, then, was 633. In terms of lexical granularity, 33 of the 83 were deemed to be manner verbs (40%) and 50 non-manner verbs (60%). With 633 instances of motion expressed by the 83 types, the mean representation (i.e. type-token ratio, or TTR) in the corpus for these Spanish motion verbs was 7.63 instances per verb (standard deviation = 18.03) while the median value was 9.

4.2.4 General Trends

One immediately striking element of the data retrieved from the investigations was that, although almost an identical number of motion types were yielded from the Spanish corpus as that from its English counterpart, only 633 instances of motion were actually observed.

Additionally, some verbs that may be considered to have as their core semantic function the expression of motion were actually found to express motion in only a very low number of instances. For example, verbs such as *ir* (to go), *pasar*(se) (to pass), *llegar* (to arrive), *venir* (to come) and *salir* (to leave) all, with the exception of *venir* and *salir* with 146 and 124, respectively, were investigated across 150 concordance lines but, in some cases, only one or two instances of motion were actually observed.[77] Further, the combined number of concordance lines analysed for these verbs was 1,020 but only 90 (8.82%) of the occurrences concerned instances of motion.

[77] To illustrate the point, the verb *ir* may be used to describe one flavour complementing another, as in *su punto de amargor va genial con las notas de chocolate y café* ('its touch of bitterness goes great with the chocolate and coffee notes'; while the verb *pasar*(*se*) could be used to express a flavour/aroma 'not going unnoticed' as in '…*no pasa desapercibido*…'.

There was only one verb (*percibirse*) of the 83 that exceeded 100 instances in the corpus and a total of six verbs (*pasar(se)*, *acercar*, *elevar*, *alcanzar*, *perdurar* and *atravesar*) were represented by a single instance of motion. A total of 44 verbs were found not to express motion even though 1,977 concordance lines concerning these verbs were examined.

The maximum number of types of Path component+Ground combinations reported for the Spanish corpus was four (*surgir* with 21 instances) while 14 verbs had only one combination type (i.e. Vector + 1 Ground).

4.2.4.1 Specific Trends

As was discussed for the English data analysis records in relation to the micro-level of specific trends in sensory modality representation (§4.1.4.1), a very similar pattern emerged from their Spanish counterparts.

It was found that from the 78 data analysis records produced for the Spanish corpus of craft beers, 52 (66%, or two thirds) concerned gustatory sensory experience and 26 (33%, or one third) expressed the olfactory sensory modality.

4.2.5 Organoleptic Path Complexity in Corpus of Craft Beer Reviews – Spanish

From the 83 verbs of motion yielded from the corpus and the 633 instances of motion events observed and analysed, a relatively limited number of Path component + Ground combinations emerged for the description of organoleptic experience in the genre of craft beer reviews in Spanish.

Table 4.9 provides the data yielded with respect to Path complexity, beginning with the least complex type ‘0 Path + Minus-Ground’ combination to the most complex ‘3 Paths + 2 Grounds’.

Path Complexity - Spanish			
No.	**Path Component**	**Instances in Corpus**	**Example**
0 Path + 0 Ground			
	Bare	**408**	*...sin duda debido a la acción del lúpulo, cuyo perfume herbal **se extiende** como una gota de aceite.* …no doubt thanks to the hops, whose herbal perfume **spreads** like a drop of oil.
0 Path + 1 Ground			
	Bare	**7**	*me siento que los aromas cítricos y florales **invaden** mi nariz y las ganas de llevármela a la boca incrementan…* … I can feel the citric and floral aromas **invading** my nose and the desire to bring it to my mouth increases…
1 Path + 0 Ground			
	1 Vector	0	-
	1 Conformation	0	-
	1 Deictic	0	-
	1 EGD	0	-
		0	
1 Path + 1 Ground			
	1 Vector	150	*El final es seco ... **venir al** paladar un recuerdo bastante peculiar de levaduras.* The finish is dry … **arriving onto** the palate a somewhat strange aftertaste of yeast.
	1 Conformation	64	***A**l olfato la Gótic Ale **desprende** un agradable aroma floral gracias a la carga de lúpulos ...*

Path Complexity - Spanish			
No.	**Path Component**	**Instances in Corpus**	**Example**
			Gotic Ale **emits** a pleasant, floral aroma **into** the nose thanks to the large quantity of hops…
	1 Deictic	1	***Por debajo de*** *tanto lúpulo* ***queda*** *un buen remanente de malta, notas de masa de pan, almíbar y profundos toques de miel,* **Beneath** so much hop **lingers** a good surplus of malts, bread dough notes and syrup with deep honey tones,
	1 EGD	1	*el trigo que* ***se eleva sobre*** *un fondo dulzón,* the wheat which **rises above** a sweet bed
		216	
1 Path + 2 Grounds			
	Conformation[78]	**1**	***donde entre*** *notas de cítricos y manzana verde* ***surge*** *un punto de humo y tabaco,* **where,** between citrus and green apple notes, **emerges** a touch of smoke and tobacco
2 Paths + 1 Ground			
	Vector + Deictic	0	-
	Conformation + Vector	0	-
	EGD + Vector	0	-
	EGD + Conformation	0	-

[78] This is most similar to Cifuentes-Férez's (2013: 68) Conformation '[…*pero no salió nada volando de* ***entre*** *las copas* […]'

Path Complexity - Spanish			
No.	**Path Component**	**Instances in Corpus**	**Example**
		0	
2 Paths + 2 Grounds			
	Vector FROM-TO[79]	1	*Aroma: Con un espectro que **va desde** el cereal tostado **al** chocolate negro y la mocha.* Aroma: with a spectrum that **goes from** toasted cereal **to** dark chocolate and mocha.
	Vector + Deictic	0	-
	EGD + Vector	0	-
	Vector + Vector	0	-
	Vector + Conformation	0	-
		1	
3 Paths + 1 Ground			
	Deictic +EGD + Vector	**0**	-
3 Paths + 2 Grounds			
	Conformation + EGD + Vector	**0**	-
Total Number of Instances = 633			

Table 4. 9: Gustatory and Olfactory Path complexity combinations in the Spanish corpus.

[79] Cifuentes-Férez (2014) classifies this as two Path elements but it is not quite clear how Slobin classifies it.

A total of five different types of Path component+Ground combinations were observed in the Spanish corpus and are summarised in Table 4.10.

Path Component+Ground Combination	Absolute Frequency	Relative Frequency
0 Path + 0 Ground	408	64.45%
0 Path + 1 Ground	7	1.11%
1 Path + 1 Ground	216	34.12%
1 Paths + 2 Grounds	1	0.16%
2 Paths + 2 Grounds	1	0.16%

Table 4. 10: Summary of all Path component+Ground combinations in Spanish corpus.

The most noticeable feature, however, of the data provided in Table 4.9 and Table 4.10 is that the majority of Path component+Ground combinations present in the corpus of Spanish craft beer reviews consisted of the least complex type '0 Path + 0 Ground'. This combination accounted for 408 of the total 633 instances of motion observed, or 64.45%.

The more complex combination of '1 Path + 1 Ground' was the second most common in the corpus with 216 instances, or 34.12% of all motion events recorded.

The most complex combinations observed, although relatively rare in the corpus and only accounting for one instance (or 0.16% of the total number of motion events), consisted of two Path components and two Ground elements and concerned the Vector FROM-TO.

Figure 4.2 provides a data visualisation of the distribution of Path+Ground combinations as yielded from the Spanish corpus of craft beer reviews for this research project.

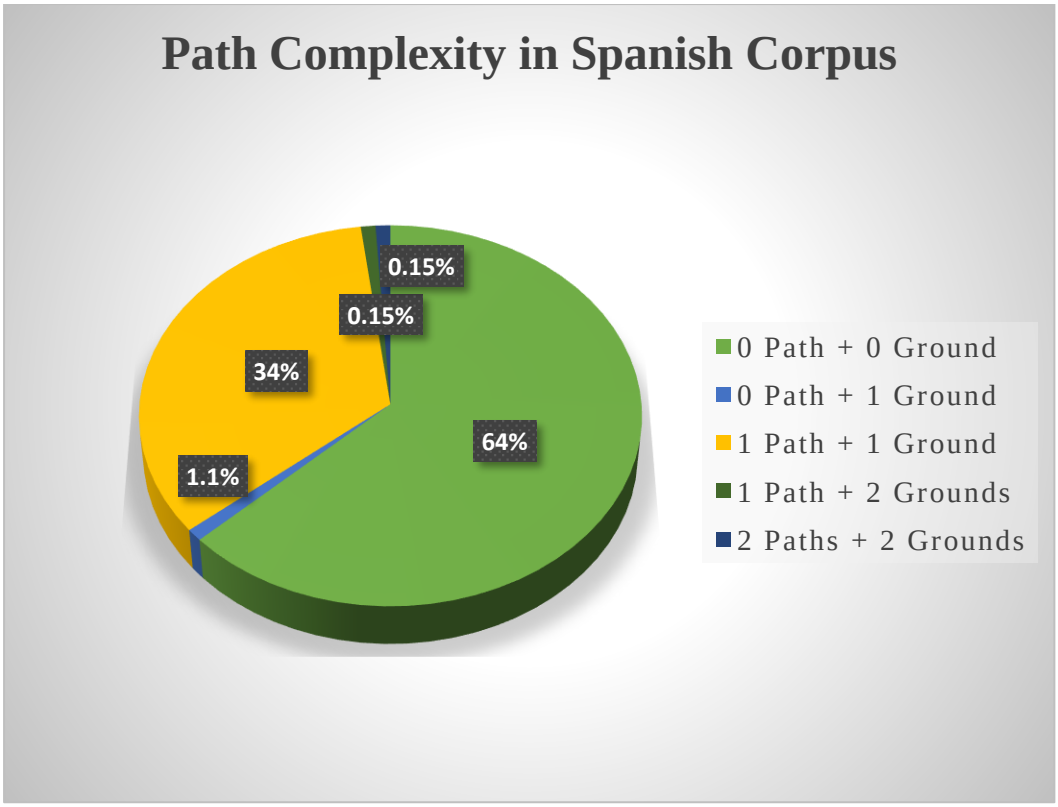


Figure 4. 2: Distribution of Path+Ground Complexity in Spanish corpus.

4.3 Comparison of English and Spanish Data

With the individual olfactory and gustatory Path complexity data presented for both the Spanish and English corpora of craft beer reviews, a discussion of a more comparative nature can now be offered; this is the focus of this third and final part of this Data Analysis chapter.

4.3.1 Concordance Lines Examined and Instances of Motion Events

The first comparison focuses on the number of concordance lines analysed for each of the two corpora of craft beer reviews investigated during the analysis phase of the project and also on the differences in terms of the frequency of motion events observed in each.

Figure 4.3 is a data visualisation at the macro-level of the number of concordance lines analysed for each corpus and, also, the number of instances of motion observed.

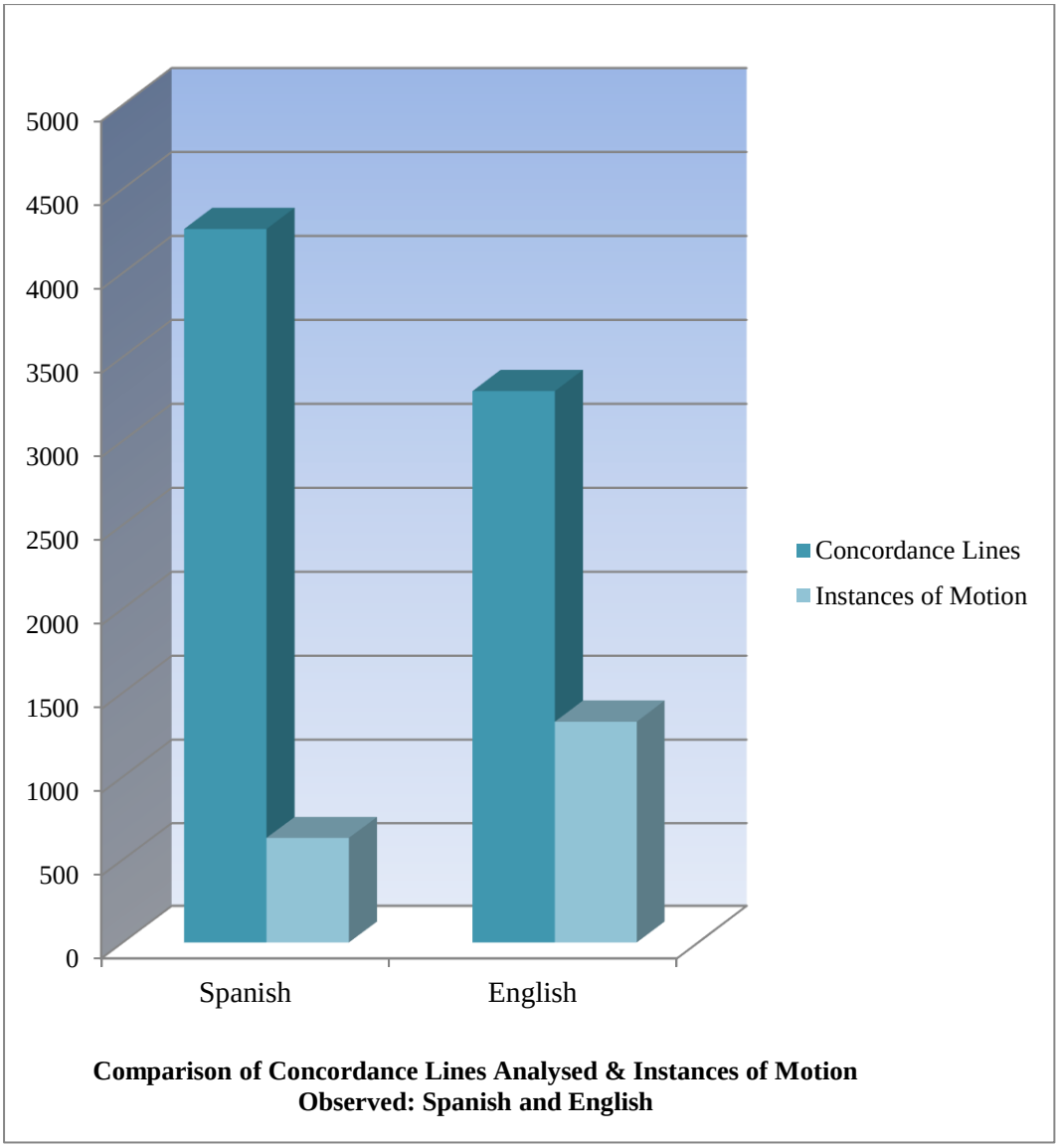


Figure 4. 3: Concordance lines and instances of motion for Spanish and English corpora.

As can be seen from Fig. 4.3, far more concordance lines were analysed for the Spanish corpus than were for its English counterpart, 4,263 and 3,298 respectively. However, what is also immediately clear is that, despite the fact that 965 more concordance lines were examined for the former corpus of craft beer reviews, the number of instances of motion observed was less than half that of the latter corpus with 633 and 1329, respectively. It is also of importance that the number of types of motion verbs initially recorded for each corpus was almost identical with 83 for Spanish and 82 for English.

4.3.2 Path Complexity – Individual Types

Another area in which the two corpora differ significantly concerns the micro-level types of Path component+Ground combinations observed.

Table 4.9 provides a detailed summary of each corpus in relation to the representation in each corpus for the 22 possible combinations.

Path Complexity	Example	English	Spanish
0 Paths + 0 Ground			
Bare + 0 Ground		234	408
0 Paths + 1 Ground			
Bare + 1 Ground		71	7
1 Paths + 0 Grounds			
Vector + 0 Grounds		12	-
Conformation + 0 Grounds		1	-
Deictic + 0 Grounds		63	-
EGD + 0 Grounds		24	-
1 Path + 1 Ground			
Vector + Ground		422	150
Conformation + Ground		354	64
Deictic + Ground		25	1
EGD + Ground		30	1
1 Path + 2 Grounds			
Conformation		-	1
2 Paths + 1 Ground			
Vector + Deictic + Ground		5	-
Conformation + Vector + Ground		1	-
EGD + Vector + Ground		27	-
EGD + Conformation		18	-
2 Paths + 2 Grounds			
Vector FROM-TO		7	1
Vector + Deictic		2	-
EGD + Vector		1	-
Vector + Vector		27	-
Vector + Conformation		3	-
3 Paths + 1 Ground			
Deictic + EGD + Vector		1	-
3 Paths + 2 Grounds			
Conformation + EGD + Vector		1	-
		1329	**633**

Table 4. 11: Summary of possible Path+Ground combinations: English & Spanish corpora.

As can be seen in Table 4.11, in both corpora a significant number of motion events concerned ‘bare’ verbs. For Spanish, the highest number of instances was recorded for the

least complex of the ‘minus-Ground’ type at 408, while English employed this type in 234 instances.

For English, the most common Path+Ground combination was a Vector + 1 Ground with 422 instances while in the Spanish counterpart, only 150 instances were recorded.

Interestingly, there was one type of combination, Conformation + 2 Grounds, that was observed in the Spanish corpus but was not in the English counterpart. However, it could be argued, that with only one instance of this type, its relevance is greatly reduced.

4.3.3 Number of Verbs and Mean Number of Instances of Motion Per Verb

As previously mentioned, the number of motion verbs (types) yielded from the two corpora was almost identical with only one separating the two corpora; Spanish had 83 and English had 82.

Figure 4.4 provides a data visualisation of the two corpora in terms of these verbs and, also, of the mean number of instances of motion recorded for each (Spanish was 7.62 and English was 16.2).

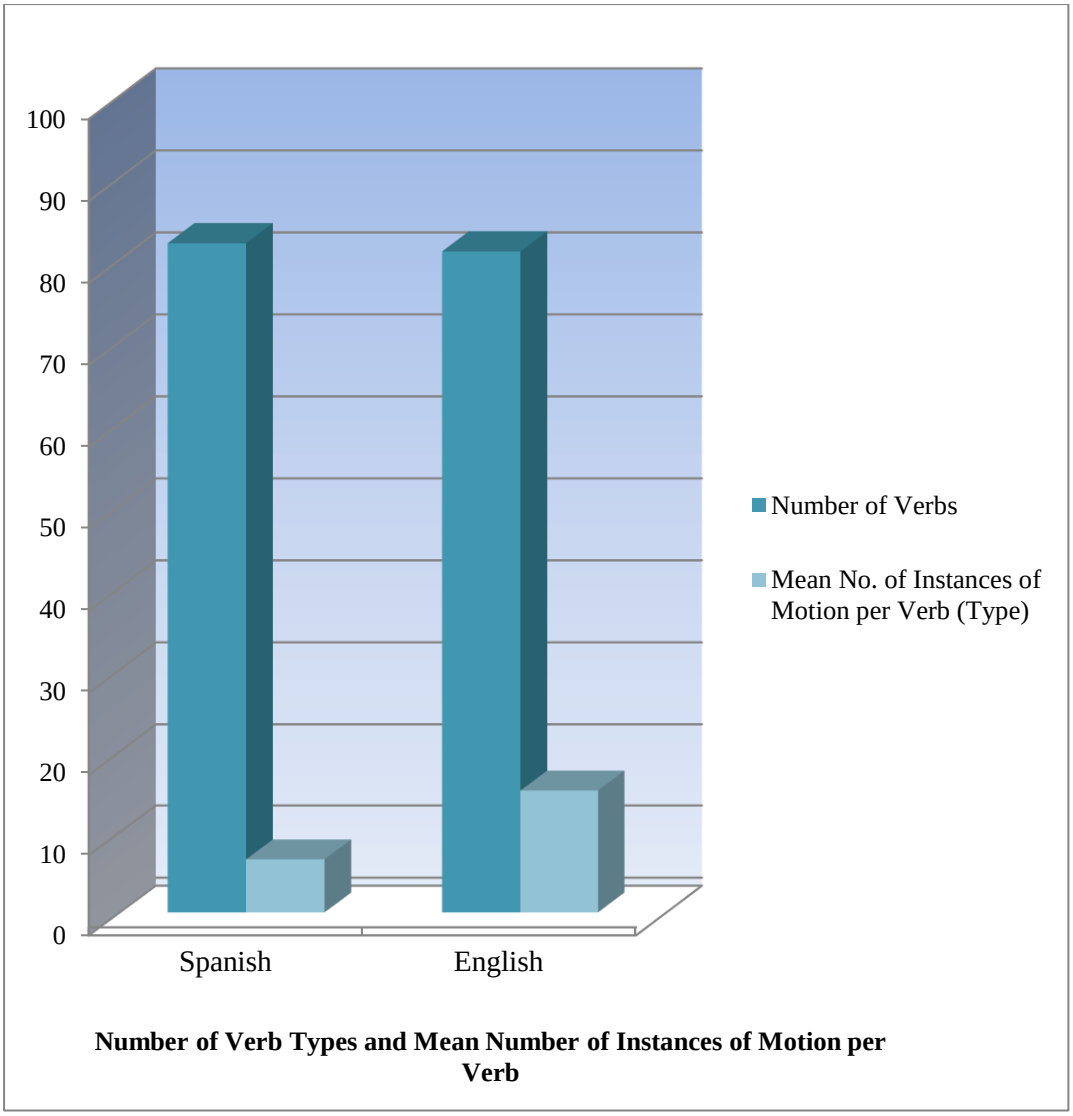


Figure 4. 4: Mean instances of motion per verb in Spanish and English corpora.[80]

Lastly, Table 4.12 provides a macro-level summary of those Path component + Ground combinations that are evident in the two corpora of craft beer reviews.

[80] Median for both Spanish and English was 0; standard deviation for Spanish was 18.03 and 20.88 for English.

Path Complexity	English	Spanish
Bare + 0 Ground	✓	✓
Bare + 1 Ground	✓	✓
Vector + 0 Grounds	✓	
Conformation + 0 Grounds	✓	
Deictic + 0 Grounds	✓	
EGD + 0 Grounds	✓	
1 Vector + 1 Ground	✓	✓
1 Conformation + 1 Ground	✓	✓
1 Deictic + 1 Ground	✓	✓
1 EGD + 1 Ground	✓	✓
1 Conformation + 2 Grounds		✓
1 Vector + 1 Deictic + 1 Ground	✓	
1 Conformation + 1 Vector + 1 Ground	✓	
1 EGD + 1 Vector + 1 Ground	✓	
1 EGD + 1 Conformation + 1 Ground	✓	
Vector FROM-TO + 2 Grounds	✓	✓
1Vector + 1 Deictic + 2 Grounds	✓	
1 EGD + 1 Vector + 2 Grounds	✓	
1 Vector + 1 Vector + 2 Grounds	✓	
1 Vector + 1 Conformation + 2 Grounds	✓	
1 Deictic + 1 EGD + 1 Vector + 1 Ground	✓	
1 Conformation + 1 EGD + 1 Vector + 1 Ground	✓	
Total Path+Ground Combinations	**21**	**8**

Table 4. 12: Summary of observed Path+Ground combinations: Spanish & English corpora.

4.3.4 Distribution of Organoleptic Experiences in Data Analysis Records: Spanish & English

As discussed above (§4.1.4.1 and §4.2.4.1), there was an uneven distribution in terms of sense modality representation observed in the data analysis records for both Spanish and English. Figure 4.5 provides a visual representation of this phenomenon for the two languages.

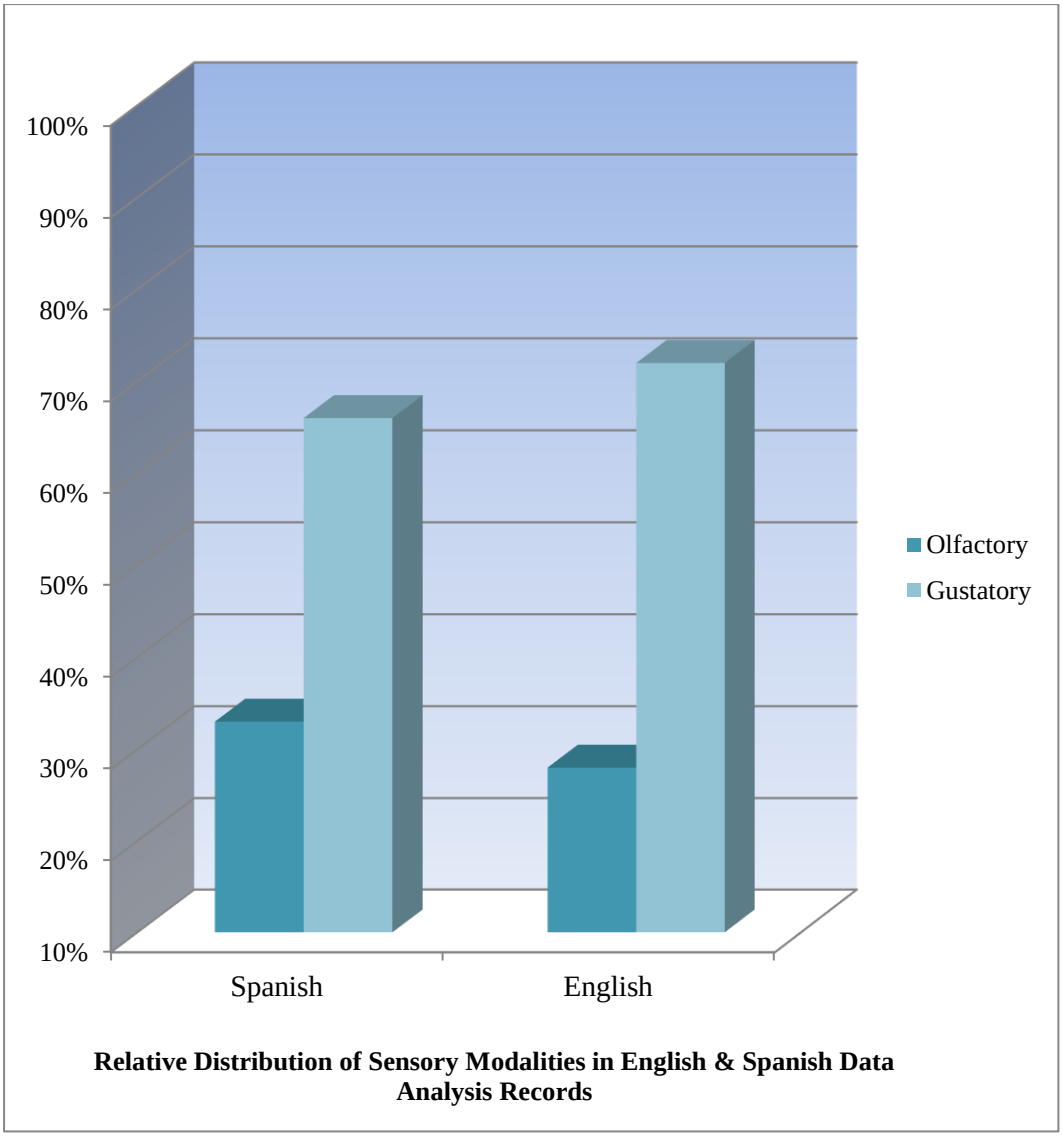


Figure 4. 5: Sensory modality representation - Spanish & English data analysis records.

The most striking feature of Figure 4.5 is that there is a high degree of uniformity across the two languages in terms of relative representation of the senses of taste (Spanish 66%; English 71%) and smell (Spanish 33%; English 28%). Further, the considerable intralingual imbalance of gustatory and olfactory representation is also almost mirrored across the two collections of data analysis records.

As was previously mentioned (§4.1.4.1), there was no design in the selection of examples in the data analysis records with respect to the sensory modality expressed (the criterion for selection was the level of illustration of Path component + Ground combination evident for a given verb). It is thus recognised that the data presented here is illustrative of a particular distributional trend confined specifically within the data analysis records produced in this study and is, therefore, tentative. In order to yield definitive quantitative data for this

phenomenon, a comprehensive investigation into all Path component + Ground combinations across the full range of motion verbs for both corpora would need to be performed. Unfortunately, the time limitations imposed by the particular research project would not permit such an in-depth exploration.

4.4 Conclusion

This particular chapter presented quantitative results showing the extent to which metaphorical motion events were employed by authors of craft beer reviews in Spanish and English to express to their readers the sensorial experiences, specifically gustatory and olfactory, of a given product.

The data yielded from each of the two corpora were firstly presented individually. This was complemented by a comparative discussion. In this section, it was found that English was considerably richer in variety of Path component + Ground combinations than was Spanish but, also, that the complexity of these Paths was greater in the English-language texts than in their Spanish counterparts.

Finally, although tentatively, a trend of intralingual distribution of the two distinct sensory modalities of which the organoleptic Paths consist, gustatory and olfactory, was also exposed. It was found that, in both languages, the sense of taste had a far greater representation in the data analysis records than the sense of smell. It was also recognised, however, that these trends may have been influenced by the arbitrary nature of the selection process of presenting, in the data analysis records, particular Path component + Ground combinations observed for a given verb in which the sensory modality was not considered a selection criterion.

In the following chapter, both the methods employed in and the findings yielded from this particular study will be compared to those of others closely related, such as Slobin (2008) and Cifuentes-Férez (2014) whose foci were Path complexity in another sensory domain: vision.

The prime objective, therefore, will be to gain further understanding of sensory Path complexity by comparing closely related domains of sensory experience: visual and organoleptic in both Spanish and English and, by extension, V-languages and S-languages, respectively.

Chapter 5 - Discussion

5.0 Introduction

This chapter has as its core objective to place the findings of this research project within the broader landscape of related studies conducted into non-physical motion in the domain of sensory experience. By doing so, it is envisaged that a more nuanced picture will emerge in which the patterns reported for previous studies into visual Paths may not be evident in the corpus of craft beer reviews due to factors such as genre idiosyncrasies and physiological constraints.

In order to achieve this goal, the three principal aims of this thesis will be addressed by comparing the findings presented in Chapter 4 with those of other related studies conducted into complexity and variety in the domains of sensory motion.

The first aim is to determine whether and to what extent the differences between minus-Ground and plus-Ground motion events evident in visual Paths are also evident in organoleptic Paths in Spanish and English craft beer reviews.

The second is to compare the degree of variety of combinations reported for visual Paths with those found here for organoleptic Paths in English than Spanish.

The third seeks to determine whether and to what extent organoleptic Paths are more or less complex in their Path component + Ground combinations than visual Paths in English and Spanish.

The chapter, however, will be presented across three sections. In Part One, all studies conducted into sensory Path complexity will be revisited and a summary and comparison of all the methods employed in, and findings yielded from, each one will be given.

In Part Two, the three aims outlined above will be individually addressed while Part Three has more of a qualitative perspective and will aim to provide some potential explanations for any differences observed and reported in the different domains of sensory motion.

5.1 Summary of Studies Across Sensory Domains of Motion

The studies conducted into sensory Path complexity discussed in this thesis, although sharing many commonalities, were also unique to each other in certain ways.

Slobin (2008) investigated whether the tendency of speakers of S-languages to provide more elaborate Path descriptions than their V-language counterparts for factive motion events was also evident for fictive motion events. The latter set was represented by visual Paths of motion across a variety of S- and V-languages (of which only English and Spanish will be discussed here) and, also, across a variety of textual genres.

Cifuentes-Férez (2014) was also concerned with the relations between the domains of physical, or *factive*, motion and visual, or *fictive*, motion. However, one main difference between the two studies was that Cifuentes-Férez employed only one type of text (novels), while Slobin utilised a variety of textual genres including newspapers, novels and online sources.

The present study parts from those others, however, in various ways. Firstly, it uniquely concerns texts from the non-narrative genre of craft beer reviews.[81] Secondly, it focuses on another sensory domain: organoleptic (i.e. the senses of smell and taste). Thirdly, and, importantly, it is a corpus-based study which employed a specific online corpus development and management software program (Sketch Engine) to both develop and explore the corpora and pursue the phenomenon in question, namely the use of metaphorical motion in the description of organoleptic sensorial experience in the domain of craft beer reviews.

Table 5.1 provides a comparative summary of the three studies in terms of domain explored, methods and scope of investigation and, where available, quantitative results.

[81] Some of Slobin's (2008) sources were also from non-narrative genres such as newspapers and online sources.

Study	Sensory Domain	Corpora		Method of Data Collection/ Analysis		Motion Events Examined		Instances Yielded	
		En	Sp	Man.	Computer Assisted	Sp	En	Sp	En
Slobin (2008)	Vision	Various sources	Various sources	✓	-	?	?	?	?
Cifuentes-Férez (2014)	Vision	1 novel	1 novel	✓	-	112	112	112	112
Present Study	Organo-leptic	483,031	481,500	-	✓	4263	3298	1329	633

Table 5. 1: Comparative summary of the three related studies.

The most obvious feature of Table 5.1 is that in only the present study were contemporary corpus linguistics methods and software employed and, therefore, is the only one from which a broad range of important statistical data can be yielded and accurately reported upon.

One other important advantage of this approach is that it allows the researcher to explore a far larger body of texts than would be possible using purely 'manual' methods and, also, to extract and analyse a higher number of instances of the phenomenon of interest, arguably somewhat increasing the statistical value of the findings yielded.

It could be argued that the limitations of using manual methods instead of utilising the investigative strength of technology are illustrated somewhat in Slobin (2008). Here, the researcher acknowledges that no statistical data could be provided due to 'differing sizes of available corpora, ease of searching, and time limitations' (Slobin 2008: 205 FN). However, the illustrative examples offered in the study were retrieved from a variety of sources such as the British National Corpus (BNC), newspapers, novels (for English); those texts from other languages were retrieved from online sources.

Further, as Slobin was primarily interested in Path complexity, or rather which types of Path component + Ground combinations a language permitted, and not how statistically prevalent they were in that language, information in this regard was also not provided.

Cifuentes-Férez (2014), although taking a 'manual' approach (i.e. reading through a text until a visual motion event was observed), did report on the number of sources (two: one novel in English and its Spanish translation), and the number of fictive motion events was also given, although no token counts were provided.

Nevertheless, although all data and findings of all studies are of importance and provide useful insights into the cognitive and linguistic phenomena under investigation, it could also be proposed that modern corpus linguistics methods and tools supply the researcher with greater investigative power and, ultimately, more statistically solid foundations upon which to base assumptions and construct hypotheses.

With a brief summary given of the studies in terms of genre, corpora explored and methods of investigation employed, focus can now sharpen to a more detailed comparative nature of similarities and differences of Path variety and complexity in the related sensory domains of vision and organoleptic sensorial experience.

5.2 Variety and Complexity of Visual and Organoleptic Paths

Following the order of exposition in the above-mentioned studies, we first discuss and compare those motion events in which no reference to a Ground is mentioned (*minus-Ground*) and, later, those in which at least one Ground element is evident (*plus-Ground*).

However, in order to facilitate this discussion, some short examples in English will first be provided of minus- and plus-Ground clauses for the domains of vision and organoleptic experiences. 55a) and 55b) contain minus-Ground clauses for vision, the first is a 'bare' verb and the second is accompanied by a 'satellite' expressing a Path, while 55c) is a plus-Ground fictive motion event:

> 55a) His droopy bloodshot eyes *unfocused.*
>
> 55b) Look *round*!
>
> 55c) …look through *the keyhole*…
>
> (Cifuentes-Férez 2014: 223-224)

In 56a) and 56b) the equivalent types of minus-Ground metaphorical motion events are offered for organoleptic Paths and 56c) provides a plus-Ground example:

> 56a) …delightful stone fruit and cherries ***dancing*** with a gently horsey funk and light acidic sour. (A Perfect Pint)
>
> 56b) Biscuit flavors ***splash*** **down** first… (Draft Mag)
>
> 56c) This beer flashes across ***the tongue***… (Draft Mag)

5.2.1 Minus-Ground and Plus-Ground Motion Events: Cross-domain Comparison

Slobin (2008) did not include in his investigations expressions concerning minus-Ground clauses (i.e. clauses consisting of a motion verb which is not accompanied by a prepositional phrase referring to a Ground object) as his particular focus was on the cross-typological issue of visual motion events uniquely with reference to landmarks.

Cifuentes-Férez (2014), on the other hand, was interested in exploring all aspects of visual Path elaboration and not just those concerning reference to Ground objects, both minus-Ground and plus-Ground clauses were investigated. Therefore, these types of motion events will be discussed here and compared with those of organoleptic Paths of motion, the focus of the present study.

Cifuentes-Férez (2014) hypothesised that minus-Ground clauses would be more frequent in Spanish than in English based on the pattern which had emerged from previous studies into V-language and S-languages in the domain of factive motion (Cifuentes-Férez 2014: 222). However, contrary to those expectations, it was discovered that more minus-Ground motion events were evident in *both* English and Spanish than were plus-Ground clauses (Ibid: 225).

Table 5.2 provides comparative data (i.e. absolute and relative statistics) for both minus- and plus-Ground motion events in Spanish and English across both Cifuentes-Férez (2014) and the present study while Figure 5.1 provides a visual display of these data.

Path Complexity	**Visual**		**Organoleptic**	
	Eng.	Span.	Eng.	Span.
Minus-Ground	94 (80%)	116 (92%)	334 (25%)	408 (65%)
Plus-Ground	23 (20%)	10 (8%)	995 (75%)	225 (35%)
Total	**117**	**126**	**1,329**	**633**

Table 5. 2: Data: minus- & plus-Ground visual & organoleptic Paths (Sp. & En.).

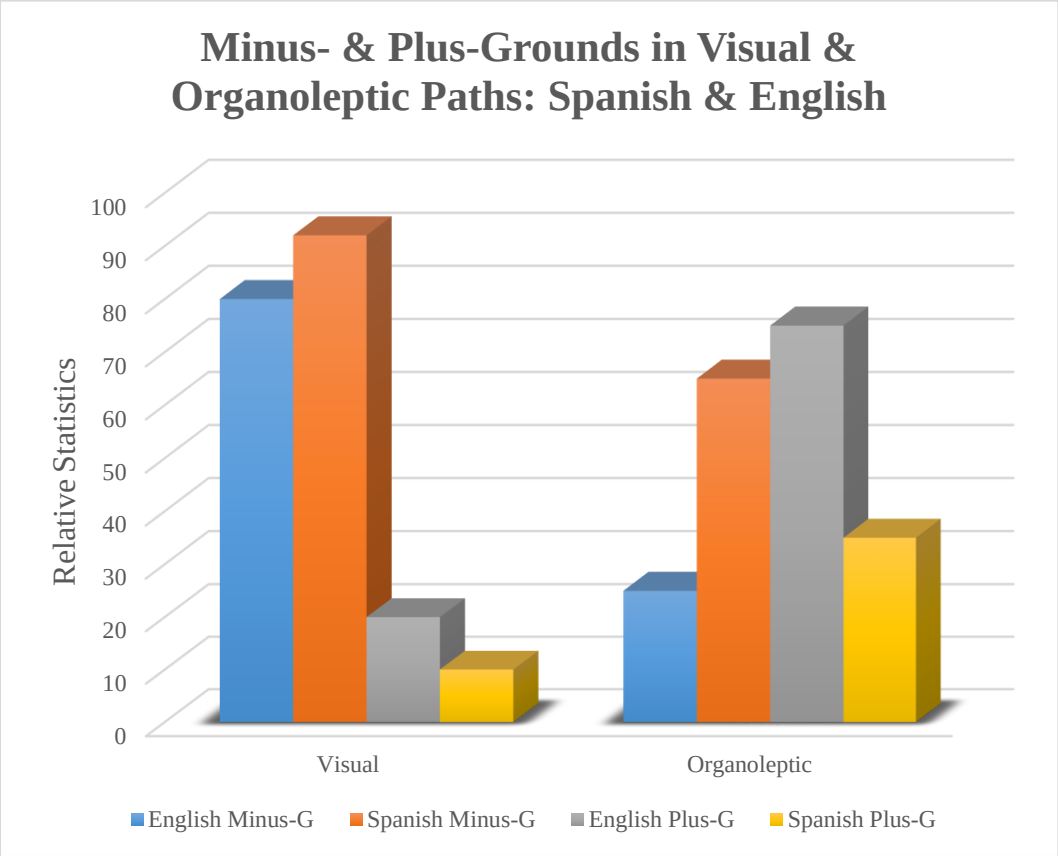


Figure 5. 1: Distribution: minus- & plus-Ground visual & organoleptic Paths (Sp. & En.).

The most striking feature of Table 5.2 and Figure 5.1 is that the distributions of instances of minus- and plus-Ground motion events are very different, across domains.

Firstly, as reported by Cifuentes-Férez (2014), motion events in the visual Paths investigated in her corpus followed the expected pattern as predicted by previous studies of factive motion, up to a point: the V-language (Spanish) was far more abundant in minus-Ground clauses at 116 (92%) than in plus-Ground clauses, at 10 (8%).

However, the S-language (English) did not follow the expected pattern of presenting more plus-Ground motion events than minus-Ground clauses as it was considerably impoverished in these types of motion events with only 23 (20%) of instances of plus-ground events compared to 94 (80%) for minus-Ground.

Secondly, the patterns of minus-Ground and plus-Ground distribution in organoleptic Paths in the corpus of craft beer reviews are much more in line with those expected from physical (or factive) motion events. In the English corpus, 995 (75%) of the 1,329 instances of

metaphorical motion events involved at least one Ground object. In the Spanish corpus, however, only 225 (35%) of the 633 metaphorical motion events involved reference to a Ground entity.

There was also a far greater tendency for minus-Ground clauses to occur in Spanish, in which 408 (65%) such clauses were observed, compared to English, which had 334 (25%) such clauses.

5.2.1.1 An Account for the Differences

5.2.1.1.1 The Physical Account

It was proposed that one possibility to account for the universal dearth of plus-Ground motion events in the domain of visual motion was the physical limitation placed on an observer (i.e. the Figure element of the motion event), which was restricted to her/his line of sight. This is not the case for factive motion events as the Figure can move to a potentially unlimited number of locations (Cifuentes-Férez 2014: 224). Slobin (2008) likewise suggests that a moving body does not have the physical constraints imposed upon it that an observer would via a fixed length of path, i.e. the *line of sight* (Slobin 2008: 206).

If one considers, however, the significant physical differences between a 'visual landscape' and an 'organoleptic landscape' (i.e. the confinements of the nasal and oral cavities), the physical argument does not appear to be supported by the data from the domain of organoleptic sensory experience.

As will be discussed in a later section (§5.4.2), however, although the actual physical trajectories possible in an oral or nasal cavity are vastly smaller in size than those of an observer's line of sight, the 'perceptual' dimensions of these two landscapes may not reflect such differences.

It may be the case that the data received and processed at the micro-, or molecular, level of sensory perception is more complex and nuanced than that evident at the macro-level of visual 'landscapes' and Figure and Ground elements within them.

5.2.1.1.2 The Text-Type Account

Another potential explanation for the relatively limited number of plus-Path motion events in the domain of vision reported by Cifuentes-Férez (2014) for English and Spanish could be more related to the text genre investigated. As mentioned above (§5.1), the corpus from which the motion events were extracted consisted of only one English novel and its Spanish

translation and the researcher acknowledges that this may impose some limitations to the study (Cifuentes-Férez 2014: 244-245).

Slobin (2008), on the other hand, extracted his data from a variety of sources both online and from novels and newspapers and, as can be seen in Table 5.3, reported twice as many Path component + Ground combination types as Cifuentes-Férez for Spanish and one more for English.

The corpora investigated in the present study, however, were compiled from many different sources and although all pertaining to the same textual genre, namely craft beer reviews, a high degree of author and source variety was maintained. For example, as discussed in the Methodology chapter (§3.7), the English corpus was developed from four different sources, one of which had 39 contributing authors, while another also had many writers; the Spanish corpus was constructed from eight different sources (i.e. web domains).

5.2.2 Conclusions Based on Data from this Study

The results presented and discussed in this section suggest, at least at the macro-level of plus-Ground and minus-Ground clauses, that for metaphorical Paths of motion in the domain of organoleptic sensorial experience, there is considerably greater complexity evident for the S-language considered (English) than for the V-language considered (Spanish).

It was shown that 995 (75%) of all instances of motion events for the former involved reference to at least one Ground entity, while only 225 (35%) of cases were reported for the latter.

Therefore, the pattern emerging for macro-level complexity in this study is more similar to that expected for physical (factive) motion than for the more closely related sensory domain of visual (fictive) motion.

With the macro-level distinction of Path complexity between one S- and one V-language across the sensory domains of vision and organoleptic experience now established, focus can now be sharpened to the micro-level of plus-Ground clauses to determine whether and to what extent this pattern is replicated; this is the concern of the following sections.

5.3 Variety and Complexity in Visual & Organoleptic Paths of Motion

In this section, attention will now turn to plus-Ground motion events and, specifically, to both the number of different types of Path component + Ground combinations reported for

each of the corpora across the three studies and the degree of complexity evident in each. The primary objective here is to determine in which sensory domain, visual or organoleptic, is a greater range of possibilities evident and which contains the most complex Paths.

5.3.1 Variety of Visual and Organoleptic Path Component + Ground Combinations

Table 5.3 presents all the ranges of complexity of plus-Ground motion events as reported across the three studies in visual and organoleptic Paths and Figure 5.2 provides a visual representation of the various types according to each study.

Path Complexity (Path component + Ground combination)	Fictive				Metaphorical	
	Visual 1 (Slobin 2008)		Visual 2 (Cif.-Fér. 2014)		Organoleptic	
	Eng.	Span.	Eng.	Span.	Eng.	Span.
1 Path + 1 Ground						
Vector	✓	✓	-	✓	✓	✓
Conformation	✓	✓	✓	✓	✓	✓
Deictic	✓	✓	-	-	✓	✓
EGD	✓	-	✓	-	✓	✓
1 Path + 2 Grounds						
Conformation	-	-	-	-	-	✓
2 Paths + 1 Ground						
Vector + Deictic	-	-	-	-	✓	-
Conformation + Vector	-	-	-	-	✓	-

EGD + Vector	-	-	-	-	✓	-
EGD + Conformation	✓	-	✓	-	✓	-
2 Conformations	✓	-	-	-	-	-
1 Conf. + 1 Deictic	✓	-	✓	-	-	-
2 Paths + 2 Grounds						
Vector + Deictic	-	-	-	-	✓	-
Vector FROM-TO	✓	✓	✓	-	✓	✓
EGD + Vector	-	-	-	-	✓	-
2 Vectors	-	-	-	-	✓	-
Vector + Conformation	-	-	-	-	✓	-
2 Conformations	✓	-	✓	-	-	-
3 Paths + 1 Ground						
Deictic + EGD + Vector	-	-	-	-	✓	-
2 Deictic + 1 Vector	-	-	✓	-	-	-
3 Paths + 2 Grounds						
Conf. + EGD + Vector	-	-	-	-	✓	-
3 Paths + 3 Grounds						
Vectors FROM-TO-TO	-	-	✓	-	-	-
Total No. of Combinations	**9**	**4**	**8**	**2**	**15**	**6**

Table 5. 3: Path component + Ground combinations: visual & organoleptic Paths.

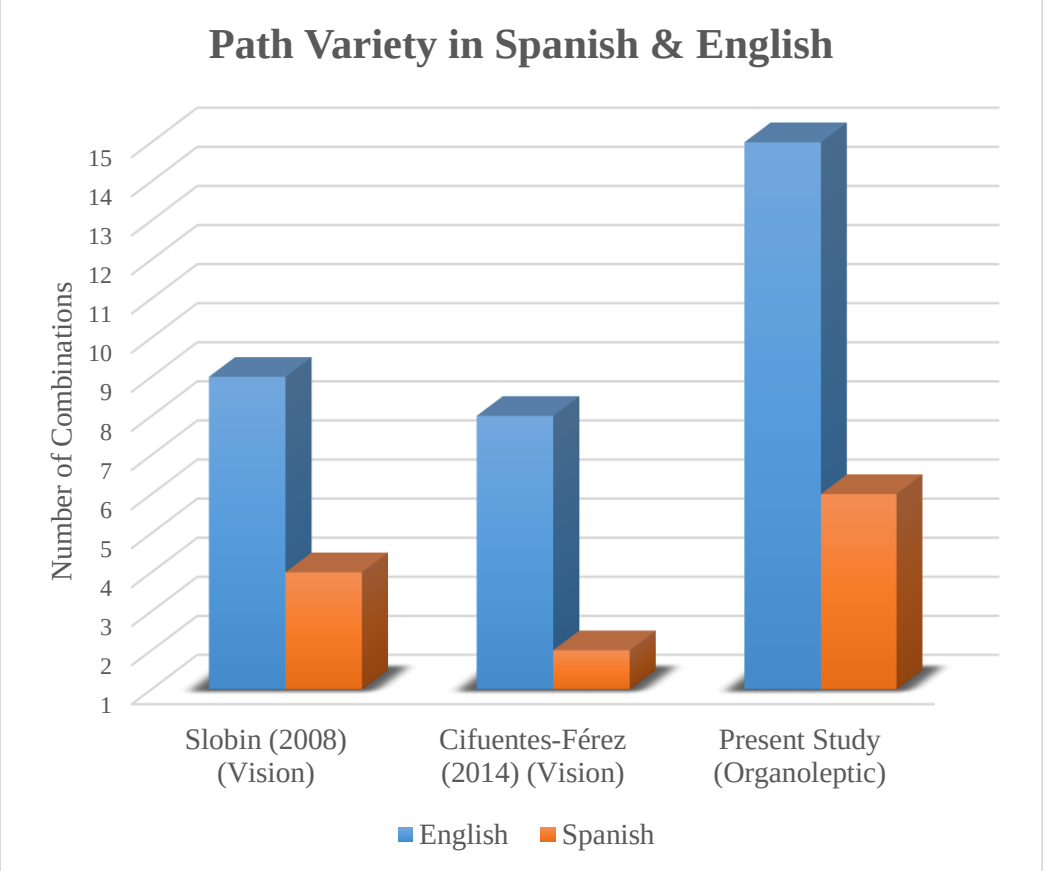


Figure 5. 2: Visual display of Path variety in visual and organoleptic Paths of motion.

5.3.1.1 Distribution of Variety of Path Component + Ground Combinations

As can be seen from Table 5.3 and Figure 5.2, the results from the present study into organoleptic Paths of motion show a considerably greater variety of Path component + Ground combinations for English and Spanish than the other two studies of visual Paths with fifteen and six, respectively. Slobin (2008) found fewer combinations with English yielding nine and Spanish four. However, it was in Cifuentes-Férez (2014) that the fewest combinations were evident, with eight for English and only two for Spanish.

This general finding, however, was not anticipated for the domain of organoleptic sensory experience mainly due to the limited physical boundaries of the spaces in which the metaphorical motion occurs (i.e. the nasal and oral cavities) in comparison to the apparently far broader range of possibilities for visual Paths.

5.3.1.2 Relative Frequency of Path Component + Ground Combinations

Of all the studies, the most prevalent Path component + Ground combination for English was reported in Cifuentes-Férez (2014), with the Conformation + 1 Ground combination accounting for 52% of all motion events in that source.[82] The highest relative frequency reported in the present study was 32% and concerned the Vector + 1 Ground combination. For Spanish, the highest relative frequency, at 90%, was recorded in Cifuentes-Férez (2014), again for Conformation + 1 Ground. The most common combination in the Spanish corpus used in the current study for the organoleptic Paths was the combination Vector + 1 Ground, at 24%.

However, it must also be acknowledged that the absolute counts reported in the studies may to a considerable degree limit the value of these relative comparisons as, for the English combinations, only 12 instances of Conformation + 1 Ground were observed in Cifuentes-Férez (2014) compared to 422 instances of Vector + 1 Ground in the present study and, also, for the Spanish combinations, only nine instances of Conformation + 1 Ground were reported in the former investigation while 150 instances of Vector + 1 Ground were reported in the present one.

5.3.2 Similarities Across the Domains of Vision and Organoleptic Senses

There were some areas in which the results of the three studies were similar, however, and attention will be given now to those.

[82] Reported only for Cifuentes-Férez (2014) and the present study as Slobin (2008) did not report any statistical data.

Generally, the data for Path variety and complexity differs from that yielded for plus- and minus-Ground Paths in that all three studies appear to follow the expected pattern of a greater degree of both complexity and variety for S-languages than for V-languages.

5.3.2.1 Common Path Component + Ground Combinations

Interestingly, although a total of 21 different types of Path component + Ground combinations are evident across the three studies, only one type was present in all three for both languages. This was one of the least complex of all the Path types as it consisted of 1 Path and 1 Ground (Conformation + 1 Ground) (see Tables 5.3 and 5.4).

5.3.2.2 Present in English, not in Spanish

There were three types of Path combination which were common to all three studies for English only. The first of these was the least complex type of one Path (EGD) and one Ground. The second was of a slightly greater complexity with two Paths (EGD and Conformation) and one Ground. The third and most complex Path combination which was common across all studies for English consisted of two Path elements (Vector FROM-TO) and two Grounds.

5.3.2.3 Present in Spanish, not in English

There was one Path type which was common across all three studies for Spanish but was only observed for English in two: Slobin (2008) and the present study. This, perhaps somewhat expectedly, was the least complex type, consisting of one Path (Vector) and one Ground element.

Table 5.4 provides a summary of these cross-domain similarities for both languages.[83]

[83] The common Path types for Spanish are highlighted in orange; those common across all languages and domains are highlighted in yellow; and those particular to English are highlighted in green.

Path Complexity (Path component + Ground combination)	Fictive				Metaphorical	
	Visual 1 (Slobin 2008)		Visual 2 (Cif.-Fér. 2014)		Organoleptic	
	Eng.	Span.	Eng.	Span.	Eng.	Span.
1 Path + 1 Ground						
Vector	✓	✓	-	✓	✓	✓
Conformation	✓	✓	✓	✓	✓	✓
EGD	✓	-	✓	-	✓	✓
2 Paths + 1 Ground						
EGD + Conformation	✓	-	✓	-	✓	-
2 Paths + 2 Grounds						
Vector FROM-TO	✓	✓	✓	-	✓	✓

Table 5. 4: Path component + Ground combinations common across domains & languages.

5.3.3 Differences Across the Domains of Vision and Organoleptic Senses

5.3.3.1 Complexity Across Domains

Slobin (2008), even though a broad range of genre types were investigated, found that the most complex example of visual Paths consisted of only two Path components (two Conformations) and two Ground elements. This was considerably poorer than physical (or factive) Paths as, for that domain, he had observed examples of far greater complexity. The limitation to only two components in visual Paths, as opposed to more in physical Paths, Slobin suggests, is that 'the moving body is not constrained by a fixed length of path' (Slobin 2008: 206). This hypothesis is supported by Cifuentes-Férez (2014) who claims that 'visual Paths are much more restricted than physical Paths as a Figure can move anywhere but the observer is constrained to his/her line of sight' (Cifuentes-Férez 2014: 224).

The most complex Path observed for the domain of organoleptic motion, albeit in only one instance, exceeded that reported by Slobin and consisted of three Path components (Conformation + EGD + Vector) and two Ground elements.

However, the most complex Path observed in all three studies was reported in Cifuentes-Férez (2014) which consisted of three Path components (Vector FROM-TO-TO) and three Grounds. As with the most complex Path found in the present study, only one instance of this was yielded in Cifuentes-Férez (2014).

5.3.3.2 Unique Combinations

All three studies reported combinations that were not present in any of the others. Firstly, Slobin (2008) found the combination of two Conformations and one Ground in English. Secondly, Cifuentes-Férez (2014) observed for this language the three-component Path (two Deictic + one Vector) and one Ground and, as mentioned above (§5.3.3.1), the most complex Path and Ground combination (Vector FROM-TO-TO).

However, from the present study of organoleptic Path complexity, ten unique Path and Ground combinations emerged, nine of which were found in the English corpus, with a frequency ranging from one to 27 instances, while one combination was unique to Spanish, represented by a single instance.

Table 5.5 provides a summary of these Path and Ground combinations unique to the domain of organoleptic motion and to the domain of visual motion.

Path Complexity (Path component + Ground combination)	Fictive				Metaphorical	
	Visual 1 (Slobin 2008)		Visual 2 (Cif.-Fér. 2014)		Organoleptic	
	Eng.	Span.	Eng.	Span.	Eng.	Span.
1 Path + 2 Grounds						
Conformation	-	-	-	-	-	✓(1)
2 Paths + 1 Ground						
Vector + Deictic	-	-	-	-	✓(5)	-
Conformation + Vector	-	-	-	-	✓(1)	-
EGD + Vector	-	-	-	-	✓(27)	-
2 Conformations	✓(?)	-	-	-	-	-
2 Paths + 2 Grounds						
Vector + Deictic	-	-	-	-	✓(2)	-
EGD + Vector	-	-	-	-	✓(1)	-
2 Vectors	-	-	-	-	✓(27)	-
Vector + Conformation	-	-	-	-	✓(3)	-
3 Paths + 1 Ground						
Deictic + EGD + Vector	-	-	-	-	✓ (1)	-
2 Deictic + 1 Vector	-	-	✓(1)	-	-	-
3 Paths + 2 Grounds						
Conf. + EGD + Vector	-	-	-	-	✓ (1)	-
3 Paths + 3 Grounds						
Vectors FROM-TO-TO	-	-	✓(1)	-	-	-
Total No. of Unique Combinations	**1**	**-**	**2(2)**	**-**	**9 (68)**	**1**

Table 5. 5: Path + Ground combinations unique to each study.

5.3.3.3 Combinations Present in Vision but Not in Organoleptic Domain

Although the domain of organoleptic experience appears to enjoy a greater variety of combinations of Path component + Ground elements in general than the domain of vision, there are some combinations that are not present in the former but are evident in the latter, specifically for English.

Five types of Path were not evident for the domain of organoleptic motion; they range in complexity from two Paths + one Ground to three Paths + three Grounds, and are summarised in Table 5.6.

Path Complexity (Path component + Ground combination)	Fictive				Metaphorical	
	Visual 1 (Slobin 2008)		Visual 2 (Cif.-Fér. 2014)		Organoleptic	
	Eng.	Span.	Eng.	Span.	Eng.	Span.
2 Paths + 1 Ground						
2 Conformations	✓	-	-	-	-	-
1 Conf. + 1 Deictic	✓	-	✓	-	-	-
2 Paths + 2 Grounds						
2 Conformations	✓	-	✓	-	-	-
3 Paths + 1 Ground						
2 Deictic + 1 Vector	-	-	✓	-	-	-
3 Paths + 3 Grounds						
Vectors FROM-TO-TO	-	-	✓	-	-	-
Total	**3**	**0**	**4**	**0**	**0**	**0**

Table 5. 6: Path + Ground combinations in vision but not organoleptic motion events.

5.3.4 Conclusions Based on Data from this Study

As was shown, for the domains of visual and organoleptic sensory motion, there were four combinations of Path component + Ground element common across all three studies for both Spanish and English, three combinations common across both domains for English only and, also, one common to both domains for Spanish.

Further, the most complex Path combination was not recorded for organoleptic motion but, rather, for the domain of vision.

Also, there were five combinations that were not present in the corpus of organoleptic Paths that were observed in visual Paths.

Contrastingly, a considerably greater number of combination types were observed for organoleptic Paths (fifteen for English and six for Spanish) than for visual Paths (nine for English and four in Spanish for Cifuentes-Férez (2014); and four for English and two for Spanish for Slobin (2008)).

Lastly, for organoleptic Paths of motion, it was found that nine combinations were unique to this domain for English and one for Spanish.

Therefore, it could be argued that the organoleptic sensory domain is both greater in variety and complexity of Paths of motion than the closely related sensory domain of vision.

5.4 Account for Cross-Domain Differences in Variety & Complexity

In this section, a twofold account will be forwarded to provide a potential explanation for the differences observed and discussed in this chapter between Path variety and complexity for the closely related sensory domains of vision and organoleptic experience.

It is proposed that not only should typological distinctions between individual and groups of languages (i.e. S- and V-languages) be considered but, rather, that the textual genre and the specific sensory domain in terms of perception and information processing, and ultimately linguistic communication, should also be taken into account as contributing factors.

5.4.1 Genre Characteristics and Constraints

As mentioned in the Methodology chapter (§3.2.2) concerning the development of a genre diagnostic tool for screening candidate texts for inclusion in the corpora investigated in this study, there are various features to consider.

From an 'institutional context' (Bhatia 1993) perspective, the conventions governing the linguistic aspects and the structural layout of texts particular to the genre of craft beer reviews are clearly determined. Firstly, the short texts, although sometimes consisting of up to 300 words, characteristically consist of between 100 and 200 words in order to encapsulate, describe and evaluate a product in a highly economical nature. Secondly, they follow a rigid and systematic structure in transferring information about the organoleptic experience, as was described by Lehrer (2009), in order to accurately reflect the temporal dimension of the three main phases of the actual tasting experience: appearance – aroma – taste. Also, as Caballero (2007) explained for the closely related genre of wine reviews, there is a considerable 'poverty of smell and taste terminology' and motion expressions compensate for this shortcoming when describing organoleptic experiences, hence their prolific employment and utility.

Therefore, it could be argued that, as these types of texts have the communicative function of relating a vast range of sensory experiences (see §5.4.2 for a detailed physiological description), they will be more densely populated with motion descriptions than those texts pertaining to genres beyond the domain of craft beer reviews, such as the novels investigated by both Slobin (2008) and Cifuentes-Férez (2014) and, also, the newspapers and online sources Slobin (2008) examined.

Parenthetically, it may not be unreasonable to suggest that there may be a correlation between the greater variety of textual genres investigated by Slobin (2008) and the higher number and complexity of visual Paths observed in that study than those found by Cifuentes-Férez (2014) as the employment of motion descriptions may vary across a broad range of genres and themes. This, however, would need to be confirmed by performing specific cross-genre studies with particular emphasis on Path complexity in factive, fictive and metaphorical motion events.

One obvious starting point to test this genre-based hypothesis, would be to explore Path variety and complexity in organoleptic sensory Paths in the very closely related genre of wine reviews. Also, it would be an interesting prospect to investigate another member of Talmy's Emanation sensory Paths, auditory, as described in Figure 2.5 in Chapter 2.[84]

5.4.2 Sensory Domains and Unique 'Perceptual Landscapes'

The second part of this twofold account for the uniqueness of sensory Path variety and complexity reported in this study is perhaps best viewed through the prism of Cognitive Metaphor Theory (CMT) and one of its central tenets: 'embodiment', the interweaving nature of our cognitive apparatuses and perception and our linguistic description of the same (see §2.3.1 for a more detailed discussion).

In short, the various sensory systems of the human body provide an internal representation of the world around us by providing data not only of a physical nature (mechanical, sound, vision and temperature), but, also, of a chemical nature through gustatory and olfactory sensory experience (Chandrashekar et al 2006).

The crucial notion here, however, is the internal 'representation' and, more specifically, the differences across our sensory devices in terms of information *reception* (i.e. the receiving of stimuli) and *perception* (i.e. our awareness of the data and, from it, our construction of the world around us).

The two sensory domains discussed and explored in this study were visual and organoleptic, both of these cognitive systems are extremely complex and consist of millions of different elements connected to and processed in various parts of the brain.

[84] Talmy (2000: 16) gives the example of an auditory sensory Path as 'I can hear him all the way from where I'm standing'; however, in order to maintain the theme of the present and other related studies, perhaps texts of a descriptive and evaluative nature, such as music reviews etc., could be explored.

For example, in order for vision to take place, millions of different cells and synapses are involved. Briefly, however, there are two types of photoreceptor cells, called *rods* and *cones*, found on the retina which convert photons of light into electrical signals through a process of *transduction (*Berg, Tymoczko and Stryer 2002). A human eye has three million cones and 100 million rods. These transduced electrical signals are transmitted through the optic nerve, along the optic tract and eventually terminate in the visual cortex located in the occipital lobe (Remington 2012: 233). Nevertheless, although much complex information is yielded from these millions of electrical signals, such as colours, sizes and shapes etc., they are combined to produce one homogenous object. In other words, despite the vast complexity of micro-level reception of sensory information, the visual system assembles all the data and allows us to perceive these as macro-level entities such as Figures and Grounds.

The organoleptic system is, likewise, complex in nature but is unique in certain ways. One of the main organs involved in gustation is the tongue, which provides a useful example to illustrate the uniqueness of this sensory domain. As the tongue is 'a mobile, muscular organ covered by a mucous membrane, keratinized on its dorsal surface', it is exceptionally sensitive and highly tuned to receive detailed information (Bittern and Orchardson 2000:454).

One example of the sensitivity of this sensory organ was demonstrated by Bittern and Orchardson (2000) who showed, in a tactile sensory study comparing the discriminating powers of the sensory surfaces of the tongue and the fingertip, that the former relays to the brain far more information than the latter. This, then, results in the phenomenon known as the 'oral size illusion', so called as objects in the mouth and cavities in the teeth are consistently *perceived* as being larger than their actual physical size by virtue of more detailed information being transmitted to the brain.

From an evolutionary perspective, it is not difficult to understand the utility of such a high degree of sensitivity at the moment of ingesting a potential food source. The tongue, tuned to detect five basic tastes, has the task of detecting energy rich nutrients (sweet taste), amino acids (umami), electrolytes (salt taste), or potentially poisonous chemicals (sour and bitter tastes) (Chandrashekar et. al 2000:288). These 'tastes' are, in fact, macro-level perceptions generated at the micro-, or molecular, level, of chemical compounds (Ibid: 290, 292).

What is proposed here, then, is that the different sensory apparatuses involved in vision and organoleptic experiences, although both consisting of multifarious systems and receiving highly complex data to be processed, are, at the level of perception, not entirely identical. Therefore, a consequence of these differences is that each sensory system 'constructs' a unique 'perceptual landscape' which may be more or less complex than any other.

The results of the present study suggest that organoleptic perceptual landscapes, although vastly smaller in physical size than their visual counterparts, were, in fact, considerably richer in terms of variety and noticeably more complex in nature.

5.5 Conclusion

This chapter set out to compare both the variety and complexity of fictive and metaphorical Paths of motion in the sensory domains of visual and organoleptic experiences. In order to perform this comparison, a two-tier approach was taken such that the macro-level differences in terms of minus- and plus-Ground clauses were first considered and, later, the micro-level of plus-Ground motion events.

It was found that organoleptic Paths showed closer resemblance to those expected of factive (or physical) motion than fictive (or visual) motion as they were considerably richer in plus-Ground rather than minus-Ground motion events in English than in Spanish.

However, a more nuanced picture emerged for plus-Ground variety and complexity across the two domains of sensory perception as there were five Path component + Ground combinations present in the visual domain for English which were not observed in their organoleptic counterparts. Further, the most complex combination was not found in the organoleptic Paths but, rather, in the visual Paths.

Despite these differences, it was argued that the sensory domain of organoleptic Paths of motion is both greater in variety and complexity than the closely related sensory domain of visual Paths of motion for both English and Spanish as a considerably greater number of combination types were observed for organoleptic Paths (fifteen for English and six for Spanish) than for visual Paths (nine for English and four in Spanish for Cifuentes-Férez (2014); and four for English and two for Spanish for Slobin (2008)).

Also provided in this chapter were analyses of a more qualitative nature in order to provide an initial attempt to explain the cross-domain differences observed. It was suggested that these dissimilarities were multifactorial and included genre constraints and information

processing peculiarities across the two sensory modalities of visual and organoleptic experiences.

In terms of genre constraints, it was proposed that the structural layout and shorter text size, coupled with the higher reliance on motion expressions to communicate sensory experiences of flavours and aromas etc., were variables to be considered. These characteristics of the genre of craft beer reviews compel the texts to relate in a highly condensed manner a vast range of sensory experiences.

Also suggested in this chapter was that attention should be paid to the different types of sensory domains and how they process information and stimuli and their influence on us as we perceive the outside world. In particular, it was proposed that 'perceptual landscapes' in the domain of organoleptic experience may be tuned to process more detailed information and, as such, construct motion events which are more varied and complex than their counterparts in the domain of visual perception.

Chapter 6 - Conclusion

6.0 Introduction

This corpus-based study was concerned with both cross-typological and cross-domain differences in Path variety and complexity in metaphorical motion events. It contrasted patterns in one V- and one S-language (Spanish and English, respectively), on the one hand, and in the sensory domains of vision and organoleptic experiences, on the other. In particular, we investigated whether the lexicalisation patterns evident in the domain of vision also carried over to the domain of organoleptic sensations. The study also had the secondary objective of investigating the hypothesis forwarded by Slobin (2008) and Cifuentes-Férez (2014) that the physical boundaries of a trajectory (e.g. a physical landscape or a visual field) have direct implications for Path complexity.

These issues will be the initial focus of this final chapter (§6.1). The contributions of the study to the ongoing discussion of Talmy's binary typology will receive attention thereafter (§6.2) and, finally, the chapter will close by pinpointing the limitations that emerged during the study and these, in turn, will serve as proposed starting points for further avenues of research (§6.3).

6.1 Central Aims of the Study

In this section, the core aims that directed this research project will be revisited and a synthesis of the quantitative findings will be offered. This will be achieved by firstly discussing asymmetries at the macro-level of minus- and plus-Ground clauses, turning then to those observed in two divisions of micro-level analysis: (a) variety of Path component + Ground combinations and (b) the complexity of the Paths *vis-à-vis* the number of constituents of which they consist and the number of Grounds which are referenced in the metaphorical motion event. As will be shown, although a considerably more nuanced pattern emerges, organoleptic Paths of metaphorical motion are clearly more varied and complex than those of their fictive, or visual, counterparts.

The section will close on a more qualitative note by attending to the hypothesis forwarded by Slobin (2008) and Cifuentes-Férez (2014) that there is a direct correlation between Path complexity and physical boundaries: the latter exercising influence over the former.

6.1.1 Macro-level – Variety and Complexity – Minus- Vs Plus-Ground Paths

In order to gain an initial indication of Path variety and complexity across the domains of vision and organoleptic sensations in our English and Spanish corpora, the macro-level of

minus- and plus-Ground clauses served as a useful starting point. As will be shown in subsequent discussions, the initial sketch which emerged proved to be recurrent throughout the more micro-level investigations.

As mentioned in the Discussion chapter (§5.2.1), Slobin (2008) did not consider this comparison as his particular focus concerned visual motion events in which reference was made to landmarks and, as such, the Ground was taken as a given in his examples.

Cifuentes-Férez (2014), conversely, was interested in this superficial level of comparison and found, contrary to expectations based on factive (i.e. physical) motion studies, that English (at 80%) and Spanish (at 90%) both showed a far greater tendency to employ minus-Ground than plus-Ground clauses.

To a certain extent, a somewhat contrasting picture emerged, however, from our corpora of craft beer reviews for the closely related sensory domain of organoleptic experience. Firstly, of the 1,329 instances of metaphorical motion events examined in the English corpus, two thirds (995) consisted of plus-Ground clauses. The opposite trend, although not as pronounced as in visual Paths, was observed in the Spanish corpus as plus-Ground clauses were evident in only 225 (35%) of the 633 metaphorical motion events examined.

These findings offered the researcher the first indication that, although they are members of the same group of Emanation Paths in Talmy's (1996, 2000) categorisation of fictive motion Paths (Fig. 2.3), namely *Sensory* Paths, visual and organoleptic Paths depart from one another at the level of complexity, where metaphorical (i.e. organoleptic) Paths appear to align more closely to factive (i.e. physical) Paths than do fictive (i.e. visual) Paths.

Superimposing these results onto Talmy's binary typology, then, we could propose that S-languages (represented by the English corpus) are more complex than V-languages (represented by the Spanish corpus) in the domain of organoleptic sensations, as would be expected.

This, as will be seen, presaged the findings which emerged from the more micro-level analyses of Path variety and complexity across these two languages and across the domains of visual and organoleptic sensory Paths.

6.1.2 Micro-level A – Variety in Path Component + Ground Combinations

Sharpening the focus to the micro-level of Path constituents and Ground components, the initial sketch outlined above increases in colour and detail. As was the case with minus-

and plus-Ground tendencies across the two languages and sensory domains, organoleptic and visual sensory Paths appear to further diverge as the former exhibits a far greater array of Path types than the latter.

From the perspective of S-languages (English) and visual sensory Paths, Cifuentes-Férez (2014) reported the lowest level of variety with a total of eight types while Slobin (2008) yielded one more to total nine types. In the domain of organoleptic sensations, however, it seems, from our study at least, that a greater number of Path types is possible as fifteen were recorded.

A similar pattern emerged for the V-language (Spanish) as Cifuentes-Férez (2014) again reported the lowest level of diversity with only two possibilities; Slobin (2008) registered double that number at four. However, six different types of Path component + Ground combinations were revealed in the present study.

Therefore, the comparative empirical results emerging from this first stage of micro-level analysis seem to be congruent with those at the macro-level of minus- and plus-Ground clauses as they portray a greater degree of variety of Path possibilities for organoleptic sensory experiences than for the domain of vision.

6.1.3 Micro-level B – Complexity of Paths of Motion

The picture which emerges at this second stage of micro-level analysis is not as clear-cut as either the macro-level of minus- and plus-Ground or the first stage of micro-level analysis of Path component + Ground combinational variety. However, as will be shown, organoleptic Paths of motion appear to conform to the pattern of greater complexity than their visual counterparts as seen throughout this discussion in both Spanish and English corpora.

As shown in the Discussion chapter (§5.3), a somewhat kaleidoscopic image of Path complexity across both languages and sensory domains emerged from the 21 different Path component + Ground combinations yielded from all studies. Only one combination was present for both languages across all studies (1 Conformation + 1 Ground), three combinations were evident for English only and one for Spanish only.

Focusing on cross-domain comparisons, the most complex Path type was recorded for the domain of vision (Cifuentes-Férez 2014) and consisted of 3 Path components and 3 Ground objects, whereas the most complex combination for the domain of organoleptic sensations

consisted of 3 Path components and just 2 Ground objects. An important caveat to add here, however, is that for both of these Path types, only one example was evident which, although interesting for our investigations, it is perhaps of limited statistical importance.

The finding that the most complex Path type is in the domain of vision is further undermined when one considers the number of unique Path component + Ground combinations distributed across the various categories of complexity for both sensory domains.

Firstly, for English, a combined total of five specific Path types were unique to the domain of vision.

In the case of Spanish, there were no Path + Ground combinations recorded for vision that were not present for organoleptic metaphorical motion events; in contrast however, there were two more combinations for the organoleptic domain than for the visual domain in Spanish.

Therefore, despite these relatively few cross-domain inconsistencies observed in the studies, in terms of overall complexity of Path measured by component + Ground combinations, it is proposed that organoleptic sensory Paths are more numerous in types and more complex in nature than those reported for the related sensory domain of vision.

6.1.4 Correlation of Physical Boundaries and Path Complexity

As noted in Chapter 5, Slobin (2008) and Cifuentes-Férez (2014) converge upon the potential explanation for why fictive Paths in the domain of vision are less complex than factive Paths of actual physical motion. They proposed that visual Paths would be less complex than physical Paths by virtue of the fact that moving Figures can follow a potentially limitless trajectory and, therefore, do not have the same constraints imposed upon them as would an observer with a fixed length of Path or 'line of sight' (Slobin 2008: 206, Cifuentes-Férez 2014: 224).

From this position, then, it would be expected that the considerably greater limitations of physical boundaries of organoleptic Paths (i.e. the oral and nasal cavities or, indeed, the distance from a bottle or glass to these sensory locations) would yield far less complexity than the related sensory domain of vision. However, as shown, the empirical findings of this study suggest that this is not the case and that, contrary to this expectation, organoleptic Paths are superior in both variety and complexity to visual Paths.

Therefore, it is reasonable to consider other, external, variables that may influence non-literal Paths, especially in sensory domains.

It was proposed in the Discussion chapter (§5.4) that two external factors may help explain the greater variety and complexity evident in organoleptic Paths in this study: genre and particular sensory modality.

Firstly, the prolific use of motion expressions in highly economical descriptions of flavours and aromas in the texts from which the monolingual corpora were constructed was put forward as one important element. This particular factor as an external influence was first considered and motivated by an observation made by Caballero (2009) that the metaphorical meaning of a single motion verb varied greatly according to the genre in which it was employed.

Secondly, it was proposed that the impact our individual perceptual apparatuses (i.e. vision, taste, smell etc.) may have on our language production, or rather linguistic descriptions of our sensory experiences, should also be taken into account. The notion of 'perceptual landscapes' instead of 'physical landscapes' (i.e. of physical and visual Paths) was proffered, which is congruent with one of the central tenets of Cognitive Linguistics, namely that embodiment is at the heart of perception by virtue of the integrative nature of both our language and cognitive systems.

Further, as discussed in earlier sections of this thesis (§2.2.2.2), Talmy provided a unified and comprehensive account of our cognitive systems' involvement in the perception and linguistic description of unreal phenomena (i.e. fictive motion). He did so specifically, however, for vision. What is suggested here is that the influence of a particular cognitive system on our perception may have direct implications for the degree of complexity of those non-veridical phenomena (e.g. fictive and metaphorical motion) and, by extension, their linguistic expression.[85]

6.2 Contributions

6.2.1 General Comments

It is hoped that this study has adequately answered the research questions as initially presented in the Introduction chapter to this thesis. It also aspired to make a contribution of sufficient intellectual import to the wider discussion of both Path complexity differences at

[85] See Section 2.2.2.2 for a more detailed discussion of 'non-veridical phenomena'.

the macro-level of the S- and V-language binary typology as developed by Talmy, and the finer level of intra-categorial specificities of the different sensory Emanation Paths.

However, new insights into the unique features of Path complexity across sensory modalities, perhaps, were not the only novel elements of the study. As far as we are aware, this is the first exploration into Path complexity for the specific sensory domain of organoleptic sensations and, by extension, the first comparative investigation into inter-sensory Path complexity distinctions.

Further, corpora based on the textual genre which provided the data analysed in this study, namely Spanish and English craft beer reviews, have not, to our knowledge, been hitherto developed or mined.

6.2.2 Primary Contributions

Firstly, although Talmy (1996, 2000) held sensory Paths, in particular visual Paths, to be one of the most prolific types of emanation Paths in language, scholars such as Caballero and Paradis (2015) lamented the virtually exclusive attention paid to this sensory modality, to the almost total neglect of the others, namely smell, taste and touch (Caballero and Paradis 2015: 5). They also proposed that the tide of research attention was beginning to recede from the domain of vision and turn towards those previously neglected senses. As it was a primary concern to address this imbalance of interest, to some degree at least, this study has served to advance knowledge in those newly chartered domains and, by doing so, a more nuanced picture has emerged of sensory paths.

6.2.2.1 A Challenge to the Literal – Non-literal Path Complexity Divide

It could be argued that one of the most important contributions that this study has made to the discussion of Path complexity is that a recalibration may now be required of the view that ‘unreal’ or fictive/metaphorical motion events are both significantly less diverse and complex in nature than ‘real’ or factive motion events.

As was shown (§6.1), the results yielded during this research project have rendered this distinction as perhaps somewhat myopic as it does not capture the considerably asymmetrical nature of Path complexities within the non-literal category of motion in the domain of sensory Emanation Paths. Furthermore, the similarities between one type of sensory modality, organoleptic sensations, and literal or ‘factive’ motion in terms of Path variety and complexity, would also remain unnoticed if attention was not afforded to the macro- and micro-levels of peculiarities.

6.2.2.2 A Challenge to the Relationship between Physical Expanses and Path Complexity

Another theoretical contribution that this study may have made concerns the initially postulated correlation of physical expanses and the limitations they may impose on the complexity of Paths in motion events.

It was proposed that, although a line of sight can consist of a far larger expanse than the boundaries of the nasal and oral cavities, the *perceptual* landscapes of the two sensory modalities, and by extension, their individual linguistic descriptions of Path complexity, do not appear to reflect these differences. This, then, would suggest that sensorial experience may take precedence over actual physical size by creating a 'larger' perceptual landscape. This interpretation, then, would align closely with the view that cognition is 'grounded first in *sensation*, then in action, and finally in *language*' (Borghi and Cimatti 2010: 722, my emphases).

6.2.3 Secondary Contributions

6.2.3.1 New Type of Sensory Emanation Path

In Chapter 2 Literature Review (§2.2.2.2), Talmy's comprehensive categorisation of eighteen types and sub-types of fictive motion Paths were presented and a visual representation of their hierarchical relationships was also offered (Fig 2.3). The sub-category of sensory emanation Paths consisted of three members: Visual, Auditory and Olfactory.

As discussed in earlier sections of the thesis (§2.3.6), some scholars argue for the strong intertwining and interdependence of the senses of olfaction and gustation such that 'we cannot taste something without smelling something' Paradis and Eeg-Olofsson (2013: 38). This issue did indeed present itself throughout the data analysis phase of this project as it was sometimes a difficult task to distinguish which of the two senses was being described. In light of this issue, a new category of sensory Path was produced by fusing the two senses of smell and taste together: organoleptic Paths.

Therefore, the third member of the original subset of sensory Paths, olfactory, could now perhaps be classified as 'organoleptic' sensory Path.

6.2.3.2 Refined Distinction of Metaphorical Motion

Also in Chapter 1 Literature Review, a new category of non-literal motion, *metaphorical* motion, originally proposed by Ozçaliskan (2004) was introduced and later adopted in the present study. The distinction between this and another closely related non-literal motion

category, *fictive* motion, was that the former expressed motion of abstract entities such as ideas, emotions, economies and time etc. (Caballero and Ibarretxe-Antuñano 2015: 155), while the latter concerned concrete, yet static, objects.

It could be proposed that this new category of metaphorical motion was further justified and reinforced throughout this study, especially when viewed through the lens of cognitive metaphor theory, as it manifested the basic definition of the theory which is that we understand one thing, in this case tastes and smells, in terms of another, in this case motion (Lakoff and Johnson 1980).

6.3 Limitations of Study & Suggestions for Future Research

Throughout this research project, we have endeavoured to maximise the validity of this study and the findings yielded by following a rigorous and systematic methodology of data collection and analysis, discussed in detail in Chapter 3 Methodology, with the goal of reducing as far as possible the contamination of researcher bias or subjectivity and, therefore, ensuring a high degree of objectivity.

However, the project was not without its limitations. These will be addressed in this section along with some potential research avenues that may develop from them.

6.3.1 Data Analysis

One limitation is concerned with the data analysis phase of the project as only one researcher annotated the data, inevitably posing a challenge to objectivity in interpreting potential motion events. This was especially evident at the moment of deciding whether the Path component should be considered a Vector or a Conformation. It would have been valuable to have another, independent, collaborator with whom one could compare analyses. However, a strategy to combat this issue was employed in order to maintain a high degree of replicability. In each data analysis record (see §3.11.5.4), a section was dedicated to considering a second or 'alternative' interpretation, where necessary, and a brief discussion was provided as to the final decision made.

6.3.2 Binary Language Typology and Member Representation

Due to the researcher's language competence, representation of both sides of Talmy's binary typology of S- and V-framed languages was restricted to only English and Spanish, respectively. An obviously interesting prospect would be to replicate this study while expanding the investigations across a wider range of languages to ascertain whether the

findings borne out here are supported or contested in other related studies. Greater insights could then be gained in relation to intra-typological disparities, for example.

6.3.3 Expanding the Domains of Sensory Perception

The findings of this study are confined to the sensory modalities of organoleptic experiences and vision.

Although visual and organoleptic Paths may pertain to the same branch of Emanation Paths (Fig. 2.5 and, §2.2.6.1) namely Sensory Paths, they appear to diverge from one another in terms of apparent permitted variety and complexity: the former being far less complex than the latter. This preliminary finding would, then, merit investigations into the other type of sensory Path proposed by Talmy (1996, 2000), namely auditory sensory Paths, in order to determine whether and to what extent those Path types resemble the two types investigated in this project.

However, it is not only possible to expand the scope across the various domains of sensory perception but, also, within organoleptic sensations. As Lehrer (2009) suggested, areas such as coffee and perfume also abound with descriptions of olfaction and gustation; therefore, these would be ripe for investigation and comparison with the findings of this study. Further, the proposal presented here that the genre of a text may have direct influence on Path complexity and variety could also be tested.

6.3.4 Re-mining the Corpora of Craft Beer Reviews

As one of the most onerous and time-consuming tasks of this research project was to source, gather and evaluate texts from which to construct the corpora, many interesting avenues were, for time limitation reasons, beyond exploration.

However, as this task is now complete, the Spanish and English corpora of craft beer reviews could be re-mined with objectives tailored towards resolving specific issues in the literature, some of which were discussed in the Literature Review chapter and are re-introduced here.

6.3.4.1 Manner Verb Restrictions and the Case of Vertical Boundary Crossing

For example, it would be valuable to determine whether the tentative hypothesis forwarded by Naigles et al (1998) that, contrary to the pattern observed for Manner verb restrictions, there is a preference for Manner verbs in Spanish motion events that depict a Figure entity crossing a vertical boundary, whereas this is relatively rare for horizontal boundary crossing (§2.2.1.3).

6.3.4.2 Direction of Metaphorical Mapping Patterns

The final path of investigation that could be proposed in this research project concerns synaesthetic metaphor and the central tenet for Cognitive Metaphor Theory, that is, the directional hierarchy of conceptual mapping across senses. As was discussed in Chapter 1 Literature Review (§2.3.7), Ullmann's (1945, 1957, 1964) hierarchy of patterning was refined by Classen (1993) and Day (1996), from which Shen and Gadir (2009) developed the Conceptual Preference Principle, in which they claimed only a unidirectional mapping from lower to higher senses was possible.

Through the analysis of the metaphorical sensory language in the two corpora of craft beer reviews, it would be an intriguing prospect to add to this discussion by observing the directionality of mapping across the various sensory domains and, also, to see if this is a phenomenon unique to English or whether it is also prevalent in Spanish.

6.4 Conclusion

In this concluding chapter of the thesis, we provided a synthesis of all the core aims that served to guide this project and it is hoped that they have been adequately addressed.

Generally, it is suggested that, although closely related in Talmy's classification of Emanation Paths, the individual members of the sub-group Sensory Paths are quite dissimilar in terms of complexity: organoleptic Paths are superior to visual Paths.

The postulation that physical expanses play a role in the complexity of non-literal Paths of motion was also considered but was not supported by our findings as the considerably smaller physical distances (e.g. of the nasal and oral cavities) involved in the organoleptic Paths showed substantially greater complexity than for visual motion with far larger expanses.

It was proposed that the unexpected asymmetry of complexity was influenced by both the particular genre of the texts and, also, the particular cognitive system involved and the 'perceptual landscapes' that it creates.

We justified our research project by demonstrating the contributions it may have made to the ongoing discussion of metaphorical uses of motion in the descriptions of our sensory experiences. Most notably, it responded to the call for attention to be directed at areas other than vision. However, it also supported the proposal of the new metaphorical category of non-literal motion and offered a refinement to Talmy's categorisation of Sensory Paths by replacing 'olfactory' with 'organoleptic' Paths.

The limitations of the study were brought to light, which included the single annotator of the data, the mono-representation of each side of the V- and S-language typology and the confinement of any findings to the sensory domain of organoleptic experience and the linguistic expressions of motion used for descriptive purposes.

Lastly, a variety of avenues of further exploration was also suggested as it is believed that the corpora of craft beer reviews remain greatly underexploited.

It is hoped that this research project has met perhaps its most fundamental two-fold obligation. Firstly, to broaden the landscape of discussion into the non-literal uses of motion expressions in describing our sensorial experiences and our perceptual interactions with the physical world around us; and, secondly, to motivate others to follow suit and embark upon similar explorations.

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Appendix A: Summary Ground+Path Component Combinations English

General Statistics for Summary Document	
Number of Verbs of Motion (types)	82
Instances of Motion Events (tokens)	1329
Concordance Lines Analysed	3,298
Data Analysis Records Produced	304 Gustatory = 218 Olfactory = 86

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
1.	Whirl	EGD + Conformation	UP + FROM a point which is of the surface of a volume	-	**1**	1
2.	Surge	Bare	-	-	**1**	0
		Bare	-	-	**1**	1
		Vector	Traversal-ALENGTH 'over'	-	**2**	1
		Conformation	'through' which is one of the points of [a plane]	-	**4**	1
		Deictic	'beneath'	-	**1**	1
3.	Span	Bare	-	-	**3**	1
4.	Snake	Vector	Traversal – ALENGTH 'through'	-	**6**	1

[86] Path types are taken from the representative segment analysed in the data analysis records and, although in most cases it will correspond with those of the same Path component type, they may not always do so; therefore, if each individual instance is required, the relevant document needs to be consulted.

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		EGD + Vector	UP + Arrival 'to'	-	**3**	1
5.	Fly	Vector	traversal – ALENGTH 'over'	-	**1**	1
6.	Stretch	EGD Vector x 2 Vector Deictic + Vector Vector	UPWARD MOVE FROM-TO a point pair – arrival – TO BACK + traversal – ALENGTH traversal – ALENGTH 'across', 'through' & 'over' departure – FROM 'out'	- - - - 19 7	**1** **1** **10** **1** **26**	0 **2** **1** 1 1
7.	Charge potentially another one to be added	Vector	traversal – ALENGTH 'across' – arrival – TOWARD 'toward'	1 1	**2**	1
8.	Bound	Vector	traversal – ALENGTH 'over'	1	**2**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Conformation	arrival – TO 'to' which is of the surface of [a volume] 'off (of)' which is of the inside of [an enclosure] 'from'	1 1 1	**2**	1
9.	Skim	Bare Vector	- traversal – ALENGTH 'over'	- -	**1** **3**	1 1
10.	Cascade	EGD Vector	DOWN 'down' traversal – ALENGTH	- -	**4** **1**	1 1
11.	Billow	Bare Conformation	- which is of the inside of [an enclosure] 'out of' & 'from'	- -	**4** **5**	0 1
12.	Tail	Vector + Conformation Vector x 2	departure – AWAY-FROM 'off' + IN(TO) which is of the inside of [an enclosure] 'into'	- -	**2** **1**	2 (& 1 for the other instance) 2

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Bare	departure – arrival FROM-TO (‘off’ ‘to’)	-	**2**	1
			-			
13.	Stream	Conformation	which is of the surface of [a volume] ‘from’	1	**6**	1
			which is of the inside of [an enclosure] ‘from’ & ‘into’	4		
			which is (one of the points) of [a plane] ‘through’	1		
		EGD + Vector	DOWN ‘down’ + ALENGTH a bounded extent ‘over’	-	**1**	2
		EGD	DOWN ‘down’	-	**3**	1
		Vector	traversal – MOVE ALENGTH ‘over’	-	**1**	1
14.	Spring	Vector	located at – BE_{Loc} AT ‘spring UP’	-	**2**	1
15.	Edge	Vector	arrival – TOWARD a point ‘towards’	-	**1**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
16.	Ease	Vector	traversal – ALENGTH ‘over’ arrival – TOWARD a point ‘toward’	2 1	**3**	1
17.	Overrun	Bare	-	-	**7**	1
18.	Flash	Vector Bare Conformation Deictic	traversal – ALENGTH ‘over’ & ‘across’ - which is of the surface of [a volume] ‘on’, ‘at’, ‘in’ BENEATH ‘underneath’	- - - -	**2** **5** **7** **1**	1 0 1 1
19.	Seep	Conformation	which is of the inside of [an enclosure] ‘into’ which is of the **surface** of [a volume]	7 2	**9**	1
20.	Leap	Conformation Vector	which is of the **inside** of [an enclosure] ‘from’ & ‘into’ which is of the **surface** of [a volume] ‘off’ & ‘onto’	6 3 -	**9** **1**	1 1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
			arrival – TO			
21.	Flutter	Vector Deixis EGD + Conformation	arrival – TO 'to' traversal - ALONG 'around' BE_{Loc} AT ABOVE 'above' UP 'up' + which is of the inside of [an enclosure] 'from'	1 1 4 - -	**6** **2** **1**	1 1 1
22.	Fan	Vector + Vector Vector	**AWAY FROM** 'out' + traversal – ALENGTH 'over' **AWAY FROM** 'out' traversal – MOVE ALENGTH 'across'	- 3 1	**5** **4**	2 1
23.	Chase	Vector Bare	traversal – MOVE ALENGTH 'away' & 'to' -	- - 1	**2** **4**	1 0

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Conformation	which is of the surface of [a volume] 'from'	1	**2**	1
		EGD	which is of the **inside** of [an enclosure] 'from' DOWN 'down'	-	**1**	1
24.	Skip	EGD + Vector	UP 'up' + arrival – MOVE TO 'to'	-	**1**	1
		Vector	traversal – ALENGTH 'over' & 'across'	-	**2**	1
25.	Escape	Bare	-	-	**3**	0
		Vector	arrival – TOWARD a point 'toward'	-	**1**	1
		Conformation	which is of the surface of [a volume] 'from'	-	**1**	1
26.	Dance	Bare	-	-	**1**	0
		Bare	-	-	**1**	1
			BE_{Loc} AT 'in' & 'on'	5		
			traversal – ALENGTH 'across', 'on', 'atop', 'upon', 'above'	17		
		Vector			**25**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
			traversal – ALONG ‘around’ arrival – TO ‘to’	2 1		
		Conformation	which is one of the points of [a plane] ‘through’ FROM the surface of [a volume] ‘off’	1 1	**2**	1
27.	Cross	Vector	-	-	**1**	1
28.	Hover	Vector	BE_{Loc} AT	-	**12**	1
		Bare	-	-	**1**	1
		Deictic	BENEATH ‘beneath’	-	**1**	1
29.	Dig	Conformation	which is of the inside of [an enclosure] ‘inside’	-	**8**	1
		Bare	-	-	**2**	1
30.	Shoot	Vector	traversal – ALENGTH ‘over’	-	**3**	1
		EGD + Conformation	UP ‘up’ + FROM the **surface** of [a volume] ‘from’	-	**1**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		EGD	DOWN ‘down’	-	**1**	1
		EGD + Vector	UP ‘up’ + arrival – MOVE TO ‘to’	-	**3**	1
		Conformation	which is one of the points of [a plane]	-	**1**	1
31.	Tread	Bare	-	-	**2**	0
		Vector	traversal – ALENGTH ‘across’, ‘on’, ‘over’	-	**10**	1
		Deictic	BENEATH ‘beneath’	-	**1**	1
32.	Drift	EGD + Conformation	UP ‘up’ + which is of the **surface** of [a volume] ‘from’	1	**2**	1
			UP ‘up’ + which is of the **inside** of [an enclosure] ‘from’	1		
		Conformation	the inside of [an enclosure] ‘inside’	1	**1**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		EGD + Vector	EGD + arrival – MOVE TO ‘to’	-	**9**	1
		Vector	traversal - ALENGTH ‘over’	-	**2**	1
		Conformation	which is one of the points of [a plane] ‘through’	-	**1**	1
33.	Creep	Conformation + Vector	which is of the **inside** of [an enclosure] ‘out’ + FROM ‘from’	-	**1**	1
		Vector	traversal – ALENGTH ‘over’	-	**1**	1
		Conformation	which is one of the points of [a plane] ‘through’ which is of the inside of [an enclosure] ‘in’	1 12	**13**	1
34.	Step	Deictic	‘aside’	-	**3**	0
		Vector	AWAY FROM ‘off’ BE_{Loc} AT ‘in’	1 2	**3**	0
		Vector	BE_{Loc} AT	-	**1**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Conformation	‘to’ which is of the surface of [a volume] ‘in’	-	**1**	1
35.	Launch	Bare	-	-	**3**	1
36.	Thread	Bare Conformation	- which is one of the points of [a plane] ‘through’ which is of the inside of [an enclosure] ‘into’	- 4 1	**10** **5**	1 1
37.	Ride	Vector Conformation Deictic Bare Vector x 2	arrival – TO ‘to’ traversal – ALENGTH which is of the inside of [an enclosure] ‘inside’ which is one of the points of [a plane] ‘through’ ‘back’ - FROM-TO	5 17 3 3 - - -	**22** **6** **1** **1** **2**	1 1 1 0 2

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Bare	-	-	**3**	1
38.	Drive	Bare	-	-	**4**	0
			Arrival - TO 'to'	1		
		Vector	Arrival – TOWARD A POINT 'toward'	1	**3**	1
			Traversal - ALENGTH 'on'	1		
39.	Swirl	Bare	-	-	**8**	0
			Traversal - ALENGTH	1		
		Vector	TO 'to'	3	**21**	1
			BE_{Loc} AT	16		
			ALONG	1		
			which is one of the points of [a plane]	7		
		Conformation	which is of the **inside** of [an enclosure] 'from'	2	**10**	1
			which is of the **inside** of [an enclosure] 'into'	1		

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		EGD + Vector	UP + Arrival – TO	-	**1**	1
		Deictic	BENEATH	-	**1**	1
40.	Explode	Conformation	which is of the **inside** of [an enclosure] 'out (of)' Which is of the surface of a volume	9 1	**10**	1
41.	Sneak	Vector	Traversal - VIA 'past' BE_{Loc} AT	1 1	**2**	1
		Conformation	which is one of the points of [a plane] which is of the **inside** of [an enclosure]	2 3	**14**	1
		EGD	which is of the surface of [a volume]	9 -	**1**	1
		EGD + Vector	UP	-	**1**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
			UP + TO			
42.	Burst	Conformation	which is of the **inside** of [an enclosure] 'from' which is of the **inside** of [an enclosure] 'to' which is one of the points of [a plane] which is of the surface of [a volume] 'onto'	4 1 2 1	**8**	1
43.	Transition	Vector	Traversal - ALENGTH	-	**1**	1
44.	Rush	Bare	-	-	**3**	1
		Vector	Arrival - TO Traversal - ALENGTH	2 17	**19**	1
		Conformation	FROM inside of enclosure	-	**3**	1
		Deictic	BACK	-	**2**	1
45.	Sweep	Vector	AWAY (FROM) Traversal - ALENGTH	1 5	**6**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Bare	-	-	**12**	1
		Conformation	FROM a point which is of the surface of a volume	-	**1**	1
46.	Flow	Vector	Traversal – ALENGTH	-	**21**	1
		Deictic	BACK	-	**11**	1
		Conformation	inside of an enclosure ‘into’	1	**7**	1
			which is one of the points of [a plane]	5		1
			inside of an enclosure ‘FROM’	1		
47.	Jump	Conformation	Which is one of the points of (a plane)	1	**7**	1
			inside of an enclosure ‘FROM’	6		
48.	Float	EGD	UPWARD	-	**1**	1
		EGD + Vector	UP + Arrival - TO	-	**5**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Vector	Traversal - ALENGTH	4	**5**	1
			Arrival – TOWARD	1		
		Conformation	of the surface of [a volume] ‘from’	1	**4**	1
			which is of the **inside** of [an enclosure] ‘from’	3		
		EGD + Conformation	UP + Of the surface of [a volume] ‘from’	-	**2**	1
49.	Roll	Conformation	inside of an enclosure ‘into’	4	**6**	1
			inside of an enclosure ‘from’	1		
			which is one of the points of [a plane]	1		
		Vector	arrival - TOWARD	1 1	**7**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		DEICTIC	arrival - TO traversal - ALENGTH BACK	5 - 	**3**	1
50.	Reach	Vector Vector Vector x 2 Bare Deictic EGD + Vector Conformation + EGD + Vector	Departure - FROM Arrival - TO ALENGTH FROM-TO - BACK UP + TO FROM + UP + TO	- 1 3 - - - - -	**1** **4** **1** **14** **1** **1** **1**	0 1 2 1 0 1 2
51.	Pass	Vector	ALENGTH	-	**3**	1
52.	Spread	Vector Vector	Departure – AWAY FROM Traversal - ALENGTH Departure – AWAY FROM	7 8 -	**15** **2**	1 0

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Vector + Vector	Departure – AWAY FROM Traversal - ALENGTH	-	**22**	2
		Vector + Deictic	Departure – AWAY FROM BENEATH	-	**2**	2
53.	Move	Vector	Traversal - ALENGTH	2	**4**	1
			Arrival - TOWARD	2		
		Deictic	SIDEWAYS	-	**1**	0
		Conformation	THROUGH a plane	1	**4**	1
			INTO	3		
54.	Pop	Conformation	OUT OF	4	**5**	1
			THROUGH a plane	1		
		Vector	BE_{Loc} AT	-	**3**	1
		Conformation	OUT OF	-	**1**	0
55.	Release	Bare	-	-	**5**	1
56.	Push	Vector	TOWARD	7	**8**	1
			ALENGTH	1		
		Conformation		-	**6**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
			THROUGH a plane			
57.	Waft	Deictic + EGD + Vector	BACK + UP + ALENGTH	-	**1**	1
		Vector	ALONG TO	1 1	**2**	1
		EGD + Conformation	UP + FROM SURFACE	-	**5**	1
		Conformation	THROUGH PLANE FROM SURFACE INSIDE ENCLOSURE	1 3 2	**6**	1
		EGD + Vector	UP + TO	-	**3**	1
		Vector x 2	FROM-TO	-	**1**	2
		Bare	-	-	**1**	0
58.		Vector	Traversal - ALENGTH	-	**29**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
	Run	Vector x 2	FROM-TO	-	**1**	2
		Conformation	THROUGH PLANE	-	**6**	1
		EGD	UP/DOWN	-	**18**	1
		Bare	-	-	**1**	0
59.	Rise	Conformation	INSIDE ENCLOSURE	6	**22**	1
			FROM SURFACE	15		
			THROUGH PLANE	1		
		EGD + Conformation	UP + FROM SURFACE	-	**4**	1
		Vector	TO	5	**7**	1
			TOWARD	2		
		Bare	-	-	**14**	0
60.	Emerge	Bare	-	-	**126**	0
		Conformation	FROM ENCLOSURE	2	**6**	1
			FROM SURFACE	4		

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Vector + Deictic	FROM + BEHIND	-	**2**	1
61.	[87]Follow	Conformation EGD Vector	ONTO SURFACE INTO ENCLOSURE DOWN TO	1 3 - -	**4** **1** **2**	1 1 1
62.	Leave	Bare Vector	- BE_{Loc} AT	- -	**17** **12**	0 1
63.	Nudge	Conformation Vector	THROUGH PLANE ALENGTH ARRIVAL - TOWARD	- 1 1	**1** **2**	1 1
64.	Swoop	Conformation Bare	THROUGH PLANE -	- -	**1** **1**	1 0
65.	Bounce	Vector Conformation	BE_{Loc} AT traversal - ALENGTH	1 2	**3**	1

[87] This is somewhat controversial – see notes in Round 3 doc.

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
			FROM SURFACE	-	**1**	1
66.	Skirt	Bare	-	-	**2**	1
67.	Slash	Conformation	THROUGH PLANE	-	**4**	1
68.	Lull	Vector	BE_{Loc} AT	-	**1**	1
69.	Pierce	Conformation	THROUGH PLANE	-	**1**	1
		Conformation + Vector	THROUGH PLANE + Arrival TO	-	**1**	2
		Bare	-	-	**1**	1
70.	Tumble	Conformation	INTO ENCLOSURE	2	**5**	1
			OUT OF ENCLOSURE	1		
			THROUGH PLANE	1		
			ONTO SURFACE	1		
		Vector	TOWARD	-	**1**	1
		Deictic + Vector	BACK + Traversal ALENGTH	-	**1**	1
71.	Dive	Vector	Arrival TO	-	**1**	1
		Conformation	ONTO SURFACE	1	**8**	1
				7		

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
			INTO ENCLOSURE			
72.	Pool	Vector	BE_{Loc} AT	10	**11**	1
			ALONG AROUND	1		
		Bare	-	-	**2**	0
73.	Endure	Vector	BE_{Loc} AT	-	**5**	1
		Bare	-	-	**6**	0
74.	Splash	Vector	TO	2	**5**	1
			BE_{Loc} AT	2		
			Traversal ALENGTH	1		
		Conformation	ONTO A SURFACE	6	**7**	1
			THROUGH PLANE	1		
		EGD	DOWN	-	**23**	0
		EGD + Conformation	DOWN + ONTO A SURFACE	-	**2**	1
75.	Land	Conformation	ONTO SURFACE	-	**15**	1
		Bare	-	-	**2**	0
76.	Balloon	Conformation	FROM ENCLOSURE	-	**6**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Vector	Arrival TO	-	**2**	1
77.	Hang	Vector	BE_{Loc} AT	-	**21**	1
		Vector	BE_{Loc} AT	-	**6**	0
		Deixis	ABOVE	-	**1**	1
78.	Settle	Conformation	ONTO SURFACE	7	**9**	1
			INTO ENCLOSURE	2		
79.	Slice	Deictic + Vector	BACKWARDS + ALENGTH	-	**1**	1
		Vector	ALENGTH	-	**1**	1
		Conformation	THROUGH PLANE	-	**5**	1
80.	Cut	Conformation	THROUGH PLANE	40	**42**	1
			INTO ENCLOSURE	2		
		Vector	Arrival TO	1	**2**	1
			Traversal ALENGTH	1		
81.	Wash	Conformation	FROM SURFACE	3	**4**	1
			PLANE	1		
		Vector	Traversal ALENGTH	29	**31**	1

	Verb	Path Component(s)	[86]Path Description	Frequency		Grounds
				Individ.	**Total**	
		Deictic	Arrival TO BACKWARDS	2 -	**58**	0
82.	Linger	Bare	-	-	**31**	0
		Conformation	ONTO SURFACE INTO ENCLOSURE THROUGH PLANE	10 20 3	**33**	1
		Vector	BE_{Loc} AT Arrival TO	6 1	**7**	1
83.					**1329**	

Appendix B: Summary Ground+Path Component Combinations: Spanish

General Statistics		
Total Number of Verbs Analysed	83	
	- Motion	39
	- Non-motion	44
Concordance Lines Analysed	4,263	
Total Instances of Motion	633	
Total Number of Analysis Records Produced	78 - 52 Gust / 26 Olf	

No.	Verb	Path Component	[88]Path Types	Frequency		Grounds
				Individ.	**Total**	
1	*Emitir*	Bare	-	-	**7**	0
2	*Deslizar(se)*	Conformation	*(i) which is of the **surface** of [a volume]* *(ii) which is one of the points of [a plane]*	1 3	**4**	1
3	*Asaltar*	Conformation Bare	*which is of the **surface** of [a volume]* -	- -	**5** **3**	1 0
4	*Liberar(se)*	Bare	-	-	**9**	0

[88] Path types are taken from the representative segment analysed in the data analysis records and, although in most cases it will correspond with those of the same Path component type, they may not always do so; therefore, if each individual instance is required, the relevant document needs to be consulted.

No.	Verb	Path Component	[88]Path Types	Frequency		Grounds
				Individ.	**Total**	
5	*Desplegar*	Conformation Bare	*which is of the **inside** of [an enclosure]* -	- -	**1** **8**	1 0
6	*Desembocar*	Conformation	*which is of the inside of [an enclosure]*	-	**13**	1
7	*Conducir*	Vector	*Arrival – TO*	-	**9**	1
8	*Extender*	Bare Vector Vector	- *(i) Por, en* - traversal – ALENGTH *(i) Alrededor de, en torno a* – traversal - ALONG	 2 2	**5** **4**	0 1
9	*Escapar*	Conformation (*de*) Conformation (*a*) Bare	*(i) which is of the inside of [a volume]* *(ii) which is of the inside of [an enclosure]* -	5 1 -	**6** **6**	1 0
10	*Irrumpir*	Bare Conformation	- *which is of the inside of [an enclosure]*	- -	**20** **3**	0 1
11	*Ascender*	Bare	-	-	**3**	0
12	*Surgir*	Bare Vector Conformation Conformation	- *Be Loc. At* *de* *de donde*	- - 2 1	**13** **4** **3**	0 1 1

No.	Verb	Path Component	[88]Path Types	Frequency		Grounds
				Individ.	**Total**	
		Conformation	which is of the inside of [an enclosure]	-	**1**	2
13	*Alcanzar*	Vector	Arrival – TO a point	-	**1**	1
14	*Lanzar(se)*	Vector	Arrival to (a point)	-	**1**	1
		Bare	-	-	**1**	0
15	*Dirigir(se)*	Vector	arrival – TOWARD a point 'hacía'	1	**2**	1
		Vector	arrival – TO a point 'a'	1		1
		Bare		-	**11**	0
16	*Elevar(se)*	EGD	**1 EGD 'above'**	-	**1**	1
17	*Salir*	Conformation	MOVE FROM a point which is of the surface of a volume	-	**3**	1
18	*Acercar*	Vector	arrival – TO a point	-	**1**	1
19	*Entrar*	Bare	-	-	**20**	0
		Conformation	MOVE TO a point which is of the inside of an enclosure	-	**2**	1
20	*Venir*	Conformation	*which is of the **surface** of [a volume]*	1	**4**	1
			inside of an enclosure	3		

No.	Verb	Path Component	[88]Path Types	Frequency		Grounds
				Individ.	**Total**	
		Vector	*arrival – TO a point*	1	**2**	1
			departure – FROM a point	1		
		Bare	-	-	**3**	0
21	[89]*Llegar*	Conformation	MOVE TO a point which is of the inside of an enclosure	12	**14**	1
		Conformation	MOVE TO a point which is of the surface of a volume	2		1
		Vector	MOVE TO a point	-	**1**	1
22	[90]*Pasar(se)*	Vector	Traversal – Move alength a bounded extent	-	**1**	1
23	*Ir*	Vector	Traversal – Move alength a bounded extent	1	**2**	1
		Vector	MOVE FROM-TO a point pair	1		2
Separate Category for Verbs of 'Appearance' and 'Being Located/Present'						
24	*Perdurar*	Bare	-	-	**1**	0

[89] This is an interesting one as there is a clear case for metonymy here as 'nos' (us) is used in 10 instances and clearly refers or 'stands for' the sense of either taste or smell and, therefore, is a kind of inverted WHOLE FOR THE PART metonymy.

[90] There were originally 3 of this type but two did not predicate motion but, rather, a change of state. For example, *El sabor está muy equilibrado también, **pasando de** lo dulce de la malta **a** lo amargo del lúpulo…* ([T]he flavour is also well-balanced, **going from** the sweetness of the malt **to** the sourness of the hops…) (CdM). Compare with the one example that did predicate motion: *El trago **pasa** fugaz **por** boca, con una efervescencia algo excesiva que apaga un poco el sabor…*(The sip **passed through** the mouth fleetingly, with an effervescence somewhat excessive that dampens the taste a little…).

No.	Verb	Path Component	[88]Path Types	Frequency		Grounds
				Individ.	**Total**	
25	*Prevalecer*	Bare	-	-	**16**	0
26	*Emerger*	Conformation Bare	*which is of the surface of [a volume]* -	- -	**3** **16**	1 0
27	*Aflorar*	Bare Conformation	- *which is of the inside of [an enclosure]*	- -	**21** **1**	0 1
28	*Persistir*	Vector Bare	BE_{Loc} AT -	- -	**12** **7**	1 0
29	*Permanecer*	Vector Bare	located at – BE_{Loc} AT -	- -	**12** **9**	1 0
30	*Prolongar*	Vector Bare	located at – BE_{Loc} AT -	- -	**7** **1**	1 0
31	*Quedar(se) (possibly 2 types more but not sure yet)*	Vector Deictic Bare	(i) BE_{Loc} AT Beneath -	- - -	9 1 21	1 1 0
32	*Dejar(se)*	Vector Bare	BE_{Loc} AT -	- -	11 40	1 0
33	*Presentar(se)*	Vector Bare	located at – BE_{Loc} AT -	- -	**16** **13**	1 0
34	*Percibir(se)*	Vector	located at – BE_{Loc} AT	-	**48**	1

No.	Verb	Path Component	[88]Path Types	Frequency		Grounds
				Individ.	**Total**	
		Bare	-	-	**83**	0
VERBS NOT ORIGINALLY ENTERED INTO THE LIST						
35	*Desprender(se)*	Bare	-	-	69	0
		Conformation	*Inside an enclosure*	-	1	1
		Vector	*Be Loc at 'en'*	-	4	1
36	*Desatar(se)*	Vector	*Be Loc at 'en'*	-	3	1
		Bare	-	-	1	0
37	*Atravesar*	Bare	-	-	1	0
38	*Brotar*	Conformation	MOVE FROM a point which is of the inside of an enclosure	-	1	1
		Vector	BE_{Loc} AT	-	1	1
39	*Invadir*	Bare	-	-	7	1