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Frankenwords: A Cognitive perspective on the Interpretation of NOUN – NOUN Compounds in English

Informe final de Seminario para optar al grado de Licenciado en Lengua y Literatura Inglesas

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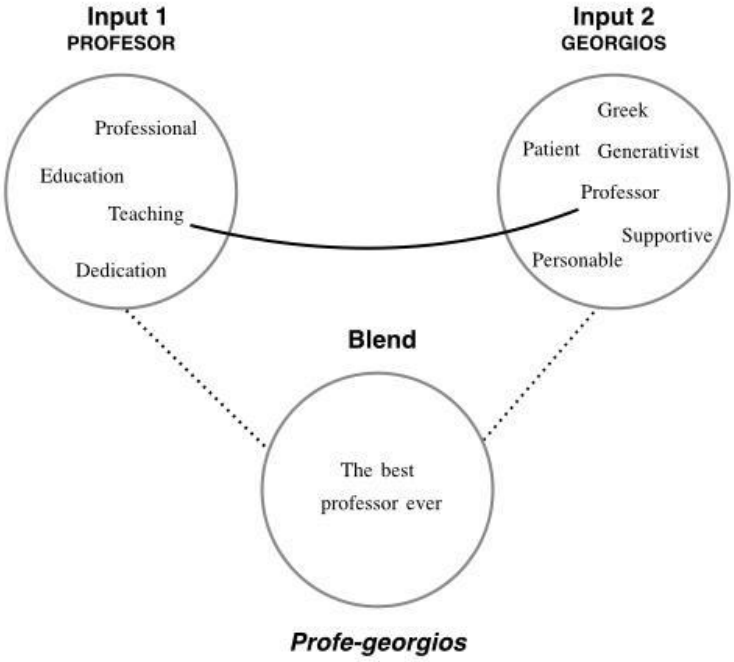
Santiago, Chile

2017

Acknowledgments

The following work would not have been possible without the guidance of our seminar professor, Georgios Ioannou. He was incredibly helpful and offered invaluable assistance, support and infinite patience. We are profoundly grateful for his immense knowledge and insightful comments and encouragement which incited us to widen our thesis from various perspectives. He not only taught and guided us through this challenging yet rewarding process, but he taught us to trust in our abilities and knowledge. We will be forever grateful for all of the galletitas and juguitos that you gave us. Deepest gratitude are also due to the members of this seminar, without whose dedication and effort this study would not have been successful.



Agradecimientos

Quisiera hacer uso de este espacio para agradecer profundamente a todas las personas que estuvieron conmigo no solo durante este año, sino durante toda mi vida. En primer lugar, agradecerle a mi familia el apoyo incondicional que me han dado, sobre todo a mi mamá, que me ha dado apoyo incondicional en momentos de cansancio y agotamiento físico y espiritual. A mi papá, a mi hermano, a la Nati, a mi abuela y especialmente a la Martina, les doy las gracias. Agradezco también a mi segunda familia, la gente maravillosa que he conocido en la universidad. Ustedes este año posible de soportar. Pepe, Yari, Karina, Nito, Gabi, y Mariela, que su futuro esté lleno de cosas buenas. A los cabros de Nómades, que gracias ustedes liberé una cantidad increíble de tensiones durante las mañanas de ensayos cada viernes. Diego, Felipe, Pauli, Víctor, y Nico:que este año esté lleno de cosas buenas y que llegue primer disco! El viaje Nomadiano ha comenzado, y es un agrado caminarlo junto a ustedes. Un agradecimiento especial a los chiquillos del seminario, fue un verdadero gusto y placer haber trabajado con todos ustedes. Son un grupo de gente capísima e inteligente, van a llegar lejos. Un especial agradecimiento también a mi Vale, quien me aguantó las caras de sueño, me apoyó en momentos de debilidad, y me trajo muchos momentos dulces que se van a quedar por siempre conmigo.

Por último, quisiera agradecer a todos los profesores con los cuales tuve el placer de ser su alumno. En especial a los profesores Roberto Pichihueche y Guillermo Duff, y a las profesoras Francesca Bonfanti, Rommy Anabalón, y Alfonsina Doddis. Muchísimas gracias por su tiempo y su dedicación pedagógica, su huella quedará marcada por siempre en mí. Un especial agradecimiento al profesor Georgios, cuya contribución a mi formación académica y personal es imposible de dimensionar y merece una tesis aparte.

A todos ustedes, muchas gracias. Ha sido un honor ser su hijo, hermano, pololo, alumno, y amigo.

Juan José Arenas Rodríguez

En esta oportunidad, quiero agradecer a todas aquellas personas que a lo largo de este difícil proceso han apoyado y confiado ciegamente en mis decisiones. Particularmente,

quiero agradecer a mis padres Georgina y Jorge, quienes a pesar de todas las vicisitudes, siempre han luchado incansablemente por mi felicidad y la de mis hermanos. Muchas gracias a todos (mamá, papá, Oli, Daniel, Manolo) por las enseñanzas, el apoyo y las oraciones en los momentos más complejos, así como las celebraciones en los momentos de victoria. Gracias por amarme como dicen ustedes 'con o sin título'. Los amo.

De igual manera quiero agradecer a mi círculo de amigos, quienes para mí ya son una segunda familia: Cote, Ika, Carola, Natu, Ale, España, Yennadim. Créanme que cada risa, cada llanto, consejos y palabras de aliento están archivados en lo más profundo de mi memoria. Los amo también.

Sería imposible olvidar a mi amiga Cote, con quien nos hemos acompañado codo a codo desde el primer día en la facultad. Me siento afortunada de ser testigo y colaboradora de tu crecimiento personal. Amie, nuevamente gracias por todas las vivencias y la comprensión, así como el amor incondicional de siempre. Te amo, lavender lady.

De igual manera quiero agradecer a mi novio quien se ha transformado en un apoyo y refugio emocional fundamental en este proceso. Gracias por aguantar mis mañas, la comprensión y por apañarme siempre hasta el final. Mi año hubiera sido incompleto sin ti.

Me parecería imposible no agradecer al profesor Giorgos su dedicación docente. Su vocación, ayuda y enseñanzas brindadas se quedarán conmigo para siempre. Muchísimas gracias por la paciencia con sus estudiantes, la sensibilidad, disposición y por ser el gran profesor que es. Gracias también al grupo de tesis, de corazón les deseo lo mejor a cada uno de ustedes en sus vidas después de Inglesa.

Mis sinceros agradecimientos a mis jefas de Gaby Nails: Gabriela Carcamo Toledo y Viviana Rodríguez. Gracias por la flexibilidad y comprensión para poder compatibilizar mi trabajo con los estudios. Gracias por la paciencia, por el desarrollo en el oficio y por siempre brindarme una oportunidad, las considero grandes personas.

Finalmente, quiero agradecer a mis maestros en las Artes Marciales Mixtas, este año me enseñaron una valiosa lección: la pelea más importante que se puede tener es la que uno constantemente tiene consigo mismo. Oss.

Cristina Carrasco Esparza.

Con esta tesis quisiera expresar mis agradecimientos a todos aquellos que me acompañaron durante este desafiante pero enriquecedor proceso académico. Agradezco a mi abuela por brindarme fuerza y amor incondicional durante estos largos años, sin ella no hubiese podido enfrentar esta desafiante etapa de mi vida. A mi familia, quienes a pesar de estar lejos de mí, siempre han confiado en mí y me han apoyado en mis decisiones importantes. Quisiera agradecer a todos los profesores, especialmente a la profesora Bonfanti por su apoyo y ánimo incondicional que me ha entregado, sus palabras y consejos fueron de gran ayuda para tomar decisiones difíciles y acertadas. También quisiera agradecer a mis queridos amigos por brindarme su valiosa amistad, ayuda y palabras de aliento en el pasado, presente y en el futuro. Finalmente agradezco profundamente a mis compañeros del seminario por el excelente ambiente que se generó durante todo el año y a nuestro profesor Giorgos, quien fue un pilar fundamental para nuestro desarrollo personal, académico y profesional. Indudablemente, su dedicación, cariño y sabiduría me entregó la motivación y valor para confiar en mis capacidades y fortalezas.

Jihyun Kim

Estando ya en proceso de cerrar este año académico, probablemente el más nutritivo a mi haber, no queda más que dar las gracias a todos quienes han estado incondicionalmente a mi lado durante este duro y enriquecedor proceso. Primeramente, a mi familia, particularmente a mi madre – María Luisa (Toti) – sin cuya paciencia, apoyo, y comida no hubiese logrado llegar a donde estoy hoy. Así también, quiero agradecer a esos amigos y futuros colegas con los que he compartido mi travesía por inglesa, y con los que espero compartir muchas más experiencias a lo largo de la vida: Camila, Claudia, Elena, Javiera y Vanessa. No se puede quedar sin mención Paloma, una amistad de esas que te da la vida, gracias a cuyos almuerzos salvadores y delicioso café pude darme ánimos aun en aquellos días en que solo quería renunciar a todo. También debo dar las gracias a esos compañeros con los que compartí la experiencia de desarrollar esta tesis—¡juntos aprendimos mucho! Finalmente, pero –como dice la frase cliché—no menos importante: Camilo Campusano, un

pequeño tecnólogo médico que llegó para llenar mi vida y expandir mi mundo, quien se lleva el premio por aguantar mis berrinches en estos últimos meses de estrés.

José Manuel Ramírez

Quisiera aprovechar este espacio para agradecer profundamente el apoyo incondicional brindado por parte de mis padres y hermano. Gracias por, durante toda mi vida, apoyar cada proyecto que decido emprender, cada idea loca por más incomprensible que suene. Han sido siempre mamá, papá y hermano quienes han confiado en mí a ciegas y gracias a eso me han forjado como una mujer segura, con decisión, con ideas claras, independiente, libre y capaz de emprender un viaje y a la vez terminarlo. Gracias por enseñarme a estar positiva siempre ante cualquier contratiempo. Los amo!

Con este proyecto estoy culminando una etapa que sin duda no hubiese sido la misma sin la presencia de Kitty, mi amiga. Durante estos años hemos aprendido a conocernos desde la esencia y nos aceptamos tal cual, cosa que cuesta encontrar en la vida. Creo que lo que hemos compartido y aprendido la una de la otra durante todo este tiempo no es nada en comparación a lo que nos queda por delante, siempre juntas. Te quiero infinito, amiee. Que la vida nos entregue lavandas por siempre.

Finalmente, muchas gracias a nuestro profesor Georgios y compañeros de seminario por el buen y poderoso grupo que formamos, no hicimos la elección de seminario más fácil y aún así logramos hacer un excelente trabajo en conjunto.

Profe, muchas gracias por su disposición, por los conocimientos entregados con infinita paciencia, por el juguito y galletitas de cada clase y definitivamente por el cariño que demuestra a sus alumnos y a su profesión, sin eso la motivación no habría sido igual.

María José Salas

En primer lugar, me gustaría agradecer a mi familia, por apoyarme en todos mis proyectos, y por estar siempre presentes, aún en la distancia. En segundo lugar, a Catalina, Michela y Carolina, por estar siempre juntas, en las buenas y en las malas, en las risas y en las penas, en este año tan movido. En tercer lugar, al profesor Georgios Ioannou, cuyo conocimiento, apoyo, e infinita paciencia me ha permitido superar metas y conocer nuevos horizontes; y a mi grupo de seminario, sin los cuales esta franken-tesis no sería posible.

Finalmente, a todas las otras personas que me falta mencionar, amigos nuevos y amigos viejos, que me han acompañado durante este año.

Francisca Belén Valdés V.

Estando a tan sólo unos días del fin de mi experiencia universitaria quisiera agradecer, en primer lugar, a mi familia por su apoyo incondicional durante mis 22 años de vida. Tanto mi mamá, papá, hermana, padrinos, tíos, abuelos que aún están y los otros que ya se fueron me han dado todo el amor y la fuerza que han sido necesarias para superar distintas etapas de mi vida y me han ayudado a convertirme en la persona que soy hoy en día. Un especial agradecimiento también a Tommy, mi perro que muchas veces era el único que se quedaba despierto en las pesadas madrugadas de estudio haciéndome compañía y dándome su apoyo y amor.

En segundo lugar, quisiera agradecer que los amigos y profesores que he conocido a lo largo de mi vida, tanto de mis años escolares como en la universidad. A mis profesores de inglés en el Liceo que me motivaron lo suficiente en sus clases como para querer estudiar esta segunda lengua, y las profesoras Francesca Bonfanti y Rommy Anabalón por su comprensión durante estos años universitarios y por ayudarme a superar las barreras que yo sola me ponía. Y a las buenas amistades que he ido forjando en este largo camino que he recorrido, tanto en el colegio como en la universidad; ustedes me han hecho mejor persona y me han enseñado a valorar sus cualidades únicas e interesantes.

En tercer lugar, un especial agradecimiento a nuestro profesor guía Georgios Ioannou y a mis compañeros de seminario por su paciencia infinita y las ganas que todos pusimos para concretar este hermoso proyecto con un resultado excepcional.

Y finalmente, mi eterno agradecimiento al Juanjo por haberme soportado durante más de dos años y por entregarme su cariño, amor y apoyo incondicional cuando las cosas se ponían difíciles y también en los buenos momentos. No habría podido lograr muchas cosas sin ti, eres el mejor.

Valentina Varela Villalobos

Abstract

NOUN - NOUN compounds have been extensively studied in the past, not only for the reason that they possess a remarkable degree of diversity regarding semantic relationships between their constituents but also because of their complexity as composite structures (Benczes, 2006). In the following study, we intend to delve into English NOUN - NOUN compounds from a cognitive constructional perspective, specifically regarding their form and the emergent structure they create. Previous cognitive linguistic attempts at addressing compounding have yielded a typology based on the occurrence of metaphoric and metonymic extension. Nevertheless, this typology could be improved by addressing heretofore unaddressed vexing matters regarding the complexity of the inner workings of compounding. Hence, we will inquire into NOUN - NOUN compounds as an interpretative result of a blending process, decomposing creativity into observable factors, such as the prototypicality of the components of the compound, their grammatical arrangement, the semantic distance between them, as well as the schematicity of their blending's generic space. Hence, we will analyse NOUN - NOUN compounds exploring factors such as prototypicality, blending processes, syntactic structure, semantic distance and schematicity of generic space, to see how these factors affect the creation of compounds, the generic space, and the interpretation of the resulting compound. To do this, we selected nouns drawn from 7 superordinate semantic categories, each one with 3 basic level members that were run through the *NOW corpus* and the online dictionary *WordSpy* in order to obtain compounds at the subordinate level of a semantic hierarchy. The compounds of each category were then analysed regarding the aforementioned factors in order to reach an intra-categorical and inter-categorical analysis of NOUN - NOUN creative compounding that re-addresses creativity in terms of these factors.

Keywords: NOUN - NOUN compounds, prototypicality, creative language, semantic distance, syntactic roles, schematicity, generic space, metaphoricity, conceptual integration, corpus linguistics, cognitive linguistics.

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Chapter 1
Introduction

One of the motivating principles behind the Cognitive Linguistic enterprise is that language is determined by the user's cognitive abilities (Heyvaert, 2009). These abilities involved in language use and reflected by the language system itself are *symbolization, composition, comparison/categorization and schematization*. In this sense, the analysis of linguistic structure must be linked undoubtedly to cognitive processes. Thus, the understanding of the language user's cognitive processes is crucial to the understanding of language itself.

NOUN - NOUN compounds are an important part of language not only because they form the largest group of compounds in English (Algeo, 1991), but also because it is the type of compounds that is produced early in the development of children's language (Clark, 1981). Besides, a remarkable fact about this type of compounds that has also been part of the motivation of the present study is that "the diversity of semantic relationships that can exist between the two components on the one hand, and between the individual elements and the compound as a whole on the other" (Benczes, 2006, p.2). Due to these reasons, NOUN - NOUN compounds have been studied extensively for many years. Although many theories have offered a comprehensive framework within which many matters related to compounding can be treated, there are intriguing and vexing aspects of its workings that either have not been treated or have not been answered successfully.

In NOUN - NOUN constructions, novel symbolic units or "creative" formations are common. Thus, the identification of the rules and constraints that can explain the productivity of compounds" (Heyvaert, 2009, p. 376) is an important issue in research into compounding and cognitive research. Following this path, Réka Benczes based her study *Creative Compounding in English: The Semantics of Metaphorical and Metonymical NOUN - NOUN Combinations* (2007) on compounding research, specifically on creative NOUN - NOUN combinations combinations. The aim of her study was to reveal the semantics of metaphorical and metonymical NOUN - NOUN combinations. The framework within which the semantics of metaphorical and/or metonymical compounds are analysed is the cognitive linguistic

framework. This analysis is made through the combined application of metaphor, metonymy, blending, profile determinacy and schema theory (Benczes, 2006).

According to Benczes, the investigations that precede semantic research have treated metaphorical and metonymical compounds as "darkened" (p. 3) constructions and for that matter they have been seen semantically opaque. But the presence of blending theory, according to Benczes, has provided innovative and exciting proposals on this type of analysis. Basically, blending theory consists on the presence of two mental spaces (input space 1 and input space 2) which come to be NOUN 1 and NOUN 2, the presence of an emergent structure and the blended space. According to the blending theory, the two mental spaces blend to give rise to an emergent structure. What is interesting about the emergent structure is that it features elements that are not present in the input spaces.

For Benczes, the fact that some researchers classify metonymical and metaphorical structures as "darkened" or "fuzzy" does not address satisfactorily the problems of compositionality of compounds. Besides, the simple classification of exocentric, endocentric, less transparent or more transparent compounds does not uncover the semantics of metaphorical and metonymical NOUN - NOUN compounds. Hence, she proposes that the main difference between an endocentric compound (composite constructions where the first element is a hyponym of the second, right-hand element) and metaphorical and/or metonymical one is not transparency of meaning, as it has been proposed in the past, but creativity. According to her, these metaphorical and metonymical compounds make use of creative associations between concepts (similarity, analogy or contiguity), thus generating an innovative meaning. Therefore, Benczes emphasizes the term "creative compound" and adds this concept of "creativity" to the exocentric and endocentric distinction. She somewhat rejects this dual classification and at the same time she explains it through creativity.

However, in spite of the interesting and accurate contribution made by Benczes, less attention has been paid to the factors beyond metaphorical and metonymical typologies. This new perspective regarding creative compounding has been somewhat oversimplified in metaphor and metonymy, not taking into account the contribution of other factors. The factors that we believe must be also taken into account in the cognitive process of creative NOUN - NOUN compounds are various elements that are potentially involved in the integration

of the concepts activated by the constituent nouns, like prototypicality, syntactic structure, semantic distance and generic space.

Thus, in order to give a more exhaustive analysis of NOUN - NOUN compounds' complexity and creativity, we propose to explore the prototypicality of the compounds and the prototypicality of its constituents as well, both in terms of domain activation and in terms of absolute frequency. Secondly, the syntactic structure of the compounds' constituents, since any given component has the potential to be both a modifier and a head in a compound. Additionally, we postulate as a determining factor the presence of semantic distance both as the distance between constituents but also as the distance among the components' different semantic domain activations. This semantic distance is understood as the possibilities of an existent common space where the participants of the frames can be related. Thus, this comes to be a more abstract and schematic generic space that needs to be generated, if necessary. The consequences of this abstract and schematic space are different levels of integration, from literal to non-literal, for example. Finally, the generic space that emerges from the commonalities between the input spaces and its meaning extension are also factors that need to be taken into account when looking for NOUN - NOUN compounds' complexity and creativity.

Thus, in this study, we attempt to initiate the development of a typology of these factors and reveal their consequences for the diverse semantic relationships emerging between the components of NOUN - NOUN compounds. To do this, we will make use of Eleanor Rosch's superordinate, basic, and subordinate levels of categorisation from her work *Principles of Categorization* (1978), which will be used to divide a diverse array of nouns into concrete and abstract superordinate categories. Each category will have 3 representatives at the basic level which will be nouns that will be run through the *NOW corpus* and the *WordSpy* dictionary. These searches will yield results, which will be NOUN - NOUN compounds at the subordinate level of Rosch's division of levels of categorisation. This selection of NOUN - NOUN compounds will be the compounds that we will analyse in this study. The remainder of this investigation is divided into five following chapters, which are also divided into subsections. The second chapter of our study is the literature review, in which we will tackle issues such as the contextualisation of cognitive linguistics, the categorical or gradient nature of language, and approaches to metaphor and metonymy. The

third section corresponds to the theoretical framework, in which further explanation is given for the motivation of our study. This section discusses what would be beyond Benczes' typology of metaphor and metonymy, a postulation of a scale of complexity regarding NOUN - NOUN, and an explanation of the determinant factors. The fourth chapter of this study is devoted to the its methodology, the procedures of data collection and the description of data analysis. Chapter five will be the analysis of the results, which will in turn be divided into the analysis of the concrete superordinate categories first, followed by the analysis of the abstract categories. The sixth and final chapter will consist of conclusions and limitations of this study.

Chapter 2
Literature Review

2.1. Cognitive Linguistics

Ever since the study of language became the object of scientific inquiry in the past few centuries, there have been different approaches as to how the linguistic phenomena are treated. On one hand, we have the formalist approach that is mainly focused on the structure of language, the way it is internally organised, the properties of the language system and the abstract patterns between linguistic elements. The functional approach, on the other hand, is focused on the communicative properties of language, the way ideas are organised within language and between linguistic elements and how they contribute to the functions of language, as proposed by Roman Jakobson, in order to achieve accurate verbal communication. In other words, it has a more usage-based orientation, the centre of it being the use of language itself (Evans, Bergen & Zinken, 2007).

What is very interesting about these two approaches are the different assumptions that they take regarding the relationship between language and mind, and how this relationship should be studied. It is important to consider that these two approaches were formulated in different time periods. the Formal approach came first and it was not until the second half of the 19th century that the Functionalist approach emerged.

Regarding the Formal approach, we have this constant idea that the different structures of language should be studied separately. This is reflected in the dichotomies presented by Ferdinand de Saussure in his seminal *Course in General Linguistics*, in which he made the distinction between the signified and signifier and the study of language in synchrony versus diachrony (Saussure, 1916). Another important author related to the formal approach is Noam Chomsky. What is very particular about his theory is the idea of certain innate structural properties that are exclusively dedicated to language, which will lead to his well-known theory of Universal Grammar (Chomsky, 1965). This theory says that sentential correctness has universal underpinnings of a structural sort, which would be independent of semantic coherence; and that this capacity of intuitive grammatical correctness is due to an innate linguistic device that humans are born with. This means that children are born with a

special cognitive module that enables them to learn a language, which is present in everyone, no matter the language they speak or their ethnicity. This device that we come equipped with is universal, hence the name of Universal Grammar. (Chomsky, 1965). Also, Chomsky was the first person in the field of linguistics to draw an elaborated theory to explain the relation between language and mind, although he said that these analytical categories were kept independent from general references to mental abilities. This is why Chomsky is regarded as one of the pioneers in the cognitive paradigm—he was one of the first linguists to address the mind's relevance to language, thus shifting the focus onto cognitive matters, albeit from a formalist point of view. It is clear then, that for the formalists, the study of the structures of language (that is syntax, morphology, grammar, etc.) should be studied separately from each other without taking into account the environment in which they are produced. This is also evidenced in the fact that they treat language as a separate module in the brain that interacts with other modules.

Functionalists, on the other hand, are interested in the study of language in relation to external factors such as context and the organisation of ideas as a whole, and not separately as the formalist approach proposed. We can identify several disciplines that follow, at varying degrees, this approach, such as Sociolinguistics, Applied Linguistics, Systemic Functional Linguistics, and Cognitive Linguistics.

Regarding the Cognitive Linguistics framework, we can identify two key commitments proposed by George Lakoff that characterises the Cognitive Linguistics enterprise (Evans & Green, 2006). The first one is the *Generalisation commitment*, which puts forward the idea that there are general postulates underlying all aspects of human language (phonology, semantics, syntax, etc.). This is a direct rejection of the formalist division of language into distinct modules. While denying their empirical existence, cognitive linguists still make use of these distinctions in their study of language for the sake of methodological ease.

The second one is the *Cognitive commitment*, in which the principles of linguistic structure should reflect what is known about human cognition from other disciplines such as psychology and neuroscience. What is all more important about this commitment in particular is that it rejects the modular approach to language and mind. That is, Lakoff suggests that they should be studied together (1990). This idea is very interesting, especially

considering that cognitive linguists see language as the product of general cognitive capacities.

Another example of a functionalist approach to the study of language is the one given by Michael Halliday. His approach is related to language in use, especially the study of discourse. The theory that he proposes is the Systemic Functional linguistics (SFL). In the SFL approach, language is seen as a system, whereby the speaker makes his linguistic choices based on the options that he or she has available within the system (Halliday, 1985).

At this point, it is important to keep in mind that when it comes to Cognitive linguistics it is difficult to categorise it into one approach or the other. It can be clear, though, that the cognitive linguistic framework belongs somehow to the Functionalist approach, as it is much broader in its object of study –the analysis of the communicative properties of language— and includes the cognitivist approach to linguistics in terms of theory and methodology. Nevertheless, to some extent, Cognitive Linguistics has an affinity with Chomsky's Generative Grammar, at least in what concerns the cognitive relevance of linguistic phenomena.

That being said, the key distinctions that set the Cognitive Linguistics enterprise apart from other approaches in linguistics are its core concerns of having a strong scientific identity while studying the mental processes involved in producing language (Nuyts, 2010). It is by following the latter idea that the study of cognitive linguistics is often located within the Functional approaches to language since –as Evans and Green (2006) have said— language structure cannot be studied without taking into account the nature of language use.

2.2. The nature of linguistic phenomena: Is it categorical or gradient?

Whenever we talk about language, it is almost inevitable to come across the notion of categorisation. Along these lines, there has been some extensive debate regarding the nature of linguistic phenomena—that is to say, whether language is of a categorical or a gradient nature. Categorisation is, in the words of George Lakoff, the main way that we make sense of experience (Lakoff, 1987). He goes on to say that the traditional view of categorisation is characterised solely by the properties shared by the members of a given category, and characterised independently of the bodily nature of the beings doing the

categorising; while the new view is characterised by the way in which we use imaginative mechanisms such as imagery, metaphor, and metonymy, which are central to how we construct categories to make sense of experience. The introduction of these imaginative mechanisms allow for categorisation to go beyond literal language (1987). To explain matters in a simple way, we can summarise these two different perspectives by linking them to two different authors. The traditional approach to categorisation, also known as the classical theory of categories, stems all the way back from Aristotle; whereas the new views of categories, especially the one known as prototype theory put forward by Eleanor Rosch, have been seen the light only in recent decades.

As John Taylor (1989) puts it, the classical approach to categorisation can be called classical because of two reasons. First, because it goes back to classical times (ancient Greece), and second, because it was the established theory that dominated linguistics and philosophy for centuries until the twentieth century. The classical theory of categorisation can be succinctly explained as an all-or-nothing affair in which categories are well-defined and there is a binary perspective towards their members. That is to say, something either fully belongs to a category, or it does not belong to that category at all. This can be further explained by Aristotle's definition of "substance", which he defined as "(…) something which, being intrinsic to one of the sort of things that are not predicated of another, is the cause of being for it, as the soul is for the animal" (Aristotle, trans. 1998, pp. 126-127). Another way of defining substance (also known as *essence*) is "the intrinsic parts of such things, which delimit them and indicate their thingness, parts on the elimination of which the whole is eliminated (…)" (trans. 1998, p. 127). In other words, something will be considered as part of a category as long as it has all of the specific and clearly limited requirements. Take for example, the category MAN, whose two defining features are [bipedal] and [animal] (Aristotle, trans. 1998, p. 135). There is no room for partial or peripheral members in the classical approach. If an entity lacks one of the defining features of a category, then this entity cannot be considered a member of the category of MAN. Likewise, if any given entity has these two sufficient categories, then this entity will be seen as a member of the category (Taylor, 1989). This means that any category can divide the entire world in two: there are things that belong to it, and there are things that do not.

This also means that every member will be considered as an equal to its peers, because the set of defining features is clearly defined and there is no sufficient feature that has more importance than the others; they all matter and are equally necessary. In more concrete terms, every member of the category BIRD will be considered as much of a BIRD as any other member of the same category.

The Aristotelian model might sound somewhat old-fashioned and therefore it can be regarded as a dated theory that it is not important today, but this is not the case. As a matter of fact, most of the linguistic theories of the 20th century rest on Aristotelian principles of categorisation. The linguistic works that are in accordance with the Aristotelian model are included within the formalist paradigm (Taylor, 1989). One of the areas within linguistics that is most closely related to the classical theory of categories is phonology. A good and typical example of the classical theory of categories in phonology can be found in the analysis of distinctive features within generative phonology. Distinctive features are the minimal elements that compose a unit of sound, which is also known as a feature complex (Chomsky & Halle, 1968). In this regard, Chomsky and Halle postulate that, as classificatory devices, features are binary. As a first approximation, it might be assumed under this theoretical perspective that they are provided with a coefficient that can take one of two values: + *(positive)* or – *(negative)* (1968). The most evident influence from the Aristotelian perspective is in the binary character of the distinctive features, the fact that a single feature can take the value of + or – means that something *is* or something *is not*, there is no in between. There is no possibility for having one phoneme being more voiced or more bilabial than another voiced or bilabial phoneme, you either have [+ voiced] or [– voiced]. Noam Chomsky, widely regarded as the most important figure of Generative Linguistics (a formalist paradigm), would also include this binary opposition for syntax. When talking about the categorial component of the base, Chomsky refers to the lexical categories by making use of features that can take a positive or negative value. Thus, he devised a system to categorise parts of speech in which "[+ N, – V] is noun, [– N, + V] is verb, [+ N, + V] is adjective, and [– N, – V] is preposition" (1981, p. 48).

The shift from the classical theory of categories to the new view is contemporary to the emergence of cognitive linguistics. Cognitive linguistics emerged from dissatisfactions with the dominant linguistic theories of the twentieth century, which were orthodox (Nerlich

& Clarke, 2007), and from a "special interest in those aspects of language that were previously considered (…) marginal and, as such, have lacked adequate treatment (Bernárdez, 1999, p. 13). The new way of perceiving categories was first suggested by Ludwig Wittgenstein in the 1950s, and more recently proposed in the field of psychology in the 1970s, being Eleanor Rosch the most important representative of this new perspective (McCloskey & Gluskberg, 1978). Wittgenstein's ideas serve as a foreshadowing of what was to come with the emergence of Cognitive Linguistics. In his posthumous book *philosophical investigations*, Wittgenstein introduces the notion of *family resemblance*, in which there is a "complicated network of similarities overlapping and criss-crossing: sometimes overall similarities, sometimes similarities of detail" (1958, p. 32). In order to have a clear picture of this complicated network, we can turn to the different types of games that we play. If we think about the features of board-games, we will probably find many correspondences between them and the features of card-games. Then again, if we do the same exercise comparing card-games and ball-games, we will find resemblances, although different. If we keep comparing different types of games, we will realise that not every type of game is amusing (there are types of games that are based on strategy, such as chess), that not every game includes more than one participant (playing solitaire with cards), and that not every game involves winning and losing (instances of pretend play in children (Fein, 1981)). All of these examples are used as the base for saying that all of the proceedings that receive the name of *games* actually have nothing in common to all types of games. Rather, what we have is a complex series of relationships, overlappings, and similarities between different types of games (Wittgenstein, 1958).

This is a precedent of a way of categorising that departs from the classical perspective. This new way of categorising would eventually be continued decades later with the emergence of the prototype theory. As stated before, the prototype theory was born as a response to the classical theory, postulating that "most traditions of thought have treated category membership as a digital, all-or-none phenomenon", and that "in contrast, it has been recently argued (…) that some natural categories are analogue and must be represented logically in a manner which reflects their analogue structure" (Rosch & Mervis, 1975, pp. 573-574). The prototype theory is characterised by members of a category sharing *to a varying extent* the features of a prototype. It claims that there is not a single set of defining

attributes or necessary conditions that potential members of a category need to have in order to be considered proper members of the category (Geeraerts, 1989). Other features of prototypical categories include varying degrees of typicality; meaning that not every member of a category is equally representative of the category, and that prototypical categories have fuzzy edges (Lewandowska-Tomaszczyk, 2007). By saying that not every member of a category is equally representative, we are saying that some of the members of a category can be considered as more typical whereas others will be considered as peripheral. Prototypical members of a category can be regarded as *better* members of a category (Lewandowska-Tomaszczyk, 2007).

Regarding the fuzziness of the edges of categories, the experiment conducted by William Labov illustrates how categories sometimes merge gradually into another, blurring their boundaries. The experiment consisted in presenting people different line drawings of receptacles, starting from drawings that were unanimously called *cup*. From there, different drawings were presented, each one with less resemblance to a cup and more resemblance to a *bowl*. The results showed that there was no clear division between the two categories, and that the answers did not show a particular pattern. Other factors also came into play and affected the answers, such as removal of the handle, imagination of what filled the receptacle (coffee increased *cup* responses, whereas mashed potatoes increased *bowl* responses), and increase or decrease in depth or width of the receptacle, providing other answers such as *mug* or *vase* as well (Labov, 1973). To this, Taylor adds the idea of an optimum value, saying that the categorisation of the receptacle to each response (cup, mug, vase, bowl) has nothing to do with the classical all-or-nothing affair of *whether* a certain feature is present or not, but rather to the degree of proximity to the optimal value to each category. Even the possible presence or absence of the handle is not a matter of either-or, because there is a wide range of possibilities that go from a fully-fledged handle to a bump on the side (1989). The prototypical features of categories help us categorise not-so-clear instances and entities. Prototypically, a cup has a handle, it is made of porcelain, can be found in a cupboard, can be bought in a store, and is used by people to drink things such as milk or coffee. These are functional and interactional attributes that create a prototype, which in turn helps me decide if what I am being presented is a cup or not (Taylor, 1989). Prototypes are thus defined as follows: “By prototypes of categories we have generally meant the clearest cases of category

membership defined operationally by people's judgments of goodness of membership in the category" (Rosch 1978, p. 36). This is reminiscent of previous research conducted by Eleanor Rosch. On the one hand, it is reminiscent of experiments conducted in 1972 under her previous name, Eleanor Heider, regarding the stability of focal colours across different languages. And on the other hand, of an experiment conducted in 1975, in which she asked people to what extent different members of a category could be regarded as a good example of their pertaining category.

The experiments regarding the stability of focal colours across eleven different languages (Heider, 1972) concluded that speakers from different languages tended to pick the similar shade of a colour when asked to pick a good example of a specific colour, and that when faced with the task of recognising a colour that they saw 30 seconds before amidst an array of different shades, they could do so with a greater rate of success with focal colours. These results point to the conclusion that focal colours are significantly more salient in people's mind than non-focal colours, and that this is something that is shared across languages. The second experiment (Rosch, 1975) included the categories of FURNITURE, FRUIT, VEHICLE, WEAPON, VEGETABLE, TOOL, BIRD, SPORT, CLOTHING, and TOY. The subjects had to rate items from 1 to 7 (1 being a very good example of the category and 7 being a very bad example). The results of this experiment showed that, once again, there was a high degree of accordance between subjects regarding which elements were the most prototypical and the most salient. Additionally, all of the ten categories showed a similar prototypicality effect. Most importantly, this means that there *is* prototypicality regarding category membership, that some members are more representative than others.

The emergence of the prototype theory goes hand in hand with the emergence of cognitive linguistics. As cognitive linguistics emerged from dissatisfaction with the then-current theories and ideas, so did prototype theory, which went in accordance to the ideas that cognitive linguistics proposed. Previous generations of linguists tended to search for simplicity, regularity, and monosemy, but the new generations revelled in complexity, flexibility, and both regular and irregular patterns (Nerlich & Clarke, 2007). Cognitive Linguistics, thus, belongs to the functionalist paradigm, as it was part of a movement that drifted away from the formalist tradition and that shared the set of ideals of this new generation of linguist that re-evaluated the classic and pre-established postulates. Finally, it

was in the decade of the 1990s in which cognitive linguistics changed its status from "revolutionary", to "established" (Nerlich & Clarke, 2007, p. 592).

2.3. Linguistic schematisation and linguistic instantiation

Instantiations of language use are referred to as usage events or utterances, and they are defined as an instance of language which is culturally and contextually embedded and that does not necessarily present conventional patterns in its construction (Evans & Green, 2006). Utterances differ from sentences in the sense that a sentence is an abstract idealisation which follows a pattern of rules (Evans & Green, 2006), while usage events usually have incomplete parts, mispronounced words or ungrammatical constructions. However, this rarely interferes with conveying a meaning, and it does not reflect a lack of linguistic abilities of a native speaker (Evans & Green, 2006).

The reason for this usual lack of grammaticality is that utterances always occur spontaneously and within a context, so even if they do not follow a prototypical form, the interlocutors can still grasp the intended meaning. In fact, as noted by Radden & Dirven (2007), in many cases the sense of an utterance is so entrenched that further specification not only is not informative, but it even sounds strange. This can be observed in one of the examples that they mention, *"*Our dog bites*"*. Given our background knowledge of dogs, and our understanding of social practices concerning dogs, we immediately understand that the missing object of the transitive verb *bite* is *people*, so saying *"*Our dogs bites people*"* is unnecessary. Dirven & Radden attribute this to the principle of relevance: the most relevant aspect of the domain within the context of the speakers is what will be profiled.

However, some usage events do follow the prototypical pattern of what we would judge as a grammatical expression. The schematic notion of sentence is based on these prototypical utterances. According to Langacker (2008), all of the knowledge about grammatical patterns has its origin in the abstraction of the recurring patterns in instantiations of language, which later serve as a template for the formation of new utterances that will follow the same schema by means of elaboration, instantiation and, if necessary, extension. The process of abstraction is made possible by what Tomasello (in Evans & Green, 2006) refers to as the pattern-finding ability. This ability is described as the general cognitive ability

by means of which humans are able to analyse sequences of perceptual input, and recognise patterns that are present in these sequences. It is believed that young children are able to find patterns in the utterances to which they are exposed, and abstract these patterns, by constructing linguistic units. Schematic representations can be represented as a vertical relation between elements, where higher elements are more schematic, while the lower levels are more specific instantiations of those schemas (Taylor, 2002).

In cognitive linguistics, grammar is understood as the patterns that arise from language use by the aforementioned processes of abstraction and schematisation. Abstraction is "the process whereby structure emerges as the result of the generalisation of patterns across instances of language use" (Evans & Green, 2006, p. 115), while schematisation is defined as a type of abstraction in which representations are significantly less detailed than instantiated objects or constructions. Schemas emerge when the differences between instances are omitted while the commonalities between them are maintained. Instances of a schema inherit its underspecified characteristics, while adding more detailed specifications to it, so many different instances can emerge from the same schema (Taylor, 2002). Because of this possibility of multiple realisations, these schemas then become available for the speaker to use them in new usage events (Evans & Green, 2006).

Ronald Langacker's Cognitive Grammar model describes this view of schemas (Langacker, 2008). One of the most relevant characteristics of Cognitive Grammar is that it is a non-reductive model. This means that economy of representation is not important, so there are many schematic representations that are elaborated instances of a higher schematic level, even less specified. For example, a fully specified phrase such as "kick my pet giraffe in the shin*"* can be represented as *kick X in the shin*, and this can be further underspecified to form a schema such as *V X in the N*, where V can represent many different transitive verbs, X can be specified into different objects, and N could mean any part of any of the aforementioned objects. (Langacker, 2008)

A second important aspect of Cognitive Grammar is that according to Langacker all linguistic meaning is constituted as symbolic structures: a pairing between a semantic structure (S) and a phonological structure (P). These symbolic structures can be combined to form more complex structures, which Langacker refers to as symbolic assemblies. Symbolic assemblies can be morphemes, words or even grammatical structures, although morphemes

are referred to as degenerate symbolic assemblies, since they cannot be analysed into smaller components. This is illustrated by Langacker (2008) in figure 2.1.

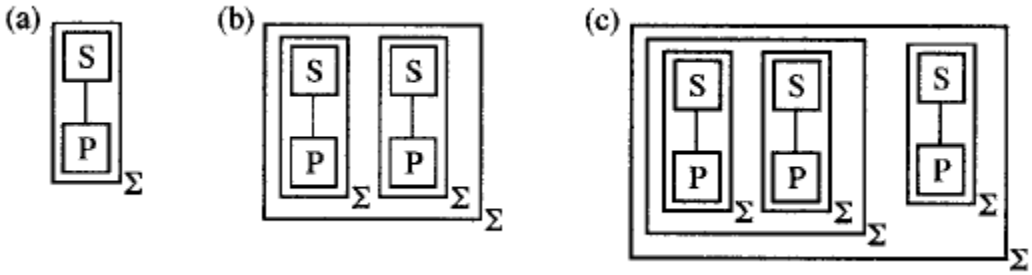

Figure 2.1. Langacker's Symbolic Assemblies.

The implication of understanding all linguistics knowledge as symbolic assemblies is that there is no real distinction between lexicon and grammar, only different levels of schematicity in a continuum (Langacker, 2008; Taylor 2002), where a more specific unit can be considered as lexical, while highly schematic structures belong to grammar. To support this claim, Langacker argues that there are lexical elements whose behaviour resembles grammar, such as morphemes that can be added to words to alter the meaning, or constructions such as idioms, which are analysed as one unit. (2008)

Grammar, then, is reduced to schematic symbolic assemblies, and it is composed of grammatical markers, such as inflections, which have specific phonological representations and a schematic semantic meaning; grammatical classes, which are defined as "a set of symbolic structures that function alike in certain respects" (Langacker, 2008, p. 23); and grammatical rules, which correspond to the explicit characterisation of an observable pattern. According to the Cognitive Grammar model, all grammatical knowledge is based on schemas with various levels of schematicity and semantic complexity, and the notions of how these schemas interact with each other (Langacker, 2008).

Schemas are not only used to create grammatical constructions in language. Schema-instance relations are an important constituent of every aspect of human language, since all of the generalisations and categorisations that are necessary to use language are constructed by the same process of abstraction and identification of patterns from usage events. Everything is judged according to schemas, from the characteristics between phonemes to the differences and similarities that allow us to identify one language from another. Schemas

allow us to make judgements regarding the "well-formedness" of something, by identifying instances as the elaboration and specification of a particular schema (Langacker, 2008; Taylor, 2002).

Within the notion of schema that we have already defined there are some specific types of schemas that have been discussed by previous authors. Johnson (1987) proposes that the meaning structures that articulate language emerge from the patterns that we perceive through experience, and thus give coherence, regularity and intelligibility to our world. The schematic representations of these sensory experiences are known as *image schemas*. Image schemas are a basic form of understanding basic concepts such as UP-DOWN, CONTAINER, PATH, FORCE, etc. Image schemas have their origin in the sensory and perceptual experience that individuals obtain from interacting with the world, constrained by the form and abilities of their bodies and senses (Evans & Green, 2006). They are schematic spatial representations that represent fundamental meanings. (Mandler, 2004).

It is important to keep in mind that image schemas are different from mental images. As the name suggests, image schemas are more abstract and underspecified, while mental images are rich in detail. Some of the most relevant characteristics of image schemas are that they are pre-conceptual, this means that they are grounded on sensory-motor experience, rather than on thought. They are also said to be multi-modal, which means that they do not derive from a single type of experiences, but from many experiential sensorial sources. They are inherently meaningful, since they are the product of embodied experiences that always have predictable consequences. In this sense too, they are analogue, since they are a direct representation of sensory experience, in the form of conceptual schemas. Given that embodied experience is ongoing, image schemas are subject to transformations based on the experiences that motivate them. It is believed that image schemas are the base for the conceptual system to develop, as they give rise to more specific concepts. In spite of the aforementioned characteristics, image schemas are not necessarily simple schematic representations; they can be internally complex and have components that can be analysed separately; because of this, they can occur separately or in clusters of closely related image schemas (Evans & Green, 2006). Lists of image schemas can be found in Langacker (2008), Evans & Green (2006) or in Johnson (1987).

According to Mandler (2004), image schemas are abstractions of the objects that a child perceives in space, eliminating the specific details of each individual object. The main difference of these schemas with others is that they arise during infancy from patters that are observed from the interactions of the child with the world, so they are represented as a basic image, instead of arbitrary symbols. These patterns, although they have their origin in individual sensory experience, are later interpreted and coded with the help of the community to which the speaker belongs, thus becoming cultural modes of experience. Image schemas are defined as structures that organise our mental representations (Johnson, 1987). They can perform this operation because of their high level of generality and abstraction, which enables them to be instantiated in many different specific forms of representation.

Although the first function of image schemas is to be a representation of the experience of different interactions that a person can have in the world, as the conceptual system becomes more complex and linguistic meaning needs to convey more abstract notions, they acquire new functions. Johnson (1987) claims that image schemas are the base for metaphorical extensions of a range of meanings, which allows us to conceptualise the world in a much more complex manner. Metaphor, as Johnson defines it, is the process of understanding and structuring one domain of experience in terms of another, different domain. This is done by extending the meaning of one domain X into a domain Y, thus reasoning and speaking of the domain Y in terms that we would use for X.

Talmy (2000) also describes sets of schemas that structure conceptual thought. He begins by identifying some restrictions to what elements of a language can be specified by means of grammar, regarding the categories to which grammatical elements can belong, for example, in nouns grammar can indicate singularity or plurality, but no language has a grammatical marker that indicates the colour of the object. Furthermore, there are also restrictions regarding the details of the aspect that has been specified. In the example of number, most languages include notions such as *singular, plural, dual, trial*, etc., but not *odd, even, numerable* or *dozen* (Talmy, 2000). Through these types of restrictions imposed by grammar, Talmy suggests that the grammatical system of a language determines our conceptual structure, by specifying structure of the cognitive representation of a sentence, while the lexical elements provide the content.

The notions that can be grammatically specified can be categorised according to the aspect they specify, in "schematic categories", which can be grouped together to form schematic systems. Talmy identifies as systems the CONFIGURATIONAL STRUCTURE, PERSPECTIVE, DISTRIBUTION OF ATTENTION, FORCE DYNAMICS and COGNITIVE STATES, pointing out that there are several others that he does not mention. Each of these systems deal with a specific conceptual dimension, therefore, they are independent from each other, although they can be linked together when it is necessary to construct meaning (Talmy, 2000).

Another system of schemas that has been described in the literature is Dirven & Radden's notion of *Event schemas* (2007). According to them, situations and utterances have schemas that serve as a guide to interpret them, according to the context, and to the most salient aspects of a domain in that context. This meaning is given by the thematic roles that are involved in a given situation, such as experiencer, location, or cause. Event schemas can be defined then as the expectations about the participants and non-participant entities that are involved in determined situations, which are necessary to understand these situations. In language, event schemas correspond to the grammatical constructions and obligatory constituents of sentences, which are known as sentence patterns. Similarly, the participants of event schemas are represented by the arguments that a sentence can take. The sentence patterns are later available to speakers in the form of a "linguistic grid" that allows them to linguistically express event schemas. (Radden & Dirven, 2007)

Within cognitive linguistics it is accepted that the inner conceptual structure by means of which we understand the world is encoded in linguistic semantic structure. Thus, the schemas that are present in linguistic usage are a representation of the human conceptual system (Evans & Green, 2006). Thus, schemas would be the main way by which we organise and structure meaning and categories. Image schemas are particularly relevant for this task, since given their sensory pre-conceptual nature they arise before any other schema, and make up the base for more elaborated schemas to be developed. According to Johnson, schemas constrain meaning, to "give us a more or less comprehensible, patterned world that we can partially make sense of and function within" (1987), by establishing the possible patterns of understanding and reasoning, which are later specified by context.

2.4. Language as access to a world of concepts

The question of where meaning comes from has long been at the heart of inquiries into language. Cognitive linguistics, unlike previous approaches to the issue, does not regard meaning either as something objective nor as contained within language (Rohrer, 2007). Where the traditional linguist asked himself "what's in a word?" and subsequently set out to characterise its contents in a dictionary-like fashion, the cognitive linguist goes for an entirely different path. Instead of regarding words as neatly packaged bundles of meaning, he sees them as prompts or hints for the construction of meaning (Evans & Green, 2006). Thus, meaning is seen as something richer than words —something far exceeding the encoding potential of language alone.

Meaning, thus, should be seen not as a product but as a process whereby language carries only rudimentary instructions that guide our conceptual system in the elaboration of richer ideas (Evans & Green, 2006). To illustrate this point, Evans (2006) uses the following example "The cat jumped over the wall", and argues that even though the utterance itself does not overtly offer any clue as to the exact manner of the cat's jump, we make use of our background knowledge to understand it. Thus, we end up with a "conventional interpretation of the sentence" where "the cat begins the jump on one side of the wall, moves through an arc-like trajectory, and lands on the other side of the wall" (p. 8). Now, in this case we only need to draw very schematic pieces of knowledge about cat behaviour to constrain the possible meanings of "jump over", but the process of meaning construction may yield entire narratives as to make sense of an utterance. Imagine someone told you "I saw an elephant yesterday". Knowing that elephants are not commonplace animals, you may assume that the speaker is trying to say that he went to the zoo yesterday, and saw an elephant there; or perhaps, that he saw a picture of one on the internet; or even, if you know the person to be a joker, that he is being non-literal and is actually referring to a particularly large person. Altogether, the central idea is that language in itself is quite limited and ambiguous, and it requires us to draw on vast networks of knowledge to make sense of it.

Language, then, emerges as only the tip of the iceberg of underlying processes of conceptualisation or meaning construction on the basis of background knowledge, or more technically, knowledge representations already stored in our conceptual systems.

The idea that linguistic meaning cannot be defined in a clear-cut way, so that in order to understand it we require vast amounts of general knowledge is part of what is known as the *encyclopaedic thesis* within cognitive linguistics, and is one of the central assumptions within the sub-discipline known as cognitive semantics. According to Evans & Green (2006) the encyclopaedic thesis can be unpacked into two parts: The first aspect of it holds that semantic structure — the meaning we conventionally associate with certain linguistic units — allows us to access a vast and structured storage of knowledge, which constitutes our conceptual system. The second aspect concerns the nature of our conceptual system, and it holds that our knowledge is grounded in both our social and physical experience. That is to say, our knowledge bears the imprint of our history of interaction with others, and with the world around us, an idea fundamental to the whole cognitive paradigm known as the *embodied cognition thesis*.

In the following, we will briefly characterise the embodiment thesis as first proposed by Lakoff and Johnson (1980). In their seminal work *Metaphors We Live By*, they drew a correspondence between the nature of human embodiment (our physical, cognitive, and social characteristics) and our conceptual structure (i.e. how our thoughts are structured, or in broad terms, the way we think). They concluded that our conceptualisation of a wide range of experiences as reflected in language stemmed from a small number of conceptual metaphors. They showed that the process of *metaphorical projection* by which these conceptual mappings are established often relied on more concrete concepts arisen from our embodiment (body, environment, and culture) to structure more abstract concepts with no such clear experiential basis (Rohrer, 2007). Later on, Johnson (1987) proposed the notion of *image schemas* to explain how contents in our conceptual structure emerged from embodied experience. According to him, image schemas would be pre-conceptual "bits of knowledge" that derive directly from our interactions with the world, such as COLOUR, SPACE, TEMPERATURE, PRESSURE, PAIN, etc.

Johnson's (1987) explanation of our conceptual systems draws on an idea previously put forward by Charles Fillmore (1982). While developing what has come to be known as *frame semantics theory*, Fillmore proposed the notion of a *frame*, which he defines as a detailed knowledge representations or schematisations arisen from experience, and without which we could not make sense of the world — much less of words (Geeraerts, 2006). Thus,

the knowledge required to make sense of a word partially comprises the knowledge of the different frames with which that word is associated. In his formulation of the concept of frame, Fillmore was drawing from Gestalt psychology and its figure/ground distinction to configure particular lexical concepts as part of a larger conceptual frame (Evans & Green, 2006). Also informed by Eleanor Rosch's (1973) research on prototype theory, he defined a frame as a "background against which the meaning of a word is defined and understood (…) and this background understanding is best understood as a prototype rather than as a genuine body of assumptions about what the world is like" (in Geeraerts, 2006, p.379). Thus, according to Fillmore, the rich network of knowledge that we use in order to understand a word is constituted by frames or schematisations of experience. Conversely, when we make use of different words pertaining to the same frame, we highlight different aspects of the experiential scene to which the frame relates.

Each frame would be comprised of a set of attributes, such as participant roles, and certain argument structure, namely, the number of arguments it requires (Evans & Green, 2006). Let us illustrate this point using the THEFT frame, which would encompass the participant roles of an AGENT, a PATIENT, and an OBJECT. Respectively: the thief, the person being robbed, and the stolen goods. Subsequently, each particular concept within this frame will make use of certain argument structure, highlighting only certain aspects of the larger frame. For instance, the argument structure of the verb *to rob* such as in *"*I was robbed*"* only requires two participant roles: AGENT and PATIENT, whereas the verb *to steal* such as in *"*He stole the money*"* requires only AGENT and OBJECT. Additionally, an interesting consequence of the existence of frames is that we are able to *recover* participant roles even when they are not being mentioned. For instance, even when in the passive voice construction "*T*he money was stolen" we are only profiling the object, we immediately assume that the robbery was committed by someone (AGENT) to some other person (PATIENT). Thus, not only are there alternative ways of linguistically encoding a situation sanctioned by frames, but each alternative of encoding carries a particular perspective over the scene (Evans & Green, 2006).

Developed in parallel to Fillmore's frame semantics, and also crucial to understand the encyclopaedic thesis, is Langacker's (1987) theory of domains. Domains, according to him, would be conceptual entities or knowledge structures of varying degrees of complexity that provide the background information necessary to understand lexical concepts **(**Geeraerts,

2006). Langacker, thus, uses quite a similar wording to that used by Fillmore when talking about domains. That is why in general both terms are used interchangeably.

Now, when Langacker talks about domains as conceptual entities of varying degrees of complexity, he is making an analogy. Just as concepts presuppose the existence of domains, there are more complex domains that presuppose more basic ones. At the most basic level he locates those domains that derive directly from pre-conceptual embodied experience (Evans & Green, 2006), such as the experiences of time and space. In Langacker's words, basic domains are those "cognitively irreducible representational spaces or fields of conceptual potential" (Geeraerts, 2006, p.32), this is, the conceptual entities that in order to be understood only require the image schemata proposed by Johnson (1987).

Having said this, one question remains: How do frame semantics theory and domain theory fit together? Well, as it was previously mentioned, both theories complement each other.

Firstly, while Fillmore argued that concepts can be alternatively structured via different frames, Langacker formalised this equation through the notion of a domain matrix, which he defines as the range of domains or frames that structure any single lexical concept (Evans & Green, 2006).

Secondly, Langacker adds the factor of a hierarchical organisation of domains within the conceptual structure (Evans & Green, 2006), establishing a conceptual continuum between image schemata, basic domains, and increasingly more abstract domains.

Finally, just as Fillmore proposes a figure/ground relation between concepts and frames, Langacker puts forward the idea of a profile-base conceptual organisation, whereby only certain aspects of the whole knowledge network are required in order to understand a particular lexical concept (Evans & Green, 2006). Thus, a base is defined as the segment of a domain matrix that is required in order to make sense of the entity highlighted by a word—the profile (Evans & Green, 2006).

Altogether, we see that there is nothing in a word or lexical concept in itself. But rather, it is the associations to our background knowledge, and the process of conceptualisation that this prompts, which makes it meaningful.

2.5. Why isn't non-literal language exceptional? Traditional approaches to metaphor and metonymy

In Cognitive Grammar, Langacker rejects any strict boundary between lexical and non-lexical expressions, since familiarity and conventionality are considered just as matters of degree. Accordingly, lexical units are "expressions that have achieved the status of units for representative members of a speech community" (2008, p.16). For example, a lexical unit such as *moonless night* is distinctly analysable into *moonless* and *night*, as well as, *moonless* into *moon* and *-less*. The acquisition of lexical units can be achieved through the process of *schematisation*. Langacker states that the schematisation leads to the extraction of a schema that generalises over a more diverse group of category members, i.e., the schematisation occurs when the commonality inherent in multiple experiences is reinforced in order to represent a higher level of abstraction. For example, the basic notion of *ring* - broadly "circular piece of jewellery worn on the finger" - is considered schematic in relation to the idea of specific rings in specific contexts, which can be varied depending on its size, material, identity of the wearer, etc., thereby, schematisation can be carried out at different degrees, based on the diversity of elements (see Figure 2.2) Since *ring* is not necessarily used on the finger, the conception of 'circular piece of jewellery' can be assumed as a more schematic value for the notion of 'circular piece of jewellery worn on the finger' which constitutes an "elaboration" or "specific instantiation" However, it can also be the case that some schemas represent "extensions" from others, i.e., there exist certain conflicts between the conceptual specification of a term and the schema that is sanctioned by it. For example, the notion of "circular piece of jewellery worn on the nose" does not fully satisfy the specifications of "circular piece of jewellery worn on the finger', but it is still assimilated to the category on the basis of its perceived similarity, for instance, the latter conception corresponds to the category prototype for the extension.

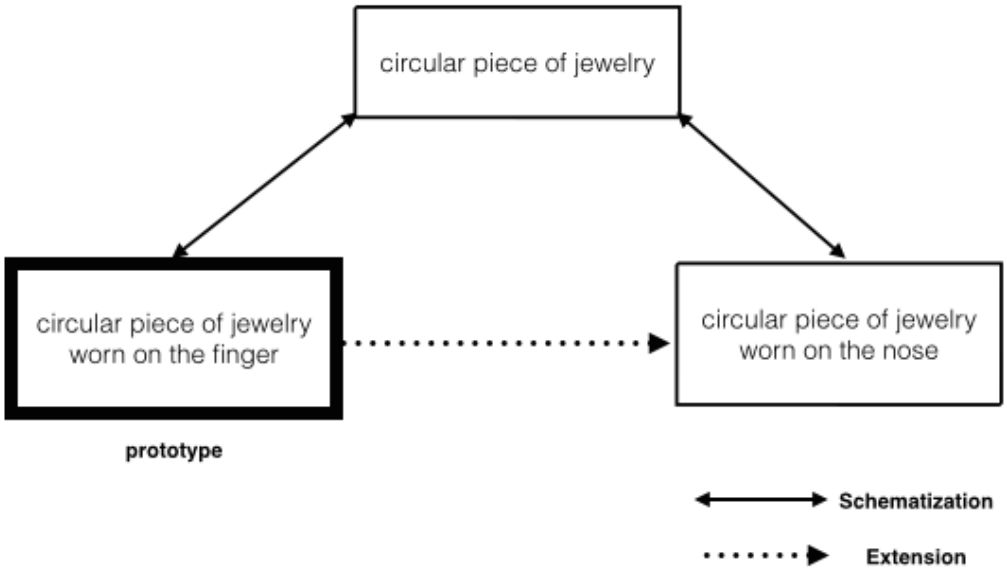

Figure 2.2 Schematisation and Extension based on Langacker's view.

Throughout the schema-extension model, Langacker stresses that this view of categorisation can be "a principled basis for characterising many facets of semantic and grammatical structure" (2008, p.31). In other words, lexicon and grammar can be reduced to schematic symbolic assemblies, where a composite structure is foregrounded relative to its components. For instance, if a language user uses a term [A] in order to categorise an entity (B), then [A] is used to categorise a specific group of entities while (B) is one usage event, i.e., its pronunciation and contextual understanding. Additionally, if [A] can be elaborated in its totality in (B), then the latter instantiates [A] representing their abstract commonality under the assumption that (B) is semantically well-formed and conventional in terms of a linguistic unit [A]. On the other hand, if there are some conflict in specifications between [A] and (B), that means that (B) is not conventional with respect to [A]. Nevertheless, when language users still invoke unit [A] to categorise (B) by virtue of some perceived similarity, [A] might be the basic meaning of a lexical unit while (B), a semantic extension from its prototype. For example, using the term *mouse* to refer to a piece of computer equipment is a consequence of the perceived resemblance between a mouse and an item of computer hardware (e.g. in shape) that affects the conventional language use. This new usage is only partially sanctioned by the existing construction that has become conventionalised throughout its recurrent usage (Evans & Green, 2006). This means that extension gives rise to prototypes. Both *mouse*

"computer hardware" and *mouse* "animal" are probably perceived as to the same category within which *mouse* "animal" is a prototype.

Moreover, Langacker points out that a speaker's knowledge of grammatical rules resides in a vast "inventory of symbolic assemblies ranging widely along the parameters of schematicity and symbolic complexity" (2008, p.24). The structure of the inventory results from the fact that conventional units can be combined, thus forming composite structures. Hence, the inventory of units is highly structured when the assemblies bear a variety of relations to one another, such as instantiation, overlap, and inclusion. Since grammatical rules are patterns in the formation of symbolically complex expressions, they themselves are schematic assemblies that embody their common features. Moreover, these conventional units are assumed to be abstracted from occurring expressions where schematisation occurs in that recurring commonalities inherent are reinforced. Thus, the language user still perceives some commonality between the fixed expressions. For example, once abstracted to represent the commonality between certain specific unit expressions such as *moonless night*, *childless couple*, *hopeless situation*, etc., the schematic assembly *N1 + less N2* is consequently attainable to sanction the occurrence of novel expressions like *moonless world*, *dollarless surgeon*, and *ireless dwarf*.

Since our human ability to evoke frames and domains permits us to extend our inventory of conceptual and linguistic categories, we are constantly exposed to changes and innovations in the world. As a result, we need to categorise a particular group of entities conceptually and we often express them through linguistic categories. According to Radden & Dirven, one of the alternatives to deal with these new occurrences is to create new, especially compound words. Nevertheless, the sheer number of new expressions that would have to be coined would possibly exceed the capacity of our memory and make communication impossible (2007). In view of this, the authors suggest that, instead, we make use of our existing linguistic categories and extend their meanings, i.e., the conceptual categories associated with them. Within different means of extending the senses of a linguistic category, metaphor and metonymy are known as the two most traditional mechanisms of semantic change. In Cognitive Linguistics, these two conceptual shifts are known as "mappings" which involve projections of one set of conceptual entities onto another set of entities.

In ancient Greece, metaphor was known as the master trope to persuade others from a particular point of view throughout the use of poetic expression. This rhetoric device was characterised by the schematic form: A is B, as in *Achilles is a lion*, which is based on comparison of two categories. As explained in Aristotle's *Poetics*, metaphor consists in "giving the thing a name that belongs to something else; the transference being either from genus to species, or from species to genus, or from species to species, or on grounds of analogy" (Aristotle, trans. 2008). Moreover, the classical theory was taken so much for granted over the centuries that many people did not conceive that it was just a theory. Even more, the classical theory came to be taken as definitional, i.e., the word "metaphor" was defined as "a novel or poetic linguistic expression where one or more words for a concept are used outside of their normal conversational meaning to express a similar concept" (Geeraerts, 2006). Nevertheless, in the context of *Rhetoric*, Aristotle seems to have recognised the cognitive function of metaphor. He suggests that metaphor produces understanding and recognition through its use of generic similarity, whereby the mind must think out the resemblance: "When the poet calls "old age a withered stalk", he conveys a new idea, a new fact, to us by means of the general notion of bloom, which is common to both things" (Aristotle, trans. 2008). Among the America's outstanding modernist poets, Stevens expressed a similar thought about metaphor when he wrote in his *Adagia* that reality is a cliché from which we escape by metaphor (Stevens, 1992). Here, Stevens argues that metaphor appears as the imaginative means that allows us to create a "new" reality. Once we are ensconced in that new perspective, the former reality will no longer seem a cliché, but it will seem unreal and false, precisely because this new "reality" is already taken for granted as reality.

In general, classical theorists were guided by the assumption that metaphors were primarily in the realm of poetic or *figurative* language in which its metaphorical expressions were assumed to be mutually exclusive with the realm of everyday conventional language. Cognitive Linguistics has however brought new perspectives to the study of metaphor: The generalisations governing poetic metaphors are not in language at all, but in thought. Specifically, metaphors are referred to as mappings across conceptual domains that are not solely applied to novel poetic expressions but also to ordinary everyday language. According to Lakoff, the locus of metaphor is not in language but in "the way we conceptualise one

mental domain in terms of another" (Geeraerts, 2006, p. 166). In addition, cognitive linguists have considered metaphor as a device of structuring our conceptual system and the kinds of everyday activities we perform rather than as a matter of language. Precisely, this idea that metaphors can create and determine our everyday realities goes against most classical views of metaphor. Primarily, Conceptual Metaphor is likely to be the notion that occupies a major place in the cognitive linguistic approach. In *Metaphors we live by*, Lakoff and Johnson (2003) provide a systematic overview of the theoretical and practical features of Conceptual Metaphor Theory. Crucially, this contemporary theory of metaphors has become one of the main principled theories within Cognitive Linguistics: Metaphor is not a rhetorical figure but is a pervasive device both in thought and everyday speech. On the basis of linguistic evidence, the authors support the idea that most of our ordinary conceptual system is metaphorical in nature. Furthermore, Lakoff's Cognitive Metaphor Theory explains that a given metaphor need not be restricted to a single item, but may generalise over different expressions. Specifically, a conceptual metaphor consists of two domains, in which one domain is understood in terms of another, a process based on an 'as-if connection': CONCEPT A IS CONCEPT B. For example, an overall statement like LOVE IS WAR summarises a general pattern that ranges over expressions like "she fought for him", "she pursued him relentlessly", "he overpowered her", etc. Here, the domain WAR corresponds to the metaphorical source domain that is mapped onto the domain LOVE, the metaphorical target domain (see figure 2.3) (Geeraerts, 2006). Respectively, Benczes supports that language users are able to think and talk about a highly abstract concept such as LOVE through the help of conceptual metaphor. Generally, the most common target domains are highly abstract concepts, such as EMOTION, DESIRE, MORALITY, THOUGH. SOCIETY, POLITICS, ECONOMY, HUMAN RELATIONSHIPS, TIME, COMMUNICATION, etc. In contrast, the source domains of many metaphors are image-schematic, i.e., they rest on basic schematic structures that are directly meaningful, such as UP and DOWN, or FRONT and BACK. As Kövecses (2010) claims, the source domains are commonly more concrete or physical, and more clearly delineated concepts than the targets, such as the HUMAN BODY, HEALTH AND ILLNESS, ANIMALS, PLANTS, BUILDING AND CONSTRUCTION, MACHINES AND TOOLS, FOOD, MONEY, HEAT AND COLD, LIGHT AND DARKNESS, MOVEMENT AND DIRECTTION, etc. Also, the conceptual metaphor is distinguished from metaphorical linguistic expressions. The latter are manifestations of conceptual metaphors in language. For example, the verb in "I *hunger* for

you" is a metaphorical linguistic expression of the LOVE IS HUNGER conceptual metaphor (Radden & Dirven, 2007).

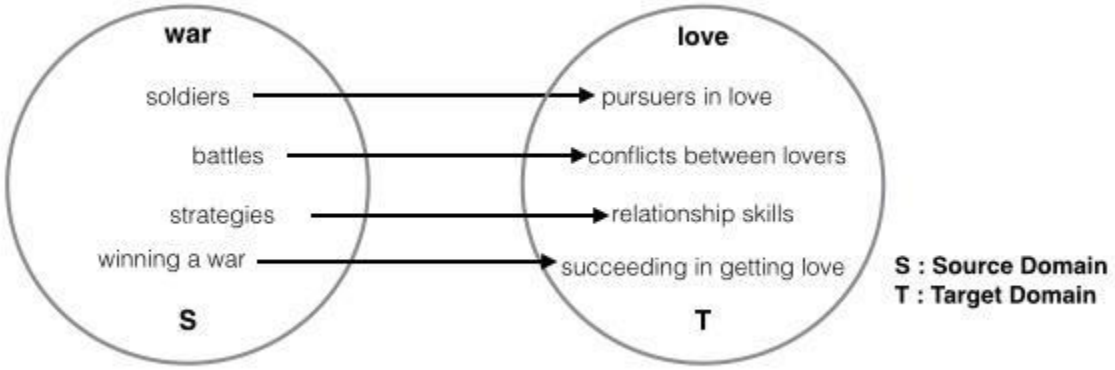

Figure 2.3. The representation of cross-domain mapping LOVE IS WAR.

Similar to metaphor, the traditional concept of metonymy has been characterised as a figure of speech. For example, In the *Poetics*, Aristotle treated metonymy as a subclass of metaphor, dealing with some metonymic relations under his classification of different definitions of metaphor (Aristotle, trans. 2008). Furthermore, the earliest definitions of metonymy can also be found in the treatise *Rhetorica ad Herennium*: "Denomination (i.e., metonymy) is a trope that takes its expression from near and close things and by which we can comprehend a thing that is not denominated by its proper word" (Panther & Radden, 1999, p.631). However, Kövecses (2010) points out that despite the general acceptance of the above definition, metonymy plays an important role in our cognitive activities. Metonymy is also conceptual in nature, broadly based on a "through-connection", whereby, we use one entity to provide mental access to another entity that operates within the same domain or frame. Lakoff and Johnson argue that metonymy, unlike metaphor, involves a metonymic mapping that occurs within the same domain, which is structured by an ICM [idealised cognitive model] (2003). For example, the expression *The Crown* is used to stand for a 'monarch' which is described as MONARCHY frame. Since a crown is the most distinguishing part of a monarch's attire, this object has become the conventionalised symbol of its royal wearer. In addition, Radden and Dirven (2007) explain that a conceptually salient conceptual entity, such as *crown* can be defined as a "reference point" which allow us to access another conceptual entity, such as *monarch*, the target (this is not to be confused with

"target domain" as used in connection with metaphor). This type of processing is the PART FOR WHOLE metonymy, i.e., we trace a "mental path" to access a whole (MONARCH) via a salient part (CROWN) (see figure 2.4). In Cognitive Linguistic literature, we can find many other conceptual metonymic relationships, such as PRODUCER FOR PRODUCT, PLACE FOR THE EVENT, PLACE FOR THE INSTITUTION, PART FOR WHOLE (i.e., synecdoche), CONTAINER FOR CONTENTS, etc.

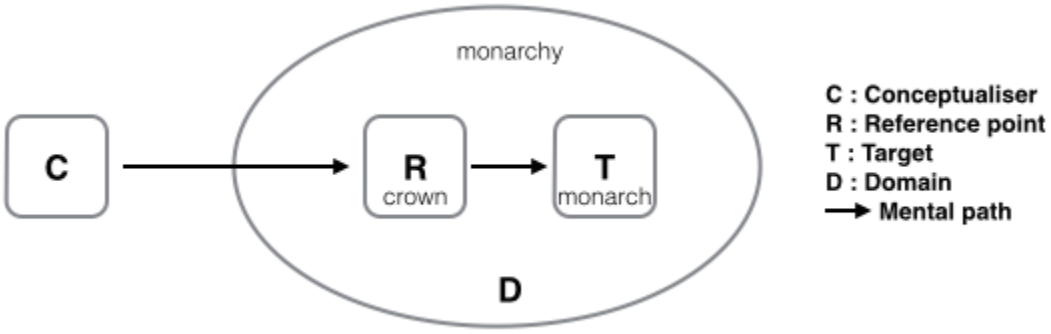

Figure 2.4. The process of selecting a metonymic reference point within a domain (or ICM) to provide access to a target.

Moreover, most metonymic expressions are not isolated but come in larger groups that are described by a specific conceptual relationship between one kind of entity and another kind of entity. For example, in the expression "We had *octopus* for lunch", the count noun *octopus*, commonly known as an invertebrate animal that inhabits oceans, is used as a mass noun and describes the food substance acquired from an octopus. Therefore, this example would be an instance of the OBJECT FOR SUBSTANCE conceptual metonymy (Radden & Dirven, 2007). Furthermore, the notion of metonymy has also been introduced as the way we conceptualise category structure. As Lakoff (1987) explains, a major source of prototype effects is metonymy: a subcategory or submodel stands for the whole category. This surface phenomenon is exemplified by the social stereotype of the *housewife-mother*. Accordingly, Lakoff argues that social stereotypes are cases of metonymy, where a subcategory (*housewife-mother*), has a socially recognised status as standing for the whole category (MOTHER) in defining cultural expectations of mothers. Generally speaking, Western culture already holds the premise that a stereotypical mother is a housewife-mother.

2.6. NOUN – NOUN Compounds in Cognitive Linguistics

NOUN-NOUN compounds are structures that have been widely studied in linguistics, for the complexity they have. Our stock of vocabulary, commonly known as 'lexicon', is constantly renewing and accepting new words, thus innovation takes a central role when it comes to language.

First of all, nominal compounds are constructed by children from a very young age with the intention of subcategorize things in the real world. Hence the intentions behind the creation of nominal compounds is to fill lexical gaps of information (Clark, 1985). If we think about the word *firefly,* a child would understand it as a type of fly. Besides subcategorization per se, the results obtained by Clark suggest that children construct nominal compounds in order to subdivide and organise categories taxonomically from as young as 2 to 6. Therefore, the creation of the aforementioned structures has a fundamental role in word formation from an early stage that persistently continues throughout our entire life as adults.

Secondly, nominal compounds differ from other similar constructions such as phrases, clauses and sentence structures, that at first glance could be considered as equivalent. However, compounds are frequently said to have a name-giving function, in order to represent a category or to refer to a lexicalized concept, while similar structures such as phrases, are usually said to have a predominantly descriptive function (see Kotowski et al, 2012). More concretely, if we take into account the expression *black elephant as* a phrase, one could immediately interpret that there is an elephant of a black colour or painted black, given that we are interpreting that the phrase provides information about the visual characteristics of a certain entity (ADJ+NOUN). In contrast, when it comes to *black elephant* as a compound, it behaves as a noun and it refers to an unlikely but significant risk that everyone knows about, but no one wants to discuss (e.g. "there are a herd of environmental *black elephants* gathering out there". Hence, in grammatical terms, it is observable that compounds are not accessible to syntactic operations or analysis, therefore, they cannot be grammatically decomposed but they present lexical integrity. That is the reason why compounds tend to become morphologically integrated, something that is shown in the following contrast: "there come huge *black elephants*" and the description "There come huge elephants that are black" .In terms of semantics, compounds are more limited in terms of

interpretability due to the fact that they have an established or stable meaning that often refers to categories, types, etc.

The most traditional and influential approach to compounds is given by the structuralist Leonard Bloomfield (1933), who proposed the separation between *endocentric* and *exocentric* compounds. Accordingly, endocentric compounds apply to those structures such as *blackbird* which is catalogued as a type of bird, or *door-knob* as a kind of knob, thus endocentric compounds are defined as having the same function as their head member. As for compounds such as *turnkey* or *pay day*, these are considered exocentric on the basis of the verbal characteristic of the head element, namely *turn* and *pay*, (Bloomfield 1933, p. 235) so, the core element does not coincide in function with the modifier constituent inside the N-N structure. The latter group of compounds triggers several issues, especially if we bear in mind that there exists a significant amount of compounds in which it could be hard to specify where the head element is located and its very nature. For instance, if we think about the meaning of the expression *salad dodger*, which is not a type of salad or a type of dodger but an overweight person who persistently avoids healthy foods, we are no longer certain about the head of the compound even when both components act as nouns. Hence the meaning of exocentric compounds is darkened or opaque due to the fact that the speaker cannot clearly deduce the meaning from its constituents. This in turn brings up the question of how to measure this transparency of meaning in a systematic way.

In relation to the exocentricity issue, Reka Benczes (2006) suggests that exocentric compounds are 'headless'. Additionally, she suggests a renewed explanation different from Bloomfield's taxonomy. Benczes claims that it is not a matter of exocentricity but of complex metaphorical/metonymical nature. Besides, Benczes (2005) points out that, bearing in mind Bloomfield (1933), Jespersen (1954) and Marchand (1960), when it comes to what compounds should be considered exocentric, an unambiguous answer to this question does not simply exist. Indeed, there is great disagreement in the field of linguistics regarding the definitional criteria for semantically exocentric compounds.

2.7. Benczes' account of NOUN - NOUN Compounds

Benczes' account of NOUN - NOUN compounds starts with the understanding of the metaphor *land fishing*. She gives three facts that help us to understand these types of NOUN-NOUN compounds. First, she explains how we are often in the presence of metaphor-based constructions. This frequent situation makes us responsible for the contextual cues involved which lead us to search for metaphorical interpretation of a lexical item. Second, our familiarity with this type of compounds (NOUN - NOUN) shows us a degree of compositionality in which the meaning of the constituents motivates the meaning of the compound. Consequently, we arrive at a possible interpretation called *conceptual integration* or *blending*. Blending is an imaginative aspect of the mind, such as conceptual metaphor and metonymy, frames, mental spaces and prototypes. We will refer to this concept later. Finally, the unconscious use of metaphors in everyday language demonstrates the presence of a vast repository of metaphorical and metonymical associations activated efficiently and quickly when encountering NOUN - NOUN compounds.

In order to obtain a better understanding of these facts given by Benczes (2006) we have to remember that one of the central issues in the classification of NOUN - NOUN compounds is their "centricity," a concept already explained and that will be taken up later on in this section.

NOUN-NOUN compounds are formed by a *modifier* and a *profile determinant* or *head* which are systematically related, for Benczes' purposes, in relation to which part of the compound is activated by conceptual metaphor and/or metonymy. Generally, the modifier corresponds to the first constituent of the compound (N_1) whereas the head is the second constituent (N_2) present in N_1-N_2 compounds. Therefore, the left-hand member somehow modifies the right-hand member resulting in a modifier-head structure. The head is the pivotal unit in complex linguistic structures due to it carries the semantic and syntactic information of the compound. Thus, if the head is a noun, the compound will be a noun too (Plag, 2002). The pluralisation of the compound also occurs in the head. If the compound is *parks commissioner,* then the compound is singular. But, if the compound is *park commissioners* then the compound is plural (Plag, 2002).

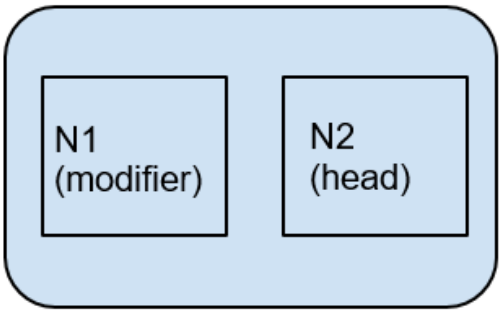

Figure 2.5. Compound formed by modifier N1 and head N2.

According to the architecture and cognitive processes that underlie the formation of metaphorical and metonymical compounds, Benczes (2006) explains that there exists systematicity among these compounds, in terms of part activation, relationship between constituents, or the compound as a whole.

Going back to the concept of "centricity" mentioned above we have that some compounds contain the core-semanticity/interpretation of the compound within their head, whereas some others do not. In cases where the interpretation is not contained in the compound there is a structure that represents our understanding of the compounds' interpretative "headedness." In this sense, we understand that when two nouns come together, each of them contain information. This information is maintained differently in accordance to the centricity of the compound. On the one hand, in endocentricity, integration of their meanings maintains the information contained within one of the Ns as central. On the other, in exocentric compounds, the information must be in an emergent space, which is essentially a *mental space*. Mental spaces are "partial representations of entities and relations of any given scenario, as perceived or understood by the speaker" (Benczes, 2006, p. 53). Thus, discourse entities are represented by elements within the mental spaces while the relationships between these entities are represented by simple *frames*. A frame corresponds to a structured collection of concepts which function as specific roles within the frame (Jensen, 2009). In order to understand one concept we need to understand them all, thus "we basically filter and interpret input from the world through frames" (Jensen, 2009, p. 3).

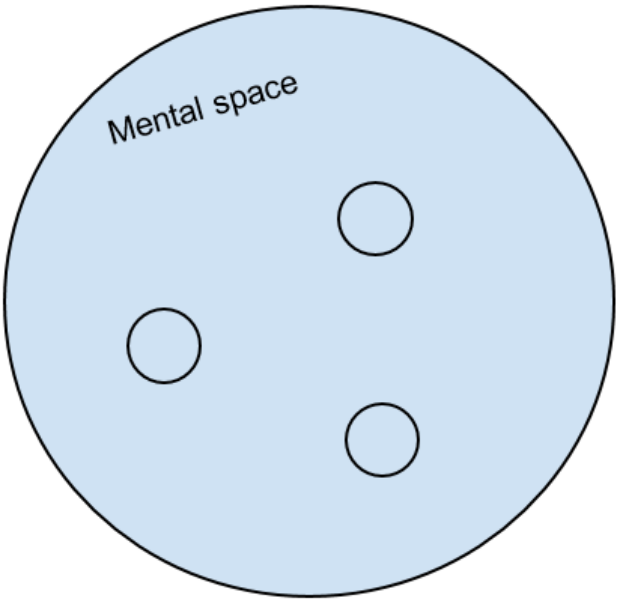

Figure 2.6. Representation of the concept of Mental Space and Frames.

Returning to N-N compounds, we have that each N represents a mental space, then their integration is a mental space blending of two inputs: X and Y. If endocentric, then the outcome is in great extent present in one of the inputs. But, if exocentric, then the interpretative head is on "emergent spaces."

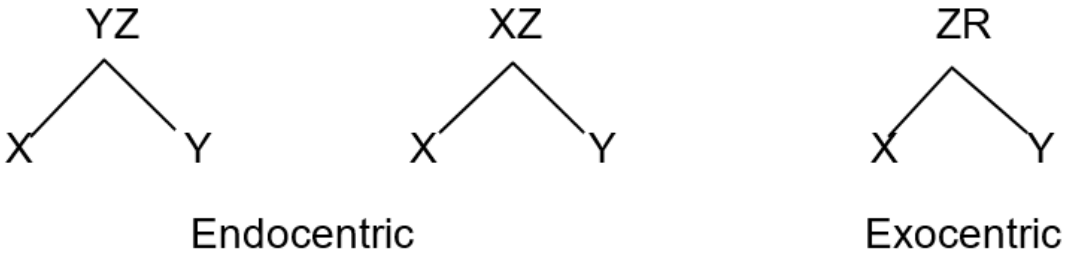

Figure 2.7. Endocentric and exocentric outcomes.

In her book, Benczes sustains that the approaches towards N-N combinations are not in a general consensus but that the blending theory has given entrance to provocative proposals on the analysis of compounding. Therefore, we have also relied heavily on *blending* in the same fashion as her.

In order to introduce this *blending theory*, it is important to understand that all of the grammatical structures in language are claimed to be symbolic, "providing for the structuring and conventional symbolisation of conceptual content" and that these grammatical structures (lexicon, morphology, and syntax) "form a continuum of symbolic units, divided only arbitrarily into separate 'components'" (Langacker, 1986, p. 2). There exist three basic types of units: semantic, phonological and symbolic. A symbolic unit is bipolar, this means that it consists of a semantic pole and a phonological pole: [[SEM]/ [PHON]], or exemplified as: [[LAMP]/[læmp]]. Thus, this schematisation applies also to nouns and verbs, where the first would be [[THING]/[X]] and the later [[PROCESS]/[Y]]. The focus of cognitive linguistics is on the relations that can exist between units (phonological, semantic or symbolic). In the case of the semantic units, they combine to each other through *valence relation*, in order to form more complex structures. Taylor (Onysko & Michel, 2010) defines *valence* as "the combinatorial possibilities of the unit." Benczes states that this type of relation can be described as: head-complement (when a complement elaborates an entity already present in the semantic structure of the head) and head-modifier ("In an expression YZ, X and Y are in apposition if x and y each designate one and the same entity") (Taylor 2002, p. 235).

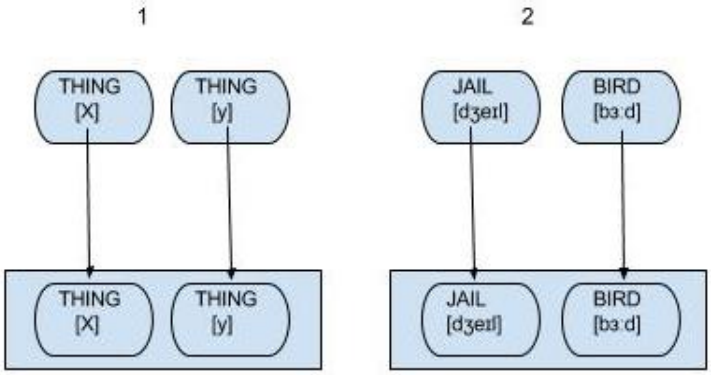

Figure 2.8. Noun-noun constructional schema *jailbird.*

The constructional schema for forming NOUN - NOUN compounds in English, whereby two nouns are combined into one semantic unit, can be observed at the left side of figure 2.8. While, at the right the constructional schema of the NOUN - NOUN compound jail bird is presented. Thus, jail and bird are both components of the composite expression *jailbird* which comes from the application of a noun-noun constructional schema.

Another example of this regular pattern in English compounding is *milk carton.* On the one hand, phonologically, *milk* and *carton* are words, but on the other hand, semantically, *milk* and *carton* are nouns and each profile a thing. The composite structure *milk carton* semantically profiles a *carton* for *milk*. According to Benczes (2006), the component and composite structures are linked by semantic correspondences. In the case of the composite structure *milk carton* we have that the semantic correspondences of *milk carton* equate the underspecified container evoked by *carton* to the specific contained profiled by *milk*. Important to remember that container is an image schema which is defined as schematic representations of our sensory experiences. Hence, it is concluded that the composite structure is more specific than the thing that it profiles. It is important to note also that the profile determinant of *milk carton* is *carton* due to the fact that it construes the same scene as the composite structure. While the modifier of the construction is *milk*, "as it is this component's salient substructure that is elaborated by the profile determinant" (Benczes, 2006, p. 47).

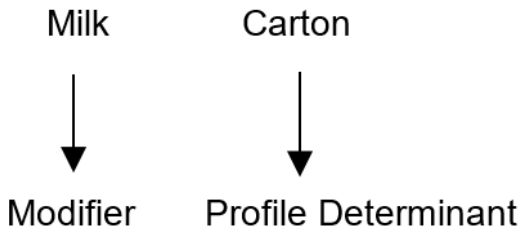

Figure 2.9. Milk corresponds to the modifier and *carton* is the profile determinant.

After making this review on the composite structure, the components of noun-noun constructions and the centricity of the compounds, it is accurate to continue with the *blending theory*. Blending Theory is developed from Fauconnier's *Mental Space theory* (1984). *Mental spaces* are partially assembled concepts that consist on representations of entities and relations of any given situation. As we already know, they are structured by *frames* and "are connected to long-term schematic knowledge, such as the frame for walking along a path, and to long-term specific knowledge, such as a memory of the time you climbed Mount Rainier in 2001" (Fauconnier, 2007, p. 351). Furthermore, mental spaces are connected by mappings which establish correspondences between elements in different mental spaces. In

a phrase such as *"when I was fifteen I had a dog"* there is a mapping between the speaker in the past (when he/she was fifteen) and the speaker at the moment of speaking.

Thus, the development of blending theory aimed at accounting for "cases where two or more spaces yielded a so-called blended space which contained selected aspects of structure from each input space and quite often an emergent structure of its own" (Benczes, 2006, p. 53). According to Turner (2010), blending is a term that refers to a basic mental operation in which input mental patterns are integrated to create a new mental arrangement, *"the blend."* It also involves selected aspects from inputs and typically an emergent structure that is not present in any of the given inputs. In respect to Benczes (2006), the emergent structure arises out of three processes: *composition, completion* and *elaboration*.

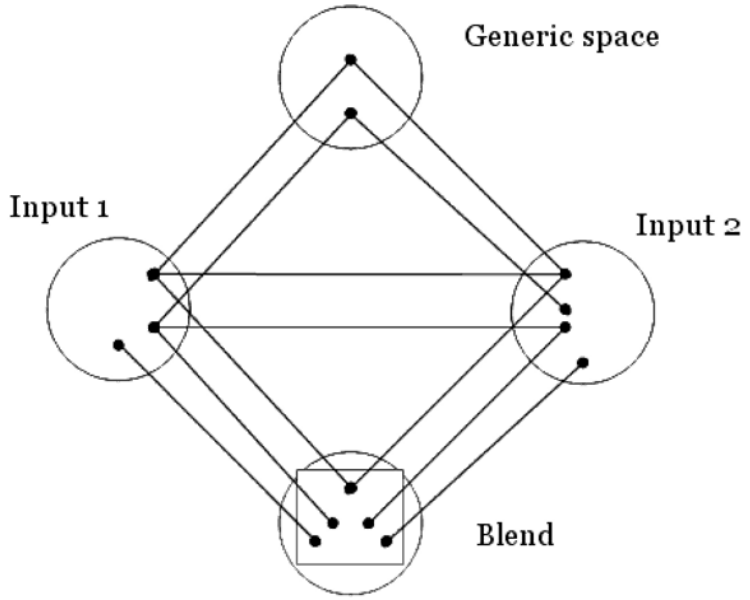

Figure 2.10. Blending Theory by Fauconnier and Turner (1998).

Due to the complexity of blended spaces, Fauconnier & Turner (1998) suggest the *optimality principles* that constrain the emergence of blends. Furthermore, Fauconnier and turner (2002) recognise various types of blending processes which are characteristically different:

1. Simplex networks: In this conceptual integration, blending takes place almost unnoticeable. The most representative example, given by Fauconnier and Turner (2002) and Benczes (2006), is the notion of *family* which underlines terms such as *father*, *mother*,

daughter, etc. Thus, the two input spaces integrated in the blended space are: the FAMILY domain (*father* and *daughter*) and the INDIVIDUAL PEOPLE domain (*Paul* and *Sally*). Individual people fill the open slots in the family domain. Therefore, simplex networks have a domain which contains a set of roles (family roles) and a domain with elements that fit these roles.

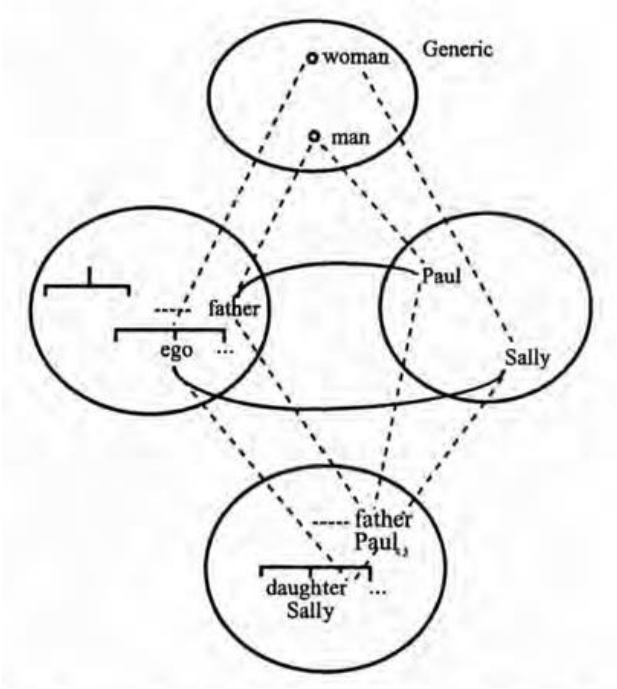

Figure 2.11. Simplex network (from Fauconnier and Turner (2002)).

2. Mirror networks: In this type of integration, an organising frame (specifies the nature of the activity, events and participants) is shared by the generic space, the inputs and the blend. An organised frame provides organised relations among the elements in the space (*cross-space mapping* between inputs becomes straightforward) (Fauconnier & Turner, 2002). However, at a specific level this topology can differ and also an *emergent dynamic structure* can appear (structure that cannot be found in any of the inputs).

3.Single-scope networks: This integration is the prototype of conventional *source-target metaphors*. It has two input spaces with different organised frames and one of them is projected in order to organise the blend. Thus, the organising frame of the blend is an extension of the organising frame of only one of the inputs (Fauconnier & Turner, 2002).

Consequently, this integration gives the idea that one thing is given us insight into another thing, despite of the asymmetries between them.

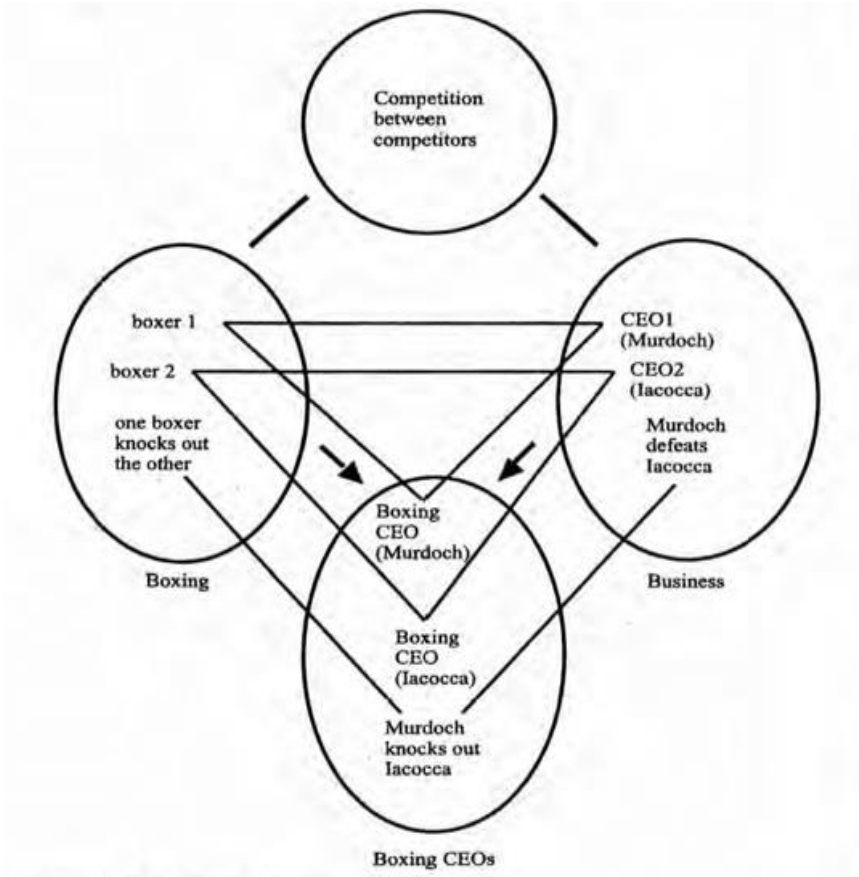

Figure 2.12. Single-scope network

4. Double-scope networks: This conceptual integration presents different organising frames for each input and a different organising frame for the blend. The blend includes parts of all the organising frames present and has emergent structure of its own (Fauconnier & Turner, 2002). The blend in this network can be highly creative due to it contains contributions from two different organising frames. Furthermore, these differences offer the possibility of rich clashes, which are challenges to the imagination.

5. Multiple-scope networks: This type of integration is based on several input spaces, as in *"*she was red with anger,*"* we encounter the *heat input*, *emotion input* and *body input.* After mapping elements such as exploding (from heat input), reaching extreme anger (from anger input) and beginning to shake (from body input), we can run this blend to develop further

emergent structure, and new elements can be added to the inputs. An example of the developed emergent structure in this case would be the element *smoke,* as in *"*She was so mad, I could see smoke coming out of her ears.*"* Thus, inferences can be projected in the *emotion input* and *body input* (extremely angry and showing physiological signs).

An important observation made by Benczes at this point was that *blending* is a regular process that goes generally unnoticed. Although it is a complex process, it is still rooted in our imagination. Furthermore, she states that "language users need to construct blends on the basis of conceptual metaphors and metonymies and pre-existing frames of understanding" (Benczes, 2006, p. 58).

Chapter 3
Theoretical Framework and Methodology

3.1. Beyond Benczes' typology

Generally, it is common in the literature to speak about the study of word-formation. Moreover, it is well-known that there are distinct manners of creating new words such as affixational, non-affixational and compounding processes (Plag, 2002). In general terms, compounds are product of the process of creating novel forms from existing resources, hence each element in the compound and composite form establishes new semantic connections in pursuing a compound. The raison d' etre that supports why scholars have drawn attention and given prominence to the study of compounding is due to the fact that compounds allow speakers to innovate throughout the process of creation and recombination of constituents. Thusly, compounds have an infinite capacity of constructing meaning by re-association of its parts. Within the study of compounding in word creation, NOUN - NOUN structures play a fundamental role. Actually, compounds have been widely studied due to they hold elaborated semantic relationships between their constituents but also they manifest complexity as composite structures (Benczes, 2006). There exist a considerable quantity of literature (Downing 1977, Jespersen 1954, Lees 1968, Levi 1978, Ryder 1994) that has handled NOUN - NOUN structures from a semantic analysis perspective based on endocentric noun–noun compounds.

Among current studies regarding NOUN - NOUN compounds, from a cognitivist perspective, it is prominent the relatively recent work achieved by Réka Benczes, in her book "Creative Compounds in English (2006). Benczes' work occupies a central position in the relevant literature for our investigation since her study revolves around English N-N compounds, providing an extended revision of past theories and approaches, from descriptivists, transformationalists (and other alternative perspectives) to finally dive into the cognitivist analysis. First of all, she establishes an appealing typology where key concepts relevant to the classification of different types of compounding arise. This classification in a certain way also delimits our present work. Secondly, Benczes, who does not only claim that compounds are one of the most creative processes of the English Language, also defines them

as ‘the ability to create and understand compound expressions that have been formed by utilising the endless possibilities of metaphor and metonymy’ (p.62). Additionally, she introduces and after elaborates and term *Creative Compound*, relying on the rejection of traditional explanations of exo / endocentric - degree of transparency, separation proposed and analysed by several previous linguistic pieces of research. The proposal of creative compounding lies in the type of “nominal construction that has been coined by a more imaginative, associative and creative word formation process, based on conceptual metaphor and metonymy. Such compounds are not unanalysable, nor semantically opaque: in fact,t hey can be analysed within a cognitive linguistic framework, by the combined application of metaphor, metonymy, blending, profile determinacy and schema theory. (Benczes, 2006: 184). On the one hand she composes her claims builded upon a group of cognitive linguists’ theory, such as Croft and Cruse (2004), Langacker (1987) and Talmy (1988), who have develop that both metaphor and metonymy can be considered as various kinds of construal operations proper of human cognition and the way in which we conceive the world. On the other hand, the Blending Theory plays an important role in Benczes’ view since it is based upon the Fauconnier & Turner’s conceptual integration network. Accordingly, the aforesaid theory also chimes with the NOUN-NOUN creative compounding perspective of our present work.

The Conceptual Integration theory, also widely known as Blending Theory, developed by Gilles Fauconnier & Mark Turner (1994) provides a prominent insight and accurate account when it comes to analyse word-formation phenomenon such as N-N compounds. The Blending theory is based on and has been developed through the Mental Space Theory .(Fauconnier, 1994). The theory claims that the speaker builds concepts upon mental spaces, defined as “small conceptual packets constructed as we think and talk, for purposes of local understanding and action” (Goldberg, 1996). Mental spaces are very partial assemblies containing elements, and structured by frames and cognitive models. They are interconnected, and can be modified as thought and discourse unfold. (Fauconnier & Turner, 1998, p. 6). For instance, within a NOUN-NOUN compound, each element activates a space called input space, whose are projected into a Generic Space. The generic space is a third conceptual place that provides information abstract enough to be common to both (or all) the input spaces. Figuratively, The Blending Theory would function as a puzzle where the input

spaces represent 2 or more pieces. Within the system, every component in itself has an inner structure that together build an Emergent Structure. The joint where shaped edges, made to fit into the other edges, meet would symbolize the generic space. Product of the union, the pieces conform a complete blended picture, which contain the particular and necessary information of two spaces. See figure 3.1.

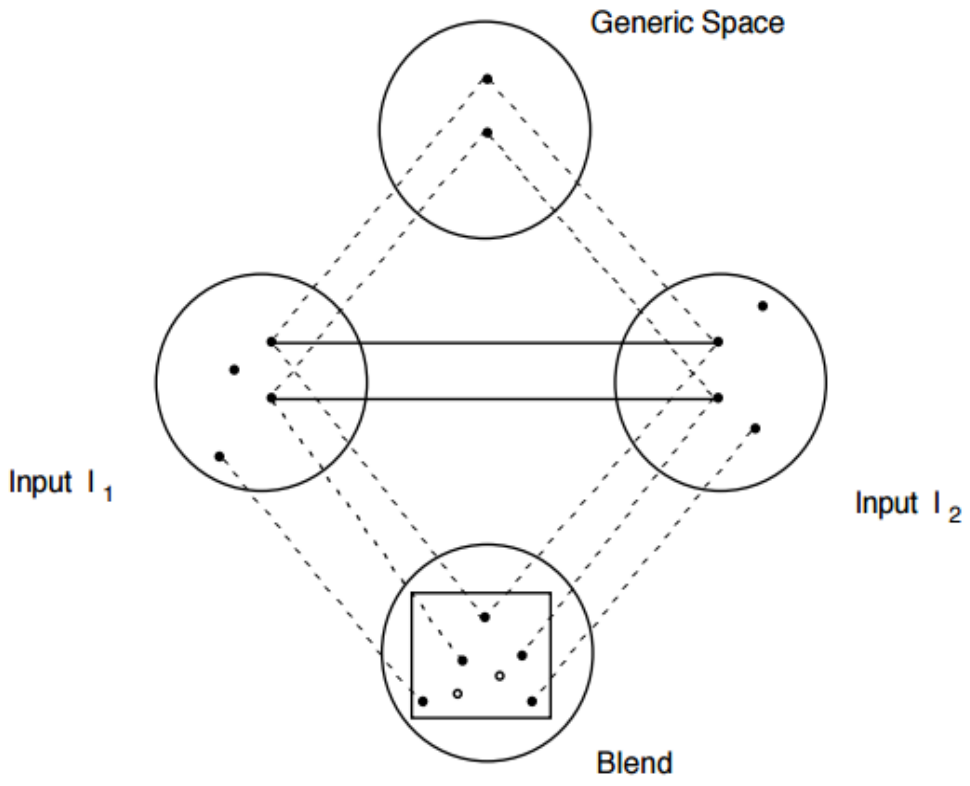

Figure 3.1. Fauconnier & Turner's network model of conceptual integration

Consequently, nominal compounds would be a projection of what Fauconnier & Turner defined as 'category extension' which makes reference to the different blends that may emerge from a category. Additionally, as the input spaces are projected into a new single blended space, the syntactic structure may be affected by the creation of a new syntactic forms (see Dabrowska & Divjak, 2015). An example of a new syntactic expression would

be *noseworm* (according to *wordspy*, it refers to an odor that a person continues to smell even in the absence of the original odorant.)

Finally, the blending theory is central in order to explain the NOUN-NOUN formation phenomenon due to it gives us indispensable analytical tools to trace the complexity of metaphorical/metonymical mappings that are highly permeated by other determinant factors. Previous authors, including the remarkable work carried by Reka Benczes, have attempted to explain the compositional process of NOUN - NOUN compound. Although, they have only managed to establish a typology, they have not successfully addressed the complex patterns that need to be explained. We consider that regarding the creation NOUN - NOUN compounds, factors such as prototypicality, blending processes, syntactic structure, semantic distance and schematicity of generic space are pivotal in order to understand how these combined set of factors affect in the creation of compounds. An analysis with these factors would contribute either to connect and explain different central elements in relation to the nature of NOUN NOUN compounding, as many questions arise from the role of figurativeness of compounds and levels of metaphoricity/metonymy, the behaviour of semantic domains and on what depends its level of spreading, what are the determinant factors regarding the integration of NOUN - NOUN compounds, etc.

3.2. Postulating a scale of complexity and its measures

As it has been said, Benczes (2006) understands a compound's overall *creativity* in terms of its degree of semantic extension. Given that metonymy and metaphor are known to be the most fundamental processes of meaning extension (Benczes, 2006)—i.e. extending the meaning of existing expressions— she claims that compounds that involve metaphorical and/or metonymical processes in their meaning construction process are more creative than those which do not. However, her idea seems to be at odds with the fact that there is a continuum between literal and non-literal meaning, where metonymies a) can adopt both figurative and non-figurative meanings (Dirven, 2003) and b) feed primary –and possibly all—metaphors (Evans and Green, 2006).

Thus, not only do metonymic compounds with a literal interpretation not prompt the imaginative, associative thinking Benczes has in mind when talking about creativity, but

more importantly, the suggestion of a continuity from, on the one hand, literal to figurative compounds, and on the other, from metonymic to metaphoric compounds emerges. In other words, as to get a more accurate account of the processes involved in the meaning construction of compounds, we should approach their analysis not in terms of creativity but of complexity.

This idea is not new. Indeed, Dirven (2003) tackles this subject by locating different instances of metonymies and metaphors in a non-figurative-to-figurative continuum. He argues that just as metaphors exhibit different degrees of metaphoricity, there are also different degrees of metonymicity.

Thus, he identifies three types of metonymies, each pertaining to a higher level of metonymicity. Firstly, the linear metonymy, which meaning is always literal. Such as in "[Different parts of the country] don't necessarily mean the same thing when they use the same word", a metonymy based on the LOCALITY FOR INHABITANTS association.

Secondly, conjunctive metonymies, where the meaning of an expression is extended. Take for instance the expression *Tea* in *"*Tea was a large meal for the Wicksteeds". This example constitutes not a metonymy, but a metonymic chain. Where the meaning of the expression tea has been systematically extended as follows:

A plant → Its leaves → Drink → Its Time of Consumption → Elaborated Meal

Figure 3.2. Metonymic chain for the extension of the expression Tea.

None of the instances in the metonymic chain above require a figurative interpretation. As metonymies are initially motivated by perceptions of salience and contiguity (Evans, 2006), or what Dirven calls "natural links" between elements, metonymy-driven meaning extension does not necessarily call for an increase in figurativity. That is why we will regard metonymies, as Dirven does, at least up to this level of complexity, as middle points in the literal-to-figurative continuum.

If we go further, however, we encounter instances that are always figurative. Dirven calls instances at this level of complexity inclusive metonymies, such as "*to have a good head*" for intelligence. Unlike the metonymies of previous levels, in here a physical entity stands for a non-physical one. Indeed, as Dirven himself says, "there is a conceptual leap

from a concrete, physical domain to an abstract mental domain, a wording which is very often used for the definition of metaphor (p. 83-84). What sanctions, according to Dirven, an instance like this to be considered a metonymy instead of a metaphor, is that we can somehow broaden the frame evoked as to reach a point of abstraction where the elements stand in a relation of contiguity. In other words, instead of activating two distinct domains, say, MIND and BODY as to integrate the meaning of the expression, we activate a broader one, HUMAN BEING, which contains both BRAIN and MIND, as subdomains.

It is interesting to notice how, as complexity increases, the line between metonymy and metaphor seems to blur. That is why, Dirven argues, even when metonymy and metaphor are two distinct cognitive processes, they may be approached as "two different realisations of one common underlying principle, that of conceptual contrast, or perhaps, to be more specific, the interplay of conceptual distance and closeness, or vice versa" (p. 92).

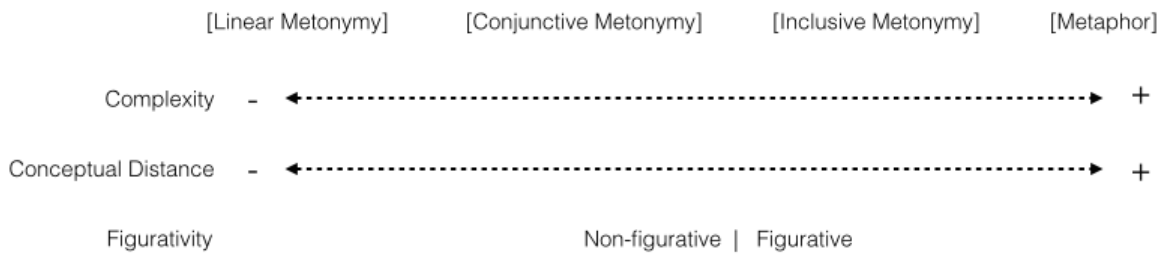

Figure 3.3. Dirven's Scale of Complexity

It is by following this insight that Dirven (2003) relates the emergence of figurativity with the conceptual distance between the elements involved in the expression. That is to say, figurativity is triggered when the conceptual distance is large enough, and if conceptual distance increases, so does the degree of figurativity. Then, in what follows we will present two kinds of metaphors, as to integrate the different degrees of metonymycity and metaphoricity in an overarching literal-to-figurative scale.

If metonymies can be generally characterized as associations sanctioned by experiential contiguity, metaphors could be said to be sanctioned by perceived resemblance between two elements that pertain to two different domains of experience (Evans, 2006). However, just as we saw above, there are some instances where it is unclear whether the

expression is prompting the activation of elements in one domain or in two. On one side, we have the already presented inclusive metonymies, on the other, primary metaphors.

Primary metaphor theory was first put forward by Grady (1997). In it, he argues that the most basic kind of metaphor is based on the association of concepts that are equally basic, inasmuch as they are directly experienced and perceived —i.e. an experiential correlation (Evans, 2006). Thus, the source domain of such a metaphor would consist of certain sensory-perceptual experience, whereas the target would be a subjective response to said experience (Evans, 2006). Along this vein, Barcelona (2003) points out that pre-existing metonymical associations pinpoint the emergence of metaphors (2006). So, metonymies, once extended, sanction basic metaphors such as QUANTITY IS VERTICAL ELEVATION. The metonymical motivation behind is evident, and in fact, so strong that, once again, blurs any clear-cut distinction. Goossens (1990), in fact, avoids choosing a side and regards such instances as points of in-betweenness, or in his words, *Metaphtonymies* (Evans & Green, 2006).

The second level of metaphorical complexity mirrors, in a sense, that of metonymies. Not unlike metonymical chains, primary metaphors can also be grouped together into compound metaphors (Evans, 2006). At this level of complexity, the experiential basis that motivated the constituting primary metaphors is lost, and what emerges are detailed knowledge structures that relate entirely distinct and complex experiential domains, such as the compound metaphor THEORIES are BUILDINGS (Evans, 2006).

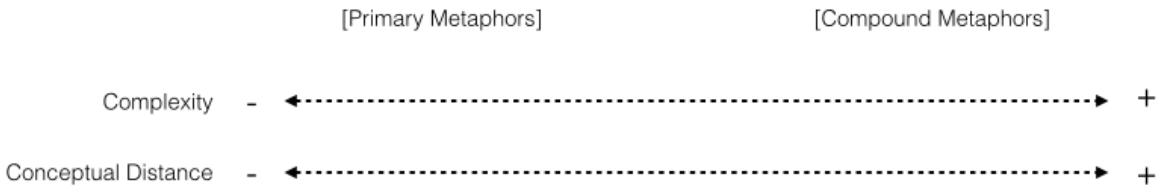

Figure 3.4. Scale of Metaphorical Complexity

We see that Dirven's correlation of complexity, figurativity and conceptual distance is maintained. Moreover, as the conceptual distance between the respective elements increases, the principles that sanction their association seem to be getting increasingly more schematic. So far, we have talked about conceptual domains and conceptual distance in such a way that it makes sense in an intuitive way. In fact, it is striking to notice that not even

Dirven (2003) pinpoints too well what conceptual distance is and how to measure it. Instead, he seems to be using general rules of thumb as to account for it, such as the degree of salience, concreteness or abstractions of elements. Although such notions allow us to better see the continuum from metonymy to metaphor, they are far from being accurate. Thus, in what follows, we will tackle these notions.

What is a domain? This is a question than can be approached through Langacker's theory of domains (1987). According to Langacker, a domain or frame is a schematization of experience as represented at the conceptual level (Evans, 2006). From our most early infancy, we are embedded and interact with the world. The knowledge gained from each of these instances of interaction is abstracted and packaged into conceptual structures. Now, the relation of experience and domains is not linear, but bi-directional. That is to say, domains are not only constructed from experience, but they shape subsequent experiences. More particularly, they allow us to relate elements from a particular context (Evans, 2006). For instance, we do not regard fingers, hands, arms, and shoulders as elements in themselves, but as BODY PARTS precisely because our conceptual systems have built such domain from our experience. In this sense, a domain functions as the conceptual ground against which a particular element is seen. Moreover, not all domains are at the same level. Langacker distinguishes two general types of domains —basic and abstract ones— under the criterion of experiential grounding (Evans, 2006). Thus, domains that are directly related to sensory-perceptual experience, such as TIME, COLOUR, SPACE, TEMPERATURE, etc. constitute the most basic ones. Conversely, as we get farther from experience, the domains get more abstract (Evans, 2006).

Thus, in first term, if we wanted to measure how close two concepts are, we should see what motivates their relation. This is an easy task to carry out when the concepts are close, such as COLOUR and SPACE, which can be clearly linked with the experience of vision. But what happens when we talk, say, of the hierarchy of an institution in terms of body parts? How can we measure how close, how related these concepts are?

We said above when discussing Dirven (2003) ideas, that as metonymies and metaphors get more complex, the principle that sanctions the association of each elements gets more schematic. Let us extend this idea. We will argue that, in fact, the degree of schematicity of the principle holding the relation between the respective elements, in either

metonymy or metaphor can be seen as a consequence of the degree of conceptual distance between said elements. In other words, the less related the elements are, the fewer points in common they have. So as to hold the relation, one must lose specificity.

Now, in Fauconnier and Turner's (1998) Conceptual Blending Theory, this holding principle or shared structure is referred to as Generic Space. It contains elements common to the concepts that are being integrated. For instance, in a metaphor of the type BOSS is HEAD, where hierarchy is being understood in terms of a body part, the generic space will contain common elements abstract enough as to sanction the metaphor, such as the fact that the head is regarded as the executive agent of the body, just as the boss is so in an organisation, etc. As we go further in our scale of complexity, there are fewer, and increasingly more abstract elements in common. Conversely, the simpler we get, the more elements in common we find. Therefore, as to measure conceptual distance, we just have to measure how rich, how detailed is the generic space of the particular blending network for the concepts we want to analyse.

Having said this, let us turn our focus back to our main concern: NOUN-NOUN compounds. How are we to understand the interplay of conceptual distance and figurativity between each component in these kind compounds?

Let us analyse take the case of *knee-mail*, a compound already discussed and characterised by Benczes (2006) as "the epitome of a highly creative compound" (p. 148). Thus, according to her, *knee-mail* would stand for "a prayer, specially one said while kneeling". Though, clearly metaphorical in nature, this compound is underpinned by a pre-existing experiential association between *knee* and *prayer*. Indeed, this association as Benczes (2006) argues is clearly metonymical, since the knee comes to stand for the whole action of praying. However, one could argue that so far, these pre-existing metonymic associations do not necessarily call for a figurative interpretation. Indeed, if we were to categorise this metonymy, we would locate it in the non-figurative spectrum of conjunctive metonymies, since it is clearly motivated by experiential contiguity, were kneeling stands as a salient aspect of the action of praying, in a relatively concrete relation of Instrument for Action. Moreover, both elements can be located within a sole and overarching sanctioning domain of Religious Practice, which would structure the blend's generic space. Thus, as both are elements co-existing in the same domain their conceptual distance is small, and the compound's overall complexity is not enough to call for a figurative interpretation.

The picture changes, however, when we replace the component *prayer* by *mail*. By now, given that the target domain of RELIGIOUS PRACTICE is no longer overtly signalled, the hearer is prompted to look for a connection between *knee* and *mail*. Nevertheless, there are no experiential motivations, no contiguity between these elements so as to draw a quick association between them. Thus, the hearer finds himself in a situation where he must look for not so self-evident or natural links between the elements to integrate. In other words, increasing the conceptual distance between each component calls for a more abstract, more schematic relation to hold them together. In turn, this results in a compound's increased degree of complexity or figurativity. Resuming the analysis, then, the hearer may interpret *mail* as sanctioned by a domain of Communication, where *mail* can be seen as a culturally-salient member standing metonymically for the whole category, or as Benczes (2006) puts forward, as an instantiation of the Conduit metaphor system, whereby Ideas are OBJECTS, Expressions are CONTAINERS, and Communicating is SENDING. Either way, the domain of COMMUNICATION ends up by being activated. Now the hearer must look for a way of interpreting *knee* that makes sense in the conceptual context of COMMUNICATION. The experiential salience of kneeling in relation to praying that we mentioned before turns out to be fundamental now. Furthermore, certain perceived conceptual resemblance between COMMUNICATION and PRAYING leads to the generation of an overarching and highly schematic generic space where elements in the source domain of RELIGIOUS PRACTICE are mapped via participant roles into the domain of COMMUNICATION.

It is due to these nuances in the process of conceptual integration that we have chosen to replace Benczes' (2006) measure of *creativity* for a function of conceptual distance between a compound's elements and its overall complexity.

3.3. Determinant Factors

Discussing the procedures involved in the integration of NOUN - NOUN compounds, we assume that possibly the notion of creativity would be explained through the semantic distance of the components. For Benczes, the interpretation of creativity is advocated throughout the production and use of metaphorical and/or metonymical NOUN-NOUN compounds. Namely, the term *creative compound* is proposed based on "the result of thought

processes rooted in the conventional usages of conceptual metaphor and metonymy" (Benczes, 2006, p.105). Accordingly, the author assumes that the creativity among compounds is understood from the degree of extension. Specifically, Benczes distinguishes further subtypes depending on precisely which component unit is metaphorical or metonymical in order to link up her view of the traditional distinction between exocentric and endocentric compounds with the Langacker's view on compositionality (2008). The author claims that composite structures such as NOUN-NOUN compounds are never totally predictable: "The composite structure is an entity in its own right, usually with emergent properties not inherited or strictly predictable from the components and the correspondences between them" (Langacker, 2008, p.164). That means that, the overall meaning of the compound itself evokes an elaborate semantic network that is partially motivated by the component elements. From this, Benczes supports that, compounds that feature the use of cognitive models - either metaphoric or metonymic in its composition - require a certain amount of novel processing in order to access the composite meaning of the construction. Accordingly, Benczes' typology of compounds provides an account of creativity in terms of the sequence of metaphoric and metonymic extensions (i.e., whether metaphorical extension came from the metonymies, or vice versa).

On the other hand, Benczes seems to partially provide an account of transparency of meaning, since she perceives it as an irrelevant factor to the understanding of compounds. Although, semantic transparency is often viewed as simply a matter of semantically traceable composition, the latter should not be taken as the deciding factor in the concept. According to Benczes, transparency is regarded as the analysability of stemming from the ability to unambiguously trace the conceptual motivation of the emergent global meaning of a compound into the meaning of the individual components. However, there exist several compounds that cannot be unambiguously computed from the meanings of the constituents due to the lack of relation of predication between constituents, e.g., *flame sandwich* or *cloud nine*. Considering this fact, the transparency in NOUN - NOUN compounds can be assumed as a more "relative" concept, that is to say, there is an underspecified semantic relation between the components of a compound, namely, the pre-modifying noun and the modified noun. Precisely, we assume that this relationship is measured in terms of the semantic distance between frames invoked by the constituents of a compound. Additionally, transparency can

be seen as a scalar phenomenon that exhibits sufficient different interpretative features so as to be treated along a continuum. Thus, either the degree of conceptual compatibility between constituents and/or the degree of semantic similarity between related compounds would be highly correlated to the concept of degree of extension. For instance, when several compounds and their constituents are prone to shift their meaning, the results of such shifts can be either metaphoric or metonymic, leading to a varying extent of re-categorisation. This procedure may be further refined by integrating certain different factors, such as the generic space, context, and world knowledge.

In Cognitive Grammar, patterns of composition are illustrated by constructional schemas that are described as "schematic symbolic assemblies representing whatever commonality is observable across a set of symbolically complex expressions" (Langacker, 2008) Considering this, Benczes argues that the transparency of meaning and the degree of creativity in NOUN-NOUN compounds might be accounted within a cognitive linguistic framework by applying the notion of constructional schemas due to their property to capture the commonalities of specific expressions, regardless of their semantic makeup. Accordingly, Langacker claims that there are more specific schemas based upon similar expressions, such as [N+ *lid*], as in the cases of *hot lid* or *coffin lid*. As well, there are more abstract schemas, such as [X Y], which is a schematic representation of all compounds formed from two components (Benczes, 2006) Hence, all NOUN-NOUN compounds are based upon the same constructional schema [N+N] linked by categorizing relationships of elaboration and extension (Langacker, 2008) Here, the notion of elaboration refers to the relationship between a schema and its instantiation, while extension refers to the relationship between prototypical and peripheral values. To illustrate this, Langacker uses the example of the schematic network of the semantic category TREE:

From this, it can be said that lexical categories from schematic networks are arranged in a way that less abstract schemas are included as part of a more abstract schema on the basis of elaboration or extension. In other words, each of the subschemas is an instantiation of the category, while these instantiations may vary with reference to their degree of specificity. Accordingly, Langacker supports that NOUN - NOUN compounds represent same degree of elaboration or specific instantiation but a different degree of extension, depending on the cognitive operations that act upon the meaning of the expression (Benczes, 2006) that means

that, although its constructional schemas are based on prototypes, there would exist a degree of abstraction, since the generic space generated between compounds or their constituents is itself a temporal categorization of the commonness between two components. To illustrate this, Langacker (1987) uses the example of the schematic network of the semantic category TREE:

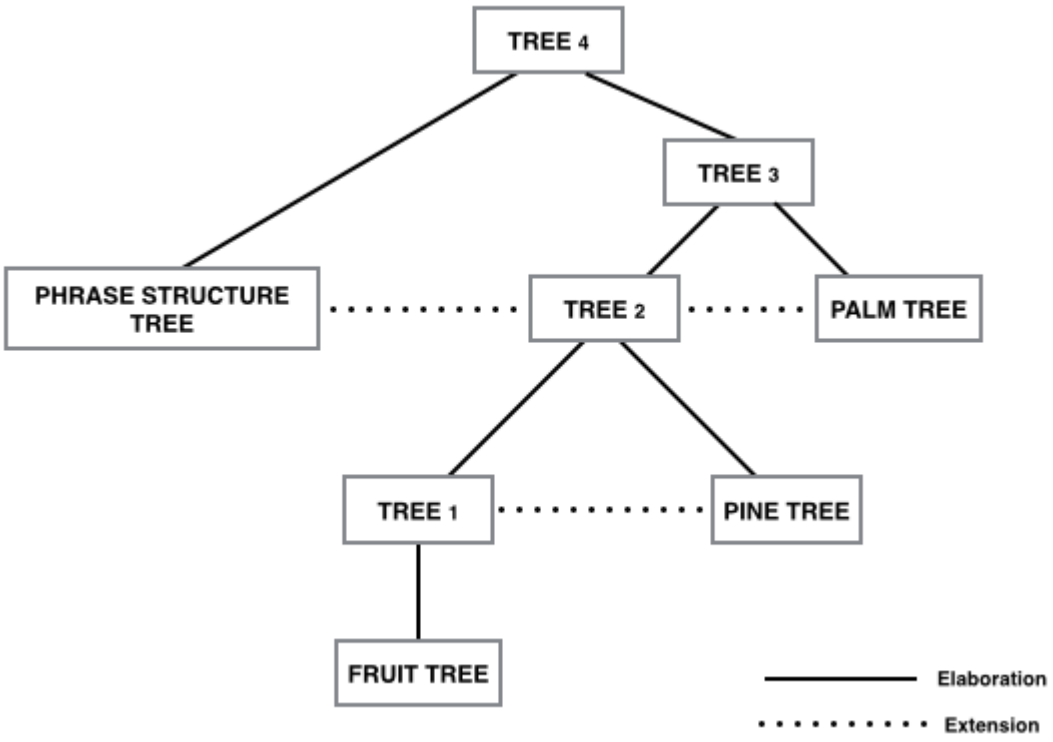

Figure 3.5. Langacker's structure of the TREE *categories.*

Initially, the language user tends to associate the concept *tree* with specific instances of large, deciduous leafed plants with an elongated woody trunk, e.g., with *oaks*, *elms* and *maples*. Then, the user extracts from these instances a schematic representation of what they have in common TREE 1. Precisely, this representation may correspond to the prototype of the concept *tree*. Further elaboration of this representation is possible, for example FRUIT TREE which is compatible with the characterization of TREE 1, may emerge as a subschema of the prototype. On the other hand, the schema PINE TREE even though shares some attributes of the prototype, it merely bears resemblance to the prototypical TREE 1 schema, for example,

pine trees do not have leaves. Therefore, the relationship here is one of extension. Once both schemas are identified as components of the same category, because they share some commonalities, e.g., a tall trunk with branches, a further emergent structure TREE 2 may be reduced into a new a prototype for extension of the category to PALM TREE; palms share with the prototype of a tall trunk, however, they do not have branch. Once more, the commonalities between TREE 2 and PALM TREE may create a generic space that permits the extraction of a more abstract schema still TREE 3 As well, TREE 2 may function as a prototype for a metaphorical extension PHRASE STRUCTURE TREE, i.e., the tree structures of linguistic description get highly associated with TREE 2 on the basis of their branching structure. Even more, we can propose another metaphorical extension such as the compound *christmas tree* that differs slightly from the schema PINE TREE because the former may require encyclopaedic knowledge as well to sanction a proper conceptualization of the entity compared with the prototypical notion of 'tree'. Possibly, here we have a modifier *christmas* that may sanction different generic spaces that are less constrained, limited. Conversely, in the case of compounds such as *apple tree*, *peach tree* and *cherry tree*, we have different modifiers *apple*, *peach*, *cherry* that may activate the same generic space that integrates just the type of fruits and tree, nothing else. Moreover, according to Langacker (1987), there may exist a "super-schema" TREE 4 that is highly schematic for all these concepts of *tree*.

Therefore, extension would be highly related to the degree of abstraction over compounding concepts that possibly share some but not all properties of a prototype, thus, it is re-categorised. Indeed, according to Kövecses (2002), the generic space between elements is the prototypical commonness between them. Considering this, we can draw a connection between prototypicality and extension. For example, the compounds *blackbird* and *jailbird* seem to share some degree of closeness of a given member to the prototype, which means that the schema BIRD functions as a prototype for both expressions. Firstly, *blackbird* seems to generate a quasi-literal interpretation: *blackbird* refers to a particular type of bird species that is characterized by its black plumage. So, the constituents here are more uniform in their meaning, since both constituents denote for the prototypical indicators, i.e., *black* and *bird* refer to the state of "blackness" and "birdiness" distributively. From this, it can be assumed that *blackbird* is an extension of literal network, an elaboration of the prototype. In contrast, *jailbird* seems to be less transparent than the former compound, because its constituents only

retain some of their meaning within the whole expression. Here, only the head noun of the compound, i.e., *bird* bears the indicator of "birdiness", while the modifier *jail* invokes the frame PERSON CELL. Precisely, the modifier noun here works as the source of the compound, providing not all but some aspects of the concept *jail*, namely, CONTAINMENT WITH CONSTRAINT for the activation of metaphor. Hence, the head noun *bird* realizes a metaphorical meaning, i.e., 'an imprisoned person is associated with a caged bird'. Possibly, the metaphor A PRISONER IS A CAGED BIRD sanctions for further associations between the modifier noun *jail* and the concept "birdcage". Moreover, it can be said that the selection of elements within the domains of participants, i.e., CAGED BIRD and IMPRISONED PERSON is very prototypical in the blending process, because both inputs share the same generic space CONTAINMENT WITH CONSTRAINT. Additionally, Fauconnier & Turner (2002) argue that the primary objective of conceptual blending is to achieve the scope of human experience. In this respect, we do not establish mental spaces between them, and blended spaces for no reason, but we do this precisely because it provides us global insight, human-scale understanding and new meaning. Accordingly, one of the most important aspects of our insight and creativity is the compression of *vital relations* achieved through blending. A vital relation serves as the link that matches two counterpart elements or properties in the input spaces and establishes outer-space relations: relations in which two counterpart elements are in different input spaces. Respectively, Fauconnier & Turner (2002) distinguish a taxonomy of vital relations that includes *Cause, Effect, Time, Space, Identity, Change and Uniqueness.* In this case, the blend of *jailbird* compresses the distance that holds between the counterparts (PRISONER-BIRD, PRISON CELL-BIRDCAGE) through the vital relation of *Representation* because one entity or event is related with another entity or event that represents it. Additionally, the outer-space relation that has been compressed would give rise to the inner-space vital relation of *Uniqueness*, which provides a way of understanding two spatially distinct entities as the same individual entity.

Considering the aforementioned aspects, it can be assumed that there are prototypical relations between concepts, that is, the components of a compound would be trivially part of a prototypical frame. So possibly, the extendibility of a compound would be determined through the identification of a continuum, ranging from prototypical to non-prototypical compounds. Furthermore, in the case of discourse metaphor based compounds such as

Frankenfood, the emergent structure is sufficiently entrenched to have become lexicalized, that means that the pre-modifier noun "*Franken-*" projects a discourse metaphor that stands metonymically for the ICM clusters thoroughly explained by Lakoff (1987) According to the author, cluster models are models consisting of a number of converging ICMs that may give rise to typicality effects when one the of ICMs that participates to the cluster is viewed as the most important. Therefore, although the compound has a very specific (or non-schematic) structure that sanctions certain evaluations or ideologies, the prototypicality of *franken* may act as a focal source that would give the inference that is relevant to the input space of FOOD. In that way, the domain that contains a frame or a set of ideologies related to FRANKENSTEIN STORY is filled by a set of elements that contained the domain of FOOD. Respectively, this type of conceptual integration is what Fauconnier & Turner (2002) call as the Simplex network. Additionally, we can presuppose that *Frankenfood* is a prototypical compound since this encloses a very prototypical metaphorical relation, that is, the compound can be easily accounted for with the help of conceptual metonymy (and metaphor). Also, regarding the composition of this compound [FRANKEN + X], it can be said that both constituents do not generate the same domain. So possibly, the semantic distance between them may be comprehended from the frame level of integration because this provides the commonness within the single frame (see Figure 3.6). Indeed, prototypicality itself can refer to this level of integration: an abstraction between two integrated constituents, in which one of them may act as a focal source that subsumes shared commonalities of many targets as input spaces under its scope, that means that a prototype would be at the same time an input and the emergent structure itself.

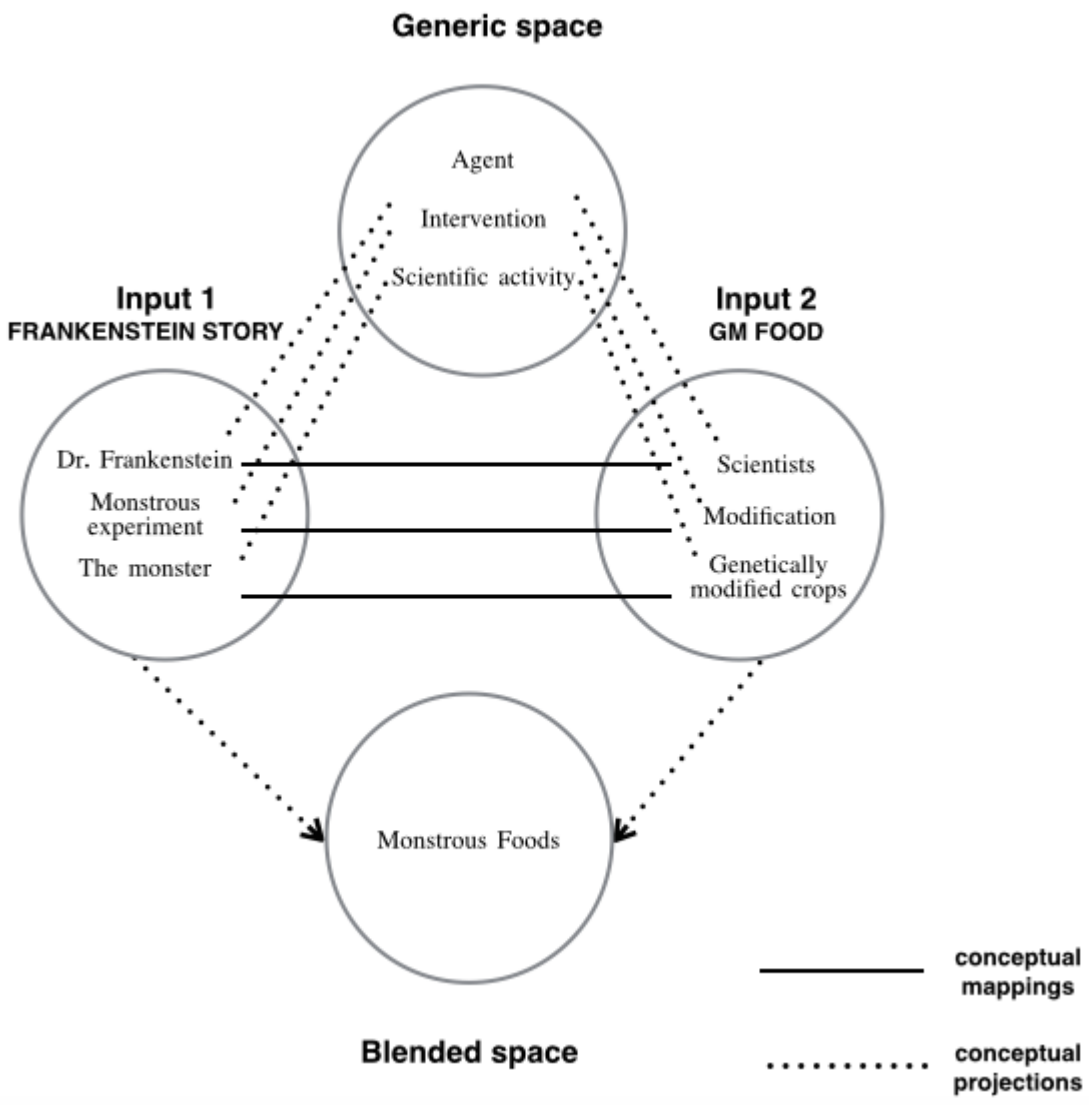

Figure 3.6. The blend analysis of Frankenfood

On the other hand, metaphoric relations between the constituents are themselves institutionalised, thus, we may have some paradox in contrast with the previous example (*frankenfood*) in which the metonymy itself is prototypical. As exemplified by certain compounds such as *chicken hawk* and *lounge room*, in spite of these expressions sanctioning a conceptual metaphor - in which its source domains are very abstract and universal in comparison to the source domains of discourse metaphors that are part of the interactional and cultural space- we may still have prototypicality here: In the case of *lounge room*, the two integrating frames, namely LOUNGE and ROOM belong to the very same frame literally,

so there would be no emergent structure possibly because there is no process to re-categorize the frame, since both constituents yield a very literal interpretation. Conversely, the expression *chicken hawk* has a metaphorical interpretation between the two constituents: the pre-modifier noun *hawk* denotes a metaphorical meaning of 'a person who believes in military intervention', this understanding is based upon our close association that we have between animal characteristics and human behaviour, i.e., THE PEOPLE ARE ANIMALS conceptual metaphor. So here, the source domain is the hawk - that is the prototype of birds of prey that hunt smaller birds and animals - and the target domain is a person who calls for military force. Similarly, the head noun *chicken* can be understood as 'a coward', i.e., COWARDLY PERSON IS A CHICKEN conceptual metaphor. Hereby, a *chicken hawk* person refers to a person who is both a chicken and a hawk at the same time, i.e., while advocating war, they took special measures to avoid military service. From this, it can be deduced that prototypicality not necessarily inherits from hypernym of the category but that can be also linked with the lower level of hyponym. Indeed, Benczes (2006) maintains that the construction of *chicken hawk* is 'appositional', that is, the compound is a combination of both constituents.

Turning back to the discourse level, the extension of a compound may be measured in terms of typicality effects. According to Lakoff (1987), typicality effects arise due to mismatches between ICMs against which particular concepts are understood. To illustrate this, consider the compound *working mother* and its extension, *bulldozer mother* which has a metaphoric relation. The first expression - although its modified noun (or head) *mother* possesses a prototypical character from different models (birth, genetic, nurturance, etc.)- the compound, *working mother* may emerge as a non-prototypical member of the category MOTHER, in the sense that it can be defined in contrast to the housewife mother stereotype, "as a mothers who do not stay at home with their children but goes out to work instead" (Benczes, 2006, p.169). So, this example would not be a prototypical mother, but a different kind of mother. Conversely, *bulldozer mother* may refer to the same category of MOTHER but there would exist an emergent structure that goes beyond its literal interpretation. Specifically, the constituent *bulldozer* would typically point to a specific conceptual metaphor that activates many possible mappings between the source domain MACHINE and the target domain MOTHER. Interestingly, this compound seems to provide a sort of metaphor

within a metaphor, due to the reason that the category MACHINE, a heavy and dangerous piece of construction equipment already includes qualities associated with emotional and/or social entities and behaviour. Thus, the metaphorical interpretation of *bulldozer* would already be given in its superordinate category. Furthermore, beyond the generic space that we may find between *bulldozer* and *mother*, possibly there is a generic space between modifiers - either *bulldozer* or other concepts associated with it (such as *helicopter*, *snowplow*, etc) - in a specific set of compound that share a kind of generic abstract metaphor, it means that further creative metaphorical compounds are extended on the basis of already existing ones, e.g., *helicopter mom*, *snowplow parents*, etc. Thus possibly, over and above the relation between constituents within the same compound, there would also exist a relational connection between compounds.

3.4. Hypothesis, questions and objectives:

Throughout this research, we intend to provide answers regarding creative compounding as a whole, while also addressing the role that some of the factors have that influence creativity in NOUN - NOUN compounding. Our intent is to shed some light into how factors such as semantic distance, syntactic roles, schematicity of generic space and prototypicality affect creative NOUN - NOUN compounding in different areas. As a more general idea, however, our main intention is to tackle the issue of NOUN - NOUN creative compounding as a whole to see how different factors interfere and influence it.

It has been said that Benczes' proposal of mostly considering the presence of metaphor and metonymy to see how creative a NOUN - NOUN compound is has proved to be not sufficient, and that there were more things that came into play. Hence, one of the main questions that we seek to answer is related to the factors that can redefine and measure creativity in NOUN - NOUN compounding, beyond a characterization in terms of metaphoricity. We believe that the key concepts to answers this question are the conceptual integration and blending. Furthermore, and following this same line, another important yet very general question that we are going to address throughout this research is what are the relevant factors that affect the type of conceptual integration in NOUN - NOUN compounding:

1. What are the factors that can redefine and measure creativity in NOUN - NOUN compounding, beyond a characterization in terms of metaphoricity?
2. What are the relevant factors that affect the type of conceptual integration in NOUN-NOUN compounding?

One of the factors that we are going to be extensively dealing with is Semantic Distance, as we believe this concept holds the basic principles of compounding. Once we have defined and explained Semantic Distance, we are going to try to distinguish to what extent and in terms of what variables is semantic distance quantifiable effectively and precisely. This will be very useful in terms of addressing this matter in a more scientific and quantifiable way, as we will try to find a method to measure the Semantic Distance present in the compounds.

Another important concept that we will be dealing with is transparency, and more specifically, how does the semantic distance between the components of a compound affect the transparency of its emergent structure. These two concepts, transparency and emergent structure are very important when it comes to the understanding of the process of creating a compound, as they go beyond their literal meaning of the new compound and helps to understand the basic principles underlying the creation.

Following the idea of Semantic Distance as a mayor relevant factor, another interesting question that we will be dealing with is how does the semantic distance between the components of a compound affect the compounds overall figurativity. Here, we believe that the syntactic roles of the compounds play an important part, as they shape their meaning and play with the syntax and semantics in order to make sense.

The next question that we will address is related to the relevance of the syntactic role of the component parts within an NOUN - NOUN compound to the literal/non-literal interpretation of it and to a typology of semantic-frame activation. Again, the syntactic role of the compound is crucial to understand the process behind its creation, and the key concept to explain this matter is Generic Space, as it holds the main source of the different things that may contribute to the union of the components of the compounds.

Related to the Generic Space, we will also try to find out how the type of generic space affects the blending of an NOUN - NOUN compound, as we already know that to create

a compound they should be related somehow, and we can locate this commonness into the Generic Space. In order to answer this question, we will address to the concept of prototypicality because behind the process of compounding we may encounter connections that are more or less prototypical, depending on how far this commonness is within the Generic Space.

As it was mentioned before, prototypicality also plays an important role when it comes with the creative process of compounding, therefore another question that we will attempt to answer is how the individual factors affecting blending are determined by the prototypicality of the components of a compound. Here, we will compare the different factors that affect the blending of the compounds in order to contrast and identify their different incidences in the blending in a more effective way.

Finally, we will address the compounding behaviour in two different ways. Firstly, we will try to establish what parallels and differences are observed between members of the same semantic category at the basic (and super-ordinate) level of categorization in terms of their compounding behaviour. And secondly, we will try to find out what are the inter-categorial generalizations that can be drawn insofar as the compounding behaviour of the members of different semantic categories at the basic (and super-ordinate) level. These two final questions are closely related to the results of the analysis that we will carry out.

Chapter 4
Methodology

4.1. Data collection

This section gives a detailed description of the methodological steps to be followed in order to help the reader understand how the objectives will be achieved, giving a justification of the reasons behind the specific methodological choices. In this sense, we will first link the methodology to the theory that we have set as the framework of our research, then the material to be analysed and the source from where it was obtained will be presented. Consequently, the reader will find the way in which this study was conducted and how the specific and appropriate methods serve our purposes.

Beginning from the assumption that this study is based on a corpus analysis method, in order for the corpus to be representative and analysable it needs to cover a range of semantic features. When referring to representativeness we mean that the corpus needs to cover a semantic universe that allows the analysis of different factors, thus our data or input needs to extend to as a complete range as possible of semantic features that shows how the semantic make up of it maps into schematicity, semantic distance, among others. In other words, and as has already been mentioned, this research aims to broaden the range of the relevant factors that are at stake when conceptual integration in NOUN-NOUN compounds takes place. These refer either to conceptual characteristics of the domains involved (prototypicality) or to a typology of the dynamic process of integration itself (schematicity of the generic space, distribution of the autonomous elements within the constructional schema of NOUN-NOUN compounds). In order to trace these factors as meaningfully mapped onto by the semantic characteristics of the components that enter the integration, a representative range of the semanticity of the components that serve as input was pursued. Therefore, the methodology chose to construct a semantic universe sample and in order for this to be achieved implements division of the semantic universe of words in abstract and concrete as Lakoff and Turner (1989) did trying to explain the nature of the cross-domain mapping metaphors. In *Metaphors we live by*, Lakoff and Johnson refer that the real world is not an objectivist universe, in particular the aspects that have to do with human beings (human experience, language, conceptual system, etc.) such as mathematics which is “an

embodied, largely metaphorical, stable intellectual edifice constructed by human beings with human brains living in our physical world" (Lakoff and Johnson, 1980). Returning to Lakoff and Turner, the objective of dividing the semantic universe between abstract and concrete aims to see something abstract in human terms (concrete) considering that in that way the explanation makes sense to most of people.

Following the same path and continuing with the division, we make use of Rosch's categorization (1978) in her work *Principles of Categorization*. It is important to say that in her paper Rosch postulates two relevant principles of categorization and she summarizes them as *maximum information* with least cognitive effort which "can be achieved if categories map the perceived world structure as closely as possible" (Rosch, 1978, p. 2) with category being defined as number of equivalent objects. Rosch also adds that categories "are structured such that there is generally one level of abstraction at which the most basic category cuts can be made" (Rosch, 1978, p.4), level of abstraction being the same as level of inclusiveness, in the sense that while more abstract is more inclusive. Furthermore, categories are differentiated according to the common features that have the members within each category. Rosch distinguishes three categories starting from a *basic level* which is the most inclusive in terms of features and where pertain a number of attributes common to all or almost every member. The category that precedes the basic level is the *superordinate category*, where less common attributes can be found within the members. On the other hand, the *subordinate category* is a subcategory of the *superordinate category* and also of the *basic level*, in this category less common attributes can be found within the members in comparison with the basic level category. Therefore, what Rosch does here is reformulate the concept of hypernym which consists of a word with a broad meaning (superordinate) that constitutes a category followed by subcategories (basic level and subordinate level) with more specific meanings.

In order to summarize and link the aforementioned categorization with this study we need to say that all our components that make up the compounds analysed belonged to the prototypical level. According to Rosch, people categorize objects in terms of prototypes and not in set-theoretical terms. This choice achieves a neutralization of factors that may relate to differences stemming from variation in the components' abstraction. It also enables us to address questions in relation to possibly variation in degrees of prototypicality within the

same level, depending on the semanticity of the components. Besides, to examine the compounding of the general level serves as a method that enables a further comparison between the behaviour of the basic level and more abstract level which, for instance, lacks imagistic content.

Having presented the categorizing schema that the organisation of our data follows, it is pivotal also to know the resources that our data collection draws on. These are two: the *NOW corpus* which contains approximately three billion words of data obtained from web-based newspapers from 2010 and *Wordspy* which is an online corpus that features new and, to some degree, entrenched terms that have appeared at least three times in print or online (newspapers, magazines, and books) from 1996 up to now. In order to support the representativeness of this last corpus it is important to highlight that Benczes made use of the same corpus in her study *Creative Compounding in English*.

The *NOW corpus* offers a complete range of semantic make up among the compounds which, in terms of the domains participating in the compounds, covers the division between concrete and abstract components, and also the features that make up the semanticity of our semantic universe. Besides, this corpus offers the frequency with which specific components and compounds are used and this gives us the prototypical or peripheral characteristic of the chosen compounds.

From the analysis of corpora we can also quantify the interpretation of the compounds. Thus, this analysis gives a typology of the dynamic process of the compounds' integration. Factors such as schematicity of the generic space and distribution of the autonomous elements within the constructional schema of NOUN-NOUN compounds will be mapped onto the semanticity of the compounds. This will be explained in more detail later in this section.

In order to give a comprehensive outline of the methods as well as the nature of the data to be analysed, we need to have a second look at Lakoff and Turner's division plus Rosch's classification. Thus, our division, as Lakoff and Turner's, starts by drawing a division between abstract and concrete objects. In turn, we make use of Rosch's classification. Insofar as the superordinate category is concerned, we chose seven semantic categories: three concrete and four abstract ones. BODY PARTS, ANIMALS, and FRUITS pertain to the former and EMOTIONS, CULTURE, NARRATIVE ENTITIES and INTERNET to the latter,

respectively. These semantic categories correspond to the superordinate level, as shown in the table below. The elements that correspond to the basic level are three for each category. According to Rosch, the level that follows the basic level is the subordinate level. At this level, we decided not to choose specific compounds that may correspond to it but rather working from the three components at the basic level. These three components can be found in several compounds in the *NOW corpus* either as the first or second noun of a NOUN-NOUN compound. Throughout analysis at this subordinate level we have the possibility to find more than hypernymic categorisations within levels due to the complexity of the emergent structure of each compound. In order to be clearer, might happen that the relation within the basic level and the subordinate level is not a hypernymic relation, but rather a more complex constructional schema that loses it hypernymic characteristics.

Table 1

Basic level components that will be analysed

Semantic class	**Superordinate level**	**Basic level**
Concrete	BODY PARTS	*Head, Brain, Eye*
Concrete	ANIMALS	*Dog, Horse, Bear*
Concrete	FRUITS	*Apple, Orange, Lemon*
Abstract	EMOTIONS	*Love, Rage, Phobia*
Abstract	CULTURE	*Christian, Nazi, Culture*
Abstract	NARRATIVE ENTITIES	*Frankenstein, Godzilla, Zombie*
Abstract	INTERNET	*Spam, Troll, Internet*

The table above presents the classification we made of the components that will serve to this study. Firstly, we started with the semantic class divided between concrete and abstract. Consequently, and according to Rosch's classification we continued with the superordinate category in which we decided to work with seven semantic categories three of them corresponding to the concrete semantic class (animals, fruits, body parts) and four of

them corresponding to the abstract semantic class (emotions, internet, narrative level and culture). At the basic level we made a random selection of three elements that follow each semantic category present at the superordinate level. As it must be clear at this point, we decided to work with different factors (semantic class, prototypicality, constructional schema, etc.). Following the position that this factors take in the course of our investigation was how we chose to gather our data.

In this sense, we started with the abstractness of the domains participating in the compounds following Lakoff and Turner's division of the semantic universe between concrete and abstract. The methodological concern that this division aims to follow is to find differences within concrete and abstract components in terms of frequency, prototypicality, constructional schema level, etc. For instance, it is pivotal to discover how the semantic class of each component affects the frequency of the compounds that are made up by these components.

After classifying the semantic properties of the components (as you could see in the table) that participate in NOUN-NOUN integrations, we aim to analyse this integration at a more constructional schema level and also at the level of the abstractness of the emergent structure. The analysis of the different factors present in components and compounds such as the aforementioned (semantic classes and categories, constructional schema and emergent structure) plus frequency, prototypicality, etc. puts forth a complete picture of the composition of NOUN-NOUN compounds. Thus, the classification of components was based on various semantics characteristics that we found relevant in order to achieve our objective of discovering the factors that are important in the creation of NOUN-NOUN compounds.

In practical and more technical terms, the aim is to go to the corpus and for each component we will make an analysis of each COMPONENT - NOUN and NOUN - COMPONENT compound. This analysis of instances pretends to give measures of frequency of the COMPONENT in compounds COMPONENT - NOUN / NOUN - COMPONENT, measures of distinct compounds, and measures of spread of compounded domains. For example, take the amount of compounds that have the component *pig* in them. The word *pig* denotes an *animal*, thus every compound that contains this word and activates the expected domain *animal* would be categorised under the group of literal interpretations, but not all the compounds that have the word *pig* in them activate the expected domains. In these cases, an extended and non-literal

meaning of the word is activated. This situation will be explained in more detail later in the following section *Organisation of the data analysis*.

At this point, apart from obtaining the relative frequency of each COMPONENT - NOUN / NOUN - COMPONENT in relation to the total number of instances, we also obtain a more compact analysis of the spread of the semantic classes component forms. All this will lead us to answers in terms of the prototypicality of the components in regards to compounding. Subsequently, what is expected is to find asymmetries among compounds that lead us to the analysis of asymmetries at a level of construction. At this *level of constructional schema* we will be able to explore the relations between semantic type of COMPONENT, but also the position of COMPONENT as modifier or head. All this analysis must be followed by matters of integration, such as schematicity of the generic space, which give us the typology of the dynamic process of integration. This study of integration elucidates answers in relation to input and emergent structure such as how specific, abstract and faithful to the discursively-framed input is the generic space.

In order to understand better the decision of working with a data analysis method it is essential to return to Réka Benczes' study *Creative Compounding in English*. In her study, she also decided to work with data analysis, making use of corpora such as *Wordspy* corpus which is one of the corpora we will be dealing with throughout this study. In her study, as we have already seen, Benczes sets a typology (metaphor-metonymy) that classifies compounds in terms of creativity which is precisely the notion that we intend to reinterpret, looking for a more exploratory way of dealing with complexity. Our effort is to connect the blending techniques on the one hand and the non-literal typology of extension on the other. At this point we offer the idea of semantic distance (between frames). This semantic distance is understood as the possibilities of an existent common space where the participants of the frames can be related. Thus, this comes to be a more abstract and schematic generic space that needs to be generated, if necessary. The consequences of this abstract and schematic space are different levels of integration, from literal to non-literal, for example.

Thus, Benczes' typology is taken to be part of a greater picture that we intend to explore. In order to achieve this reinterpretation we decided to take the emergent structure of compounds as a correlate of an explanatory typology of integration, therefore, dealing with different factors that intent to explain creativity and complexity.

The fact of working with data analysis facilitates the study of NOUN-NOUN compounds in terms of frequency of the component C in compounds COMPONENT - NOUN / NOUN - COMPONENT, measures of distinct compounds, and measures of spread of compounded domains, as it was already stated. All this related to semantic classes (abstract/concrete) as well, leads us to the study of prototypicality of the compounds. Subsequently, we can observe if these different concepts correlate with each other or not, maybe inner prototypical characteristics of a component result in specific outcomes in relation to frequency or maybe not, the example of the basic level word *pig* applies at this point. Besides, through the application of a quantitative method that consists in obtaining percentages of the frequency of the compounds (in terms of instances but also in terms of the absolute frequency of each instance in the *NOW corpus*), we could observe how the different factors (semantic class, semantic category, constructional schema, generic space, etc.) affect somehow the components so that these display higher or lower frequency or more or less entrenchment. Thus, it is fascinating how some patterns may emerge in as a consequence of the presence of these factors.

In addition, at the level of constructional schemas is where we encounter an analysis that leads us to the emergent structure of compounds. Factors such as semantic distance are pivotal at this point considering that the schematicity of the generic space of a compound indicates the semantic distance between the components. Moreover, a question that arises to the connection between semantic class and constructional schema has to do with the preference of a component to appear as a source or target either as a head or as a modifier.

In this sense, within the semantic universe we present in this study different patterns can emerge in relation to the schematicity of the components on the one hand, and schematicity of the emergent structure on the other: position of components as modifier or head, autonomy (literal domain) or dependence of the component (metaphorical domain), mechanisms of integration, etc. Under the assumption that creativity results from the semantic distance between the frames evoked by the components that make up a compound, and that this semantic distance is the crucial process to measure the extension in terms of the schematicity of the generic space, we have that the analysis of data based on a representative range of semantic types will give us different outcomes in relation to these two factors

(semantic distance and generic space) due to the fact that many different compounds, which are made up of different components, will be analysed.

The choice of data analysis that ranges from different levels of schematicity allows the study of non-creative integration, which can take place when two components are part of a single frame, thus they yield a literal interpretation, rather than a more extended generic space. Therefore, we can obtain outcomes in relation to the extension or not extension of frames within the semantic universe presented in the data.

In order to conclude, it is important to add that one of the worst pitfalls that we intended to avoid was not to be biased when choosing our input. Therefore, we decided that our input needed to cover a complete range of semantic features that allows for an extended range of conceptual characteristics of the domains participating in the compounds. In addition to the semantic features of the input, we also analysed the frequency of the components in order to cover a range of more or less frequent elements, and thus to find answers in relation to the process of entrenchment of the component and prototypicality of the domains involved.

As it has been already stated, this study follows a corpus analysis method that is underpinned by Benczes' corpus analysis study, moreover, we also make use of a quantitative method that, as it was already said, aims to find correlations between frequency of the components and the factors involved in the analysis.

4.2 Description of data analysis

Once the process of data selection has been finished, the following step in our research is to thoroughly analyse all of the data that was previously selected. The process of data analysis will consist of quantitative measures that will be applied to different portions of our data, which will allow us to organise everything much more neatly.

Therefore, before we do any analysis we need to quantify the data, and this will take us back to the *NOW corpus*. One of the factors that we need to keep into account for data analysis and for the stage of quantification is prototypicality. Prototypicality, as it has been stated before, can be observed in this regard if we look into the attraction of different domains within different instances of compounds with the same component. A compound will be more prototypical if the domains that it attracts and activates are the ones that are also activated in

several other instances of compounds that feature the same component. If it has a set of domain activations that is rather peripheral or unique, the compound will also be more peripheral. It is important to see how representative each one of the selected compounds are, and it is also important to have an idea of how many other possible compounds can be created that make use of the same component. We have to keep in mind that all of the words that were chosen for the basic level in our data selection stage are components that can be found inside several compounds in the *NOW corpus* either at the left-hand side or the right-hand side of a compound, making its formal distribution in the emergent structure another important factor to keep in mind. Thus, as it was already mentioned, all of the 21 components at the basic level will be searched in the corpus meaning that some variation in terms of prototypicality is to be expected in terms of the domain selection, that is to say, that we expect some sets of domain activations to be present more often than others. In the *NOW corpus*, all of the constructions that include one of the selected components are shown after a search is conducted, appearing from the entry that has been found more times –the most frequent– to the ones that have appeared more rarely –the most peripheral–. While it is true that prototypicality goes beyond frequency, this does not mean that we will disregard frequency entirely. In fact, it is a crucial aspect regarding the selection of data. So, in order to assess the prototypicality of a compound thoroughly, their frequencies need to be taken into account as well. This means that we will first need to search in the *NOW corpus* the total amount of times that a specific word appears, taking into account all of its entries. This will help us to see how prototypical or prominent certain words are, especially after we compare the frequency of one member of the superordinate category to one of its peers, which will allow us to see which one of the three is more predominant and prototypical in terms of absolute frequency.

It is also important to mention that multiple searches will be done for a single component, in order to cover for all of the possible instances in which a possible component might be featured. This means that searches will be done for each component in order to find it as a head or as a modifier; and also look for it in words that might be separated by a space or by a hyphen, or might not be separated at all. This will allow us to see how prototypical or peripheral a certain compound is in terms of pure frequency.

Another step of quantification of the gathered data that will be carried out is related to interpretation. This step will include taking all of the compounds at the subordinate level that were selected and see the nature of interpretation of all these compounds, whether they are literal or non-literal. Namely, this will mean that all of the compounds at the subordinate level that were selected and that share the same component will be grouped and categorised either in the category of literal or the category of non-literal interpretation. A literal interpretation is one in which the meaning of a word, or in this case, of a compound, is not extended by any rhetoric device that modifies or changes the literal meaning of the word, and no processes of meaning extension are at work. In cases such as these, the meaning of a word can be seen as "conventional". And in the context of compounding, a compound would be considered literal when their components are also literal and the compound refers to something that the compositional sum of the components themselves refer to. Likewise, when there is extension, metaphors or metonymies extend the original meaning of a word, and the meaning drifts away from what one would predict or the meaning that the components by themselves carry, we have a non-literal interpretation. Take, for example, the ever-expanding amount of compounds that have the component *apple* in them. *Apple*, as we have typically used and known it, is a word used to denote a fruit, so every compound with *apple* that activates the expected domains, such as FRUIT and EATING, would be categorised under the group of literal interpretations. On the other hand, some interpretations of compounds that have the word *apple* do not activate the expected domains of FRUIT or EATING, and activate other domains instead, thus making use of an extended meaning of the word that does not refer to an apple as we know it. These are non-literal meanings. It is important to mention that the distinction between literal and non-literal interpretations is also linked to prototypicality in a much more dynamic way than expected. Perhaps, one would think that the literal meanings are always going to be the most prototypical in terms of frequency, but this correlation can be challenged in some cases in which a certain non-literal interpretation has become entrenched and very frequent in language. Once again, coming back to the example of *Apple*, the technology juggernaut *Apple Inc.*, a Chicago-based tech and electronics company has been so influential in everyday life that it has made its way into language. This can be seen in some compounds that have been created in the past decades, such as *Apple computer* (which would have made no sense before *Apple Inc.* became

famous), which have become prevalent even though they make use of what was a non-prototypical domain activation and a non-literal interpretation of the word *apple*. It is important to note that examples such as these are rather special. It is the name of a company denoting for something else, and compounds like *Apple computer* do not actually have meaning extension devices such as metonymy. The case of *Apple Inc.* is a very specific and unique case motivated due to the explosive rise of portable technology, but it serves as an example that shows that sometimes non-literal meanings of compounds are also quite prototypical in terms of absolute frequency.

Another methodological step to be taken in the analysis of the compounds at the subordinate level which is related to interpretation is related to semantic spread, and it deserves to be mentioned separately because it requires a different kind of analysis. As it was briefly mentioned before, the components at a subordinate level might share the same compound at the basic level, but they might also display differences in terms of domain selection (and, in hand, of meaning). So it is necessary for us to look at the possible spread of the domains that are activated or not between different interpretations of compounds that share a component. Remember that when searching for a component in the *NOW corpus*, several entries will appear that make use of the component in question. In order to organise this, different entries will be grouped in different groups depending on different domains that are activated. The possible spread of domains happens in NOUN-NOUN compounds when different instantiations of the same component (one of the 21 words at the basic level) are combined with different components that elicit a different set of domain activations. Here we can have, for example, a component that has a marked tendency of activating the same compound consistently. The opposite case might also be a possibility, where we have a component that activates a wide variety of domains with no clear predominance of one domain above the rest. In the first case, there would be little semantic spread, and a high semantic case for the second case. Take a look at the following figure.

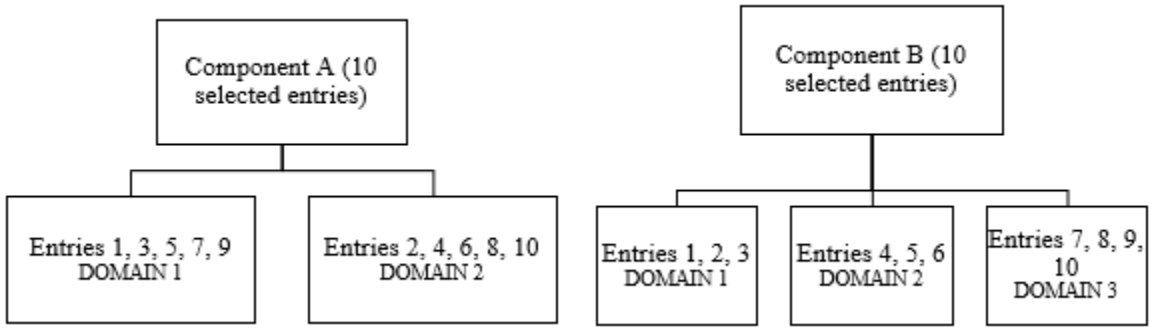

Figure 4.1. A comparison between the spread of domain functions between two components and its selected compounds

In figure 4.1, each one of the hierarchical maps shows a hypothetical component that is part of the twenty-one components at the basic level, and the groups of entries listed in the lower level of the figure represent different entries that feature the component, with each box representing a different domain that is activated. So the greater the amount of boxes in the lower section of the figure, the wider the array of domains that are activated with the same component. Figure x displays a hypothetical situation in which ten compounds (the entries) have been chosen in the process of data selection for component A, and these compounds have been divided into two groups: one group with compounds one, three, five, seven, and nine; and a second one with compounds two, four, six, eight, and ten. Something different happened with component B, which is located at the right-hand side of figure x. Here, ten compounds were chosen for analysis and they were divided into three groups: the first one with components one, two, and three; the second one with components four, five, and six; and a third one with components seven, eight, nine, and ten. Each one of these groups, the two groups for component A and the three groups for component B, represent different domains that are activated by each component. To put this in concrete terms, take into account, once again, the amount of compounds that have been created (and are yet to be created) with the component *Apple* that activate domains such as TECHNOLOGY, DEVICE, and COMPANY instead of activating the more "classical" domain of FRUIT. This, in turn, means that not every compound that features the component *apple* will necessarily activate the domain of FRUIT. Creative use of language allows us to activate new, playful and unexpected domains as opposed to the ones that are prototypically activated. This means that the

component activates two different domains, whereas component B activates 3. The difference between component A and component B does not seem to be so big, but it still shows that there is less semantic spread. In reality, we expect to encounter cases that are much more drastic. One extreme case would be to have a wide array of compounds that feature the same component, and having all of them activate the same domain. The polar opposite to this case would be to have a different domain activated for each different compound, which would mean that the compound has an extremely wide semantic spread. Such a case would have implications such as the possibility of talking about almost anything with that component, but it would also carry a negative implication of not being associated with a specific domain to orientate whoever is analysing or trying to understand the compound. Please note that the example shown in figure x is an oversimplification with numbers and amount of sets of domain activation that will illustrate the point easily. Thus, this step involves categorising each compound and tabulating it by associating it with the domain it activates.

Highly related to semantic distance is the degree of schematicity of the generic spaces between the two components of a compound, so this must also be taken into consideration. In the context of our research, the compounds are the union of two nouns. Since each of the selected compounds were obtained and collected from a corpus or a dictionary of novel words that have been used in print or multiple times online, they are words whose noun union actually makes sense and carries meaning, whether literal or non-literal. The union of two nouns means that there is a selection of two input spaces, and these two mental spaces whose union creates a meaningful compound need to have a common base that relates them. The closer the two input spaces and components, the less semantic distance that there will be between them, and this enables the generic space to be richer and less schematic. The exact opposite of this happens when we have a union of two compounds that are hard to link. The two input spaces have a greater semantic distance which in turn make the generic space more schematic. For example, if we were to analyse the compound *Apple eater*, the activated domains are the domain of FRUIT and EATING, which are closely related since fruits are edible. The generic space of such a compound is much more concrete and specific. On the other hand, if we were to analyse a hypothetical compound whose activated domains are FRUIT and POLITICS, a specific generic space will not be sufficient. We need a very broad

and schematic generic space that can successfully integrate and enclose the domains of FRUIT and POLITICS. Under this principle it is possible to join any two domains under a generic space, no matter how different they are. This does not mean that we can join two things that are semantically distant and expect them to be effective from a communicative point of view, because an unlikely joining of two domains will be just that, unlikely. This will make them harder to communicate successfully. Still, this happens in language, and we expect to encounter interesting cases whose input spaces hold between them a big semantic distance.

Another important factor to be taken into account within our analysis has to do with the emergent structures and, more specifically, the syntactic roles and grammatical function of the compound in question. In more concrete terms, syntactic roles in NOUN-NOUN compounds refer to heads and modifiers, and how any given component, including the 21 components that we are working with, can theoretically function as both a modifier and a head of different compounds. It is important to see what are the differences that may arise from having a component in the position of a modifier as compared to what happens when the same component is at the position of a head. For example, we might have a case in which a specific component belonging to the superordinate category of BODY PARTS, say, *eye*, will be featured as a head in compounds that are mostly literal. This may or may not happen when *eye* is in the position of modifier, as we can have a tendency of compounds in which *eye* has the role of a modifier to be mostly non-literal.

Another possible difference relates to the different domains that are activated. The change between the two possible syntactic roles may generate noticeable differences in terms of domains that are activated. Not every domain that was activated that is activated in one syntactic role will necessarily be activated in the other, there is no reason why every domain that N - EYE activates has to be activated in EYE - N. It is plausible to have activations of domains that are predominant when a component is the modifier that is completely non-existent when the component is the head, although this would be a rather extreme case.

It is important to emphasize the large amount of comparing and contrasting that will be done in the analysis. After assessing the semantic spread of each component and the nature of interpretation of their compounds at the subordinate level, we need to compare these figures to other pieces of data. This involves taking the analysis of the nature of interpretations of the components of a compound, along with its semantic spread and

comparing them to another component. This means that, for the superordinate category A, there will be an analysis of the results for the component A1 that is member of the category, which will then be compared to the same results of the component A2. This would allow us to see if there is a particular pattern within the interpretations and the extent of the creativity of the components at the basic level that belong to the same superordinate category. It will also allow us to see if there is a particular component at the basic level that shows differences in terms of extension and creativity as compared to its peer components. In other words, this will account for the intra-categorial analysis. This is illustrated by step (1) in figure 4.2:

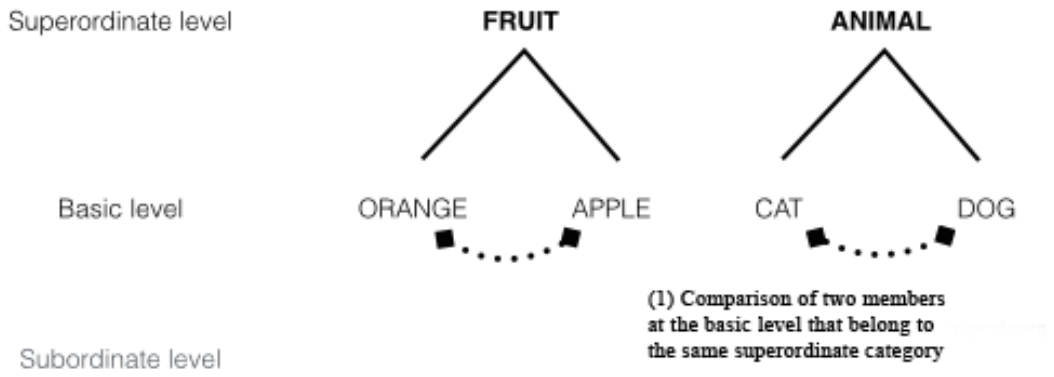

Figure 4.2. Intra-categorial comparison.

Figure 4.2 illustrates how in this step the basic level words *orange, apple, cat* and *dog* were analysed, and afterwards a comparison was made between the different analyses of each member of the same category. Thus, the analysis of the aforementioned steps that was done to the component *orange* was compared to the analysis of *apple*, and the analysis of *cat* was compared to the analysis of *dog*. This intra-categorial comparison will be done in all seven superordinate categories. After comparing the analysis of all three components at the basic level that belong to the same superordinate category, another step has to be conducted which is an inter-categorial analysis. This means, in schematic terms, that all of the patterns that were obtained from the intra-categorial comparison of category A will be compared to the patterms that were obtained from the analysis of category B, C, and others. This step of inter-categorial analysis and comparison will be illustrated by step (2) in figure 4.3.

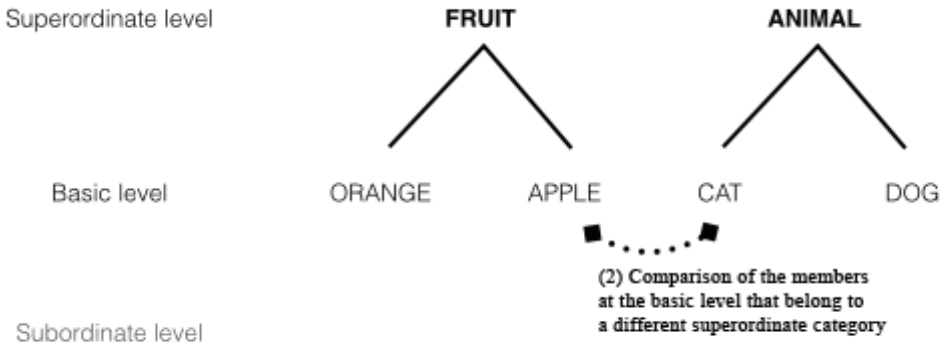

Figure 4.3. Inter-categorial comparison.

The figure shows a brief example of the inter-categorial comparison, Through the comparison of the analysis of the members of the category FRUIT with the members of the category ANIMAL, more conclusions can be reached. Initially, the intra-categorial analysis and the other steps that have been mentioned thus far shed light into the creative usage of compounds within a specific category, but providing more perspective from other categories will highlight certain features that may have been overlooked at first that are unique or that are present in a different way. One of these features that may be overlooked is the amount of domains that each category activates in total. If we stop after the intra-categorial analysis, we might not realise that category A is actually a category that activates a very small amount of domains. A conclusion such as this can only be reached when we gather more observations that give an ampler range of perspective, gathered from comparing the analysis of one category to another one.

Throughout this section, most of the attention has been given to the words at the basic level, but the subordinate level is also quite important. Each case of compounding includes a process of blending, in which the two input spaces interact with each other and establish mappings that give rise to the emergent structure. The analysis of each category will in fact start with an overview of the different types of blendings that can be found in the superordinate category. To properly explain and give a detailed account of the different types of blendings, it will be necessary to provide examples that belong to compounds at the subordinate level, which serve as a representative case. Also, a detailed account of some

specific yet very interesting cases will also be provided. These interesting cases will include a detailed analysis in which all of the mentioned factors will be addressed, with the addition of an explanation behind the mappings and the meaning of the compound. In addition to the in-depth analysis of interesting cases that represent different types of blendings, we will also provide an in-depth analysis of the most representative cases of the superordinate category, even if they are not interesting regarding the blending process. This will be done in order to provide a thorough analysis that not only covers for peculiar and interesting cases, but also for the most typical cases as super.

4.3. Expected Results

The results we get will provide insights on the factors we will be measuring, such as prototypicality, semantic distance, schematicity, transparency, level of integration, type of integration and creativity. We expect that any differences and similarities that we can find regarding the constituents of the compounds we will be working with, in terms of how their semantic features are maintained or modified in the emergent structure, as well as any patterns regarding the type and/or position of modifiers and heads, their profiling, the domains that the constituents or the emergent structure belong to, the use of metaphor and metonymy, schematicity of the generic space, creativity, etc., that might emerge from the different combinations, will be more evident and relevant at the superordinate level of our taxonomy, since at this level we will have enough instances to make our observations representative and meaningful. The superordinate level, then, will allow us to make generalisations regarding the different categories. On the other hand, we expect that the basic and subordinate levels will provide rich data on particular instances of a phenomenon and noteworthy cases.

One of the objectives of this research is to explore the issues of complexity and creativity of NOUN-NOUN compounds. One of our main assumptions is that the creativity that can be observed in the formation of some compounds is not only consequence of the use of metaphor and metonymy, as some authors propose, but rather the result of the semantic distance between the two concepts that make up the compound. We expect to find evidence to support this claim by establishing a correlation between those compounds that are more

creative and have a greater semantic distance between their components, and at the same time identifying instances in which metaphor and metonymy are not central to the creative aspect of a compound.

It should not be taken from this assumption that metaphoric and metonymical devices play no role in the level of creativity and abstractness of compounds. Instead, what we claim is that the use of metaphor and metonymy has its base in how the generic space is conceived in terms of schematicity and prototypicality. In fact, we expect to observe that the creation and interpretation of compounds is sometimes based not on the integration of frames, but solely on the continuum of metonymy and metaphor. First, let us consider the implications of schematicity for the formation and interpretation of compounds.

We propose that the semantic distance between the constituents that form a compound can be measured by the abstractness of the generic space. We understand this abstractness as directly related to how schematic the generic space is. We expect to find that in most, if not all cases, the degree of elaboration and schematicity of the generic space will imply a higher degree of abstraction when getting to an interpretation of the compound. This is due to the fact that a more schematic generic space allows for more semantic extension of the concepts that make up a compound, and this greater extension allows a wider emergent structure to be interpreted, since highly schematic concepts provide a broad range of different meanings according to the context.

We also hypothesize that in cases of sets of compounds which share a head and have modifiers that belong to the same domain there might be a common generic space between the modifiers, which allows that the meaning of the head is extended according to this common generic space, rather than extending its meaning by each particular instance. This would increase the productivity of the head, since it would be easier to form compounds from an already pre-formed generic space, therefore we expect that these compounds will have a high number of both similar compounds and instances of use of these compounds.

As a result of this wider emergent structure, a higher degree of schematicity and abstraction will yield a less transparent emergent structure. We expect to find that the more schematic the generic space of a compound is, the less transparent it becomes. Therefore, compounds with a greater semantic distance will tend to produce more metaphorical interpretations, while compounds with a more concrete generic space will usually have literal

interpretations. Similarly, and based on some preliminary observations that we have made regarding the behaviour of literal and non-literal compounds, we have noticed that compounds of literal interpretation will always be concrete, while non-literal compounds of literal interpretation will always be concrete, while non-literal compounds can be either concrete or abstract.

One of the central aspects of compounds that we will look into is how prototypicality affects the emergent structure of compounds. One our first preliminary observations regarding this issue are that prototypical compounds tend to yield transparent compounds. We believe that this is due to the fact that concepts acting as modifiers which have a general meaning, such as those in the superordinate level – opposed by highly specific concepts, as the ones in the subordinate level –, have the tendency to sanction specific domains when they are part of compounds that target semantically related concepts, by profiling the same aspects of similar sources. In other words, some modifiers have a tendency to profile the same characteristics over and over again when they form compounds, and when this happens, the other concepts that form these compounds usually belong to the same domains.

We believe that this phenomenon occurs because as a modifier is used repeatedly to have the same meaning on an emergent structure it becomes entrenched, due to frequency of use, and when this happens it is more difficult to create a compound with this modifier that profiles a different aspect. Since some compound combinations are semantically unfeasible, the heads that said modifier can select become constrained by its entrenched mea
ning. This could possibly account for the preliminary patterns that we have already observed regarding the profiled aspects of modifiers in relation to their heads, the selection of similar categories of heads by the same modifier, and the domains that are sanctioned by compounds with similar components, assuming that we can find further examples of this phenomenon.

We anticipate that one of the effects that this process of entrenchment has is that even those concepts which are semantically complex can be easily blended with other concepts to form a transparent compound, since the frequency of use and the prototypicality of the modifiers makes it easy to analyse. This could possibly have an influence in the productivity of some modifiers. We expect that more prototypical modifiers – that is, concepts that always have the same characteristics profiled in a compound – will have a high frequency of use as parts of compounds in the corpora we will search. Additionally, we have also observed cases

in which the modifier of a compound that has become entrenched gets re-analysed in the process, and thus projects different semantic functions than its original meaning as a word, or part of a word. We intent to observe if this situation is common among the compounds we will find, or if the instances we have observed are isolated cases.

To sum up, based on our preliminary observations, after we have carried out the analysis of our data we expect to find that the schematicity of the generic space, the prototypicality of the constituents, and the entrenchment of the relations that allow integration are the factors that determine the frequency of use of a determined compound, the productivity of some concepts when they function as heads, the use of metaphor and metonymy in the creation of compounds and the level of transparency of a compound.

Chapter 5
Results and Analysis

Based on the compounds that we analysed, we were able to determine what are some of the factors that play a role in compound formation and interpretation, and the importance of these factors. Firstly, it seems that one of the most relevant factors is prototypicality and entrenchment, that is to say, how frequently used a noun is, how frequently this noun is part of a compound, and which aspects of the noun tend to be profiled in non-literal compounds. We have identified that words that are more frequent tend to form compounds of a greater semantic spread and more non-literal compounds. An example of this is that in the category of FRUITS the most frequent word is *apple*, while *lemon* is the least frequent. Nouns formed with *apple* have a greater percentage of non-literal interpretations, and a greater number of activated domains, that nouns formed with *lemon.* However, the frequency of a word in itself is not enough to account for a greater productivity of compounds. How entrenched the meaning of a word is appears to be even more relevant than frequency.

Within the category of ANIMALS, *bear* had the lowest frequency. However, there are many cultural meanings associated to it, referring to cartoon characters and toys, which serve as a motivation for many compounds that do not refer to literal bears. In this case then, the prominence and entrenchment of a compound serves as a source to create a large amount of compounds that regularly profile the same elements present in the cultural model. This also explains the regular patterns of profiling observed in compounds belonging to the NARRATIVE ENTITIES category, in which the same aspects of the nouns are always profiled, even when the emergent structure refers to very different domains. It also explains why these compounds are of easy interpretation: since the same information is always profiled, the blending process always follows the same pattern. Taking the importance of entrenchment into account, it becomes necessary to consider whether there is in fact a relation between frequency and productivity, as we have identified, or whether the regularities that were observed are only a consequence of most entrenched words being more frequently used.

Another important factor is the schematicity of the generic space in the formation of figurative compounds. In general, for non-literal compounds a greater semantic distance between the components entails a more schematic generic space. However, this abstraction

of the generic space seems to be more relevant in some categories than others. For example, many non-literal BODY PARTS have a very schematic generic space. However, in the case of NARRATIVE ENTITIES the generic space tends to be more specific, given the previously mentioned level of entrenchment that they have. Based on this observation we can affirm that prototypicality and entrenchment are not only important factors on their own, but that they also interact with other factors, which makes very difficult to analyse factors separately.

The syntactic roles that nouns from the different categories that we worked with play within the compounds are also a factor in compound creation and interpretation, although it is less important than the others that we have identified, since its influence it is not so clear in as many sets. We have identified that in some cases when the noun we were analysing was a head, there was a smaller number of activated domains than when it was a modifier. We also found two instances in which nouns only functioned as modifiers, not heads. These were the N- FRANKEN and N - CHRISTIAN sets.

These factors and their importance in compound creativity and frame integration will be further explored in the following sections, focusing on each specific super-ordinal category and providing specific examples. For each category we will discuss how these factors interact with each other the process of blending to achieve conceptual integration; the semantic distance, understanding it both as the amount of domains that a noun can activate and the semantic differences between the components of a compound; the specific effects that the grammatical roles of the nouns we analysed in the compounds – in other words, if there are any observable differences when a noun acts as a head or as a modifier; and finally the specific aspects of each super-ordinal category in which it is similar or different to the other categories.

5.1. Concrete categories

5.1.1. Body Parts

5.1.1.1. Conceptual Integration and Blending

It was observed in the collected data of compounds that those which only required literal interpretations tended to involve simple networks, sustained by rather concrete relations in their generic spaces. Amidst these we find compounds such as *headache, headphone, shower head, fish head, brain tumour, brain surgery, mouse brain, lizard brain,*

eyeball, eyelid, glass eye, and tiger eye. These are compounds where one of the components sanctions a given domain while the other specifies certain element within that domain. Thus, the blend to be found in such compounds can be explained by means of mere compositionality. Take, for instance, the case of shower head, where the component "shower", an element to be understood within the larger domain of HOUSEHOLD EQUIPMENT, is specified by the following component "head". Thus, the compound as a whole refers to certain part—the head—of a shower.

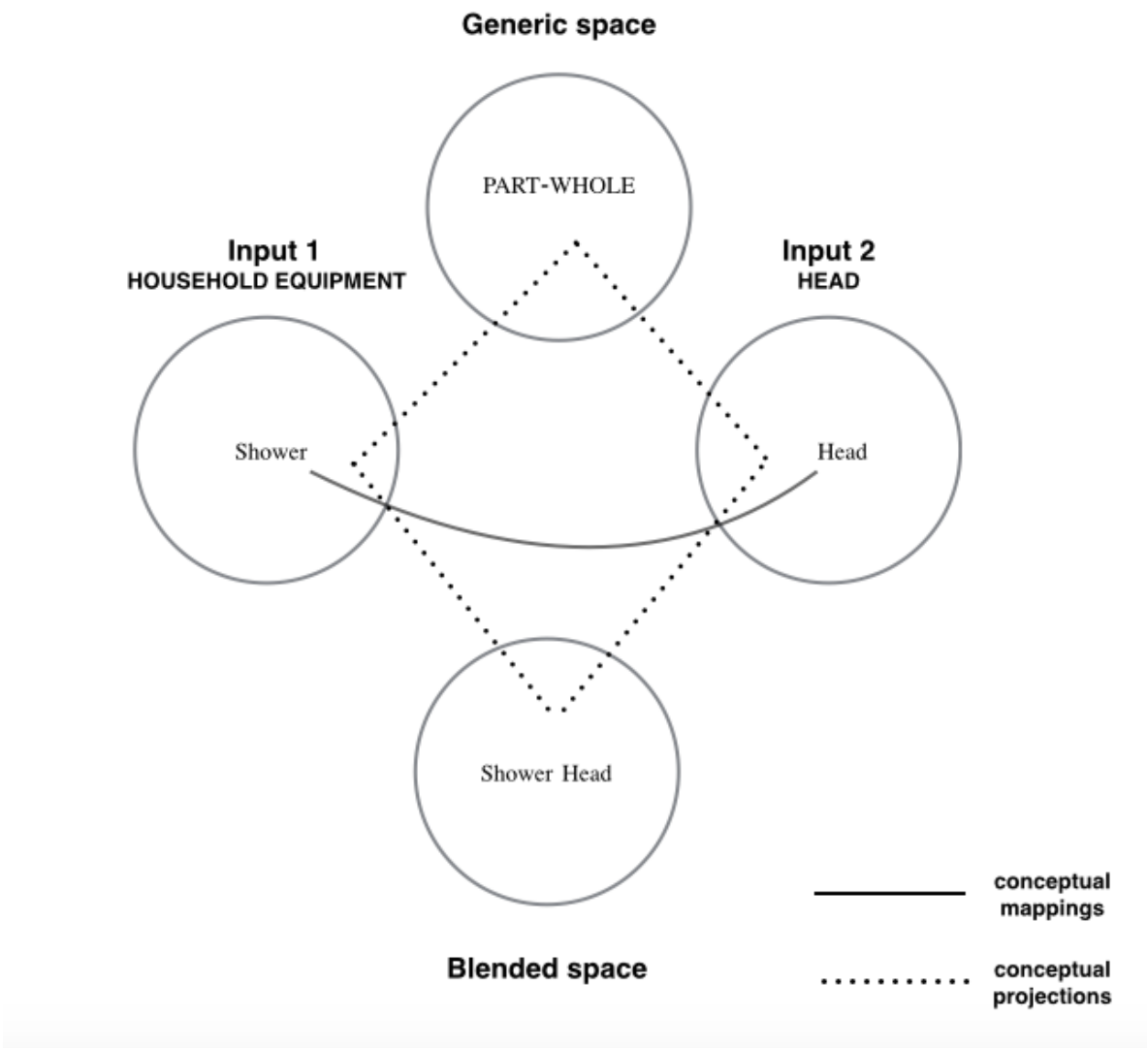

Figure 5.1. The blend analysis of Shower head

In non-literal compounds, however, a whole range of blending networks of varying complexities was observed.

For instance, there were compounds such as *head coach*, were the emergent structure of PERSON arose on the basis of two input spaces: BODY and HIERARCHICAL ORGANISATION being held together by a highly schematic generic space containing a relation of structural similarity between both entities and their respective domains, possibly fed with an imagistic content. Thus, the emergent structure of *head coach*—PERSON—is, counterintuitively, not sanctioning a PART for WHOLE metonymy, but a quite more schematically-based metaphor. The same happens with most (93%) of the encountered NOUN - HEAD compounds.

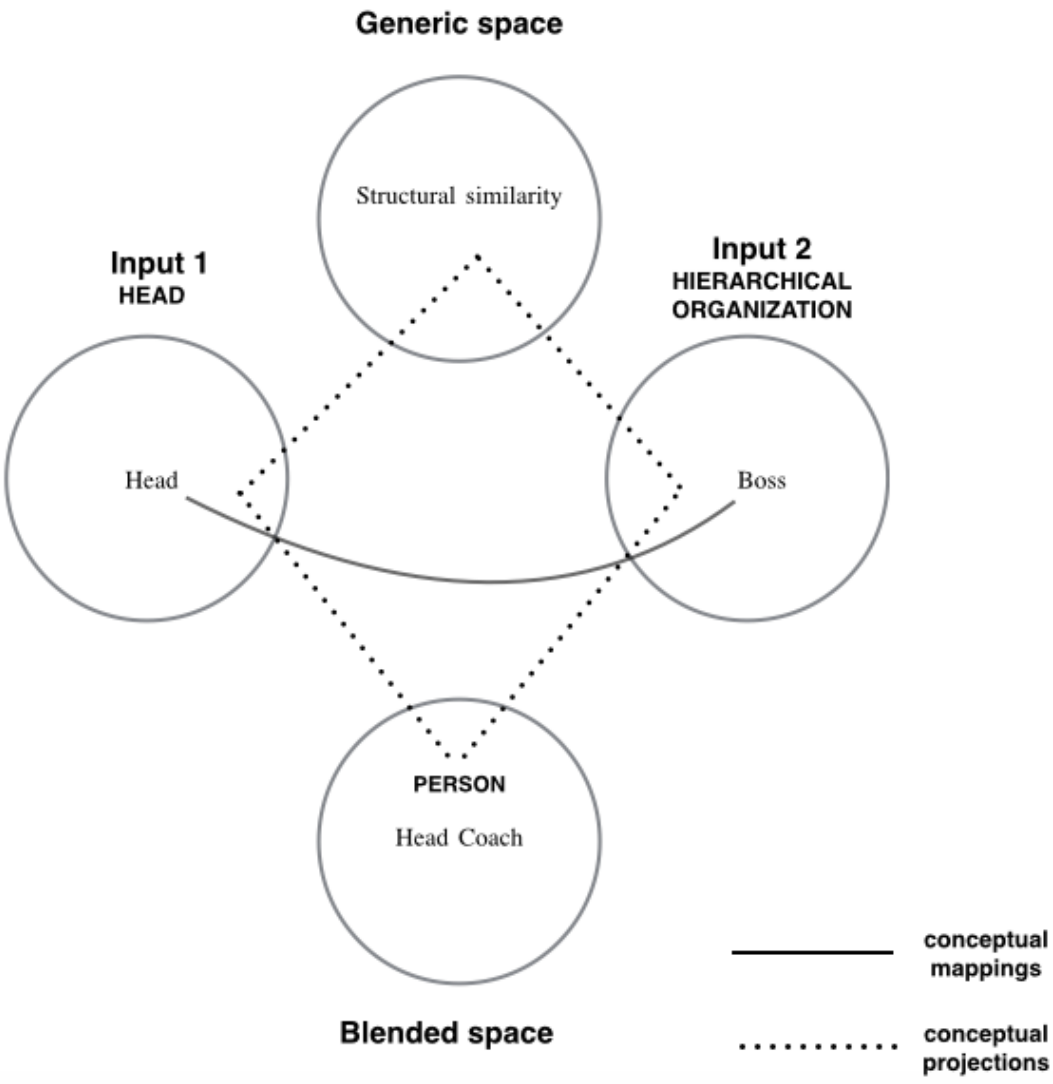

Figure 5.2. The blend analysis of Head coach

Different is the case, however, of the blending network for compounds such as *Head hunter*, where, on the one hand, we have a salient component of the domain of BODY, and on the other, the domain of HUNTING. Once blended together, they activate the domain of PERSON, that is to say, a hunter than hunts people. Of course, this is a compound underpinned by a metonymic association whereby the head, possibly the most salient part of the body, stands for the whole body. Altogether, the generic space that holds together this blend, though schematic, could be said to be less schematic than in the previously mentioned case, as it draws from structured participant roles already contained within the domain of HUNTING: The action of HUNT, a HUNTER—the AGENT, and an OBJECT role to be filled by the metonymy HEAD for BODY.

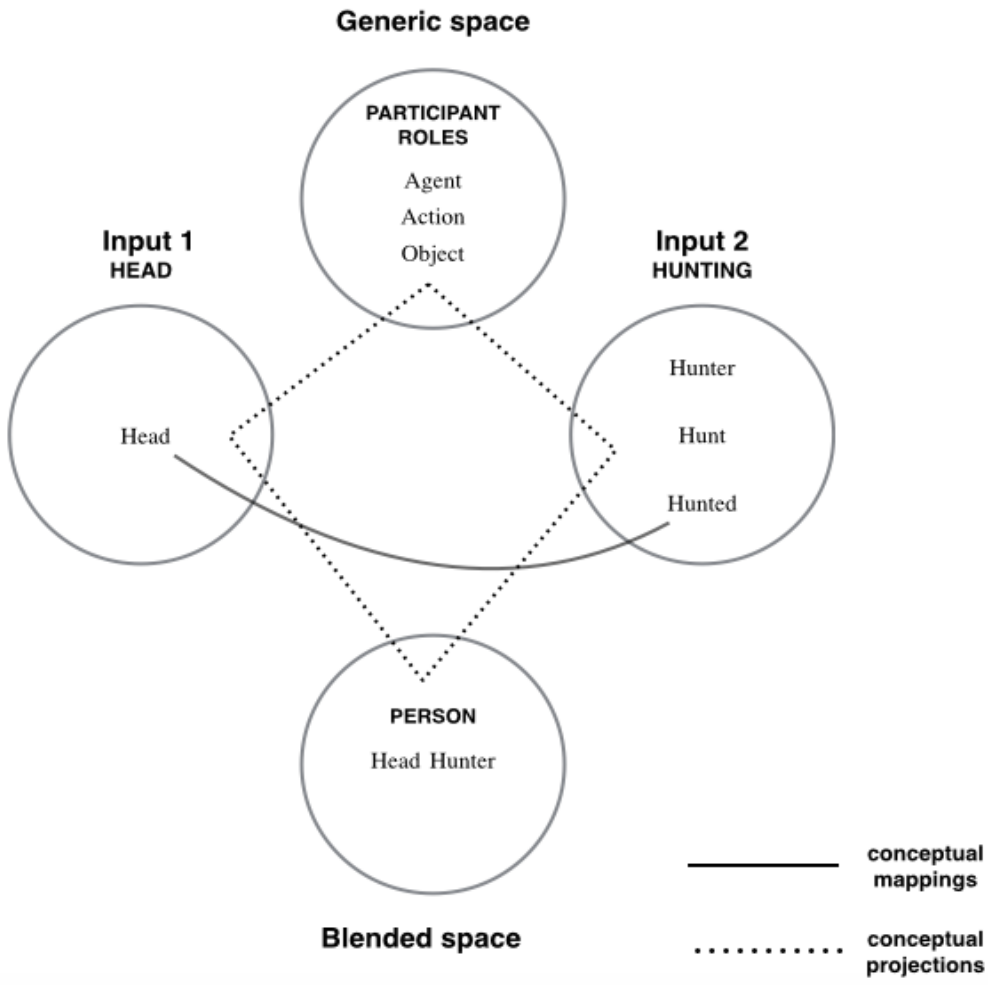

Figure 5.3. The blend analysis of Head hunter

The most complex blending networks encountered in the data related to BODY PARTS were those found in BRAIN - NOUN compounds sanctioning the domain of THINK. Let us focus, as to exemplify, in the case of *brain child*. On the one hand, this compound is underpinned by an *inclusive metonymy* whereby BRAIN and THINK co-exist as subdomains within the larger domain of HUMAN BEINGS. This co-existence allows them to stand in such a relation of contiguity that the one can stand for the other. This is to say, they establish metonymical links with each other. Thus, either of these elements can be employed to refer to abstract entities in the domain of THINK.

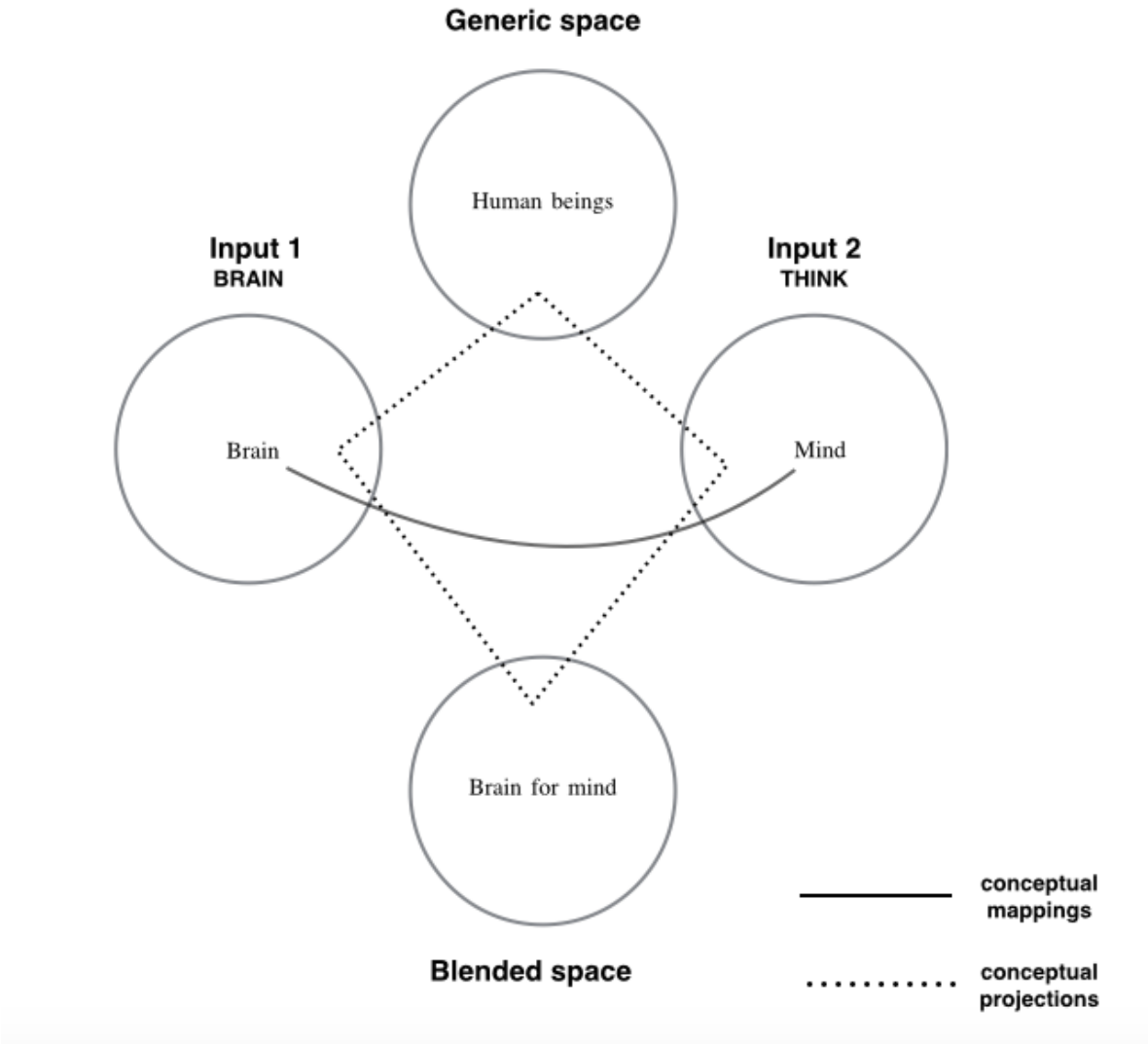

Figure 5.4. Blend Analysis of Inclusive Metonymy Brain/Mind

In parallel, it also involves a metaphoric blending of the input spaces of IDEAS and BIRTH motivated by a very schematic perceived resemblance between giving birth and conceiving ideas. Altogether, these two distinct blends are integrated into one by means of a highly schematic generic space containing all of these relations, so that the overall meaning of the compound brain child highlights the authorship or ownership of a given idea, such as in the sentence: *The iPhone is Steve Job's brain child.*

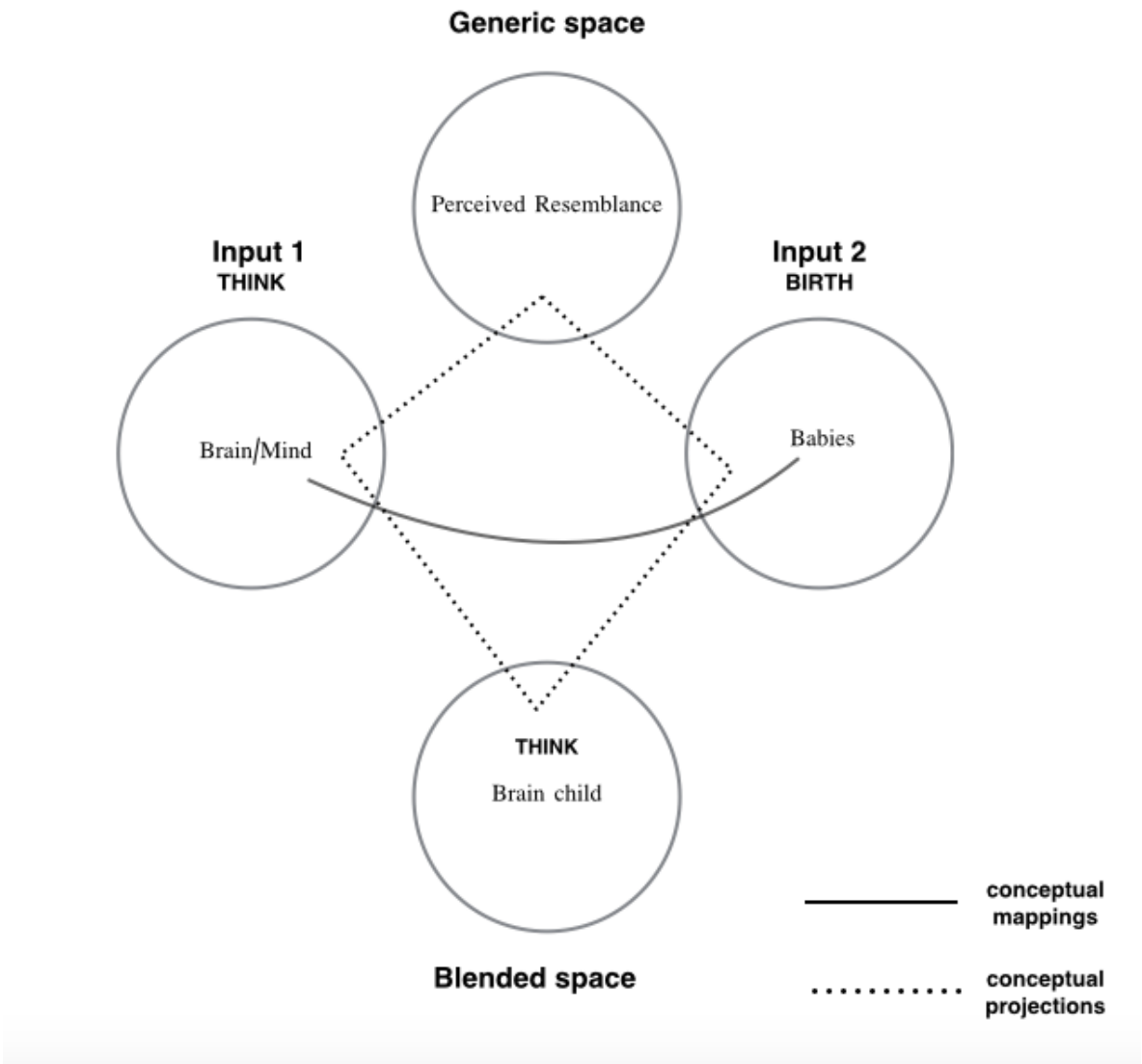

Figure 5.5. The blend analysis of Brain child.

5.1.1.2. Semantic Distance

The notion of semantic distance was approached from two points of view as to conduct the following analysis. In a general level, semantic distance was regarded as the total range of domains activated by a compound's emergent structure. Semantic distance, from this perspective, is thus equated with the semantic spread present in the observed compounds. In the case of compounds with a lexical concept related to the domain of BODY PARTS, the average amount of activated domains was 10.

The observed HEAD – N compounds exceeded the average, as they activated over 12 different domains. Conversely, N – HEAD compounds were significantly below the average, as they activated just 3 different conceptual domains in the observed occurrences. Thus, HEAD – N compounds can be generally said to entail greater amounts of semantic distance than N – HEAD compounds. Possibly this is due to the fact that, in NOUN-NOUN compounds, it is often the second component the one that determines the referential profile of the compound as a whole. Thus, when *head* appears in this position, the referential potential of the compound is strongly narrowed down.

Meanwhile, BRAIN – N compounds were seen to select up to 10 different domains, whereas N – BRAIN compounds just 4. Again, as in the case of HEAD, it follows that the right-hand position *brain* diminishes the compounds' overall semantic spread.

Finally, both EYE – N and N – EYE compounds showed a similar semantic spread by selecting approximately 11 different domains each. An asymmetry that contradicts the pattern that we have been seeing in the other cases. Possibly, the component *eye* has a greater metonymic potential.

Thus, in the case of EYE – N, 29 out of the 30 occurrences observed are strongly motivated by metonymic associations not requiring a non-literal interpretation. For instance, in the compound *eyebrow* (BODY PART), the metonymy is sanctioned by a spatial contiguity. On the other hand, in *Eye witness* (PERSON), what holds the compound is an experiential association between the eyes and sight, so that *eye* can stand for *sight*, and as in this case, even for the "action of having seen something". The same happens in simpler compounds such as *eye sight* or *eye view* (SENSE). However, *eye* can also be metonymically extended as to refer to the domain of HEALTH, such as in *eye glasses* and *eye drops*—associations yet again underpinned by spatial contiguity. In N – EYE compounds, the metonymic ground is

kept, and often extended into figurativity. For instance, in the case of *public eye*, where *eye* is metonymically standing for *attention*, to be then metaphorically mapped onto SOCIETY. Something similar happens in the case of *Fish eye*, where an initially literal metonymic relation in the domain of ANIMAL is metaphorically extended into the domain of TECHNOLOGY as to refer to a particular type of camera lens, or –if extended even further— to the visual distortions that photographs taken with such lens have.

Altogether, no significant overlapping of domains is observed when reverting the BODY PART components' syntactic roles. Additionally, at this level of analysis, no relation between semantic spread and the emergence of figurativity are observed.

A pattern does emerge, however, when one relates the chosen BODY PART lexical concepts and the specific domain that is being activated by the compound's emergent structure. In other words, if we measure semantic distance in terms of the generic space that sustains the conceptual blend underlying a given compound, we can observe certain patterns in the emergence of figurativity.

Firstly, in the case of HEAD – N compounds, we found that in 5 out of 6 instances the domain of PERSON (e.g. *head coach*) was activated. Moreover, all 5 cases required a figurative interpretation. All 5 instances sanctioned a metaphoric relation whereby the *head*'s position in the human body, as well as its associations with agency and intellect, are mapped into the hierarchical structure of an organisation. So that *to be the head* is interpreted as *to be the boss*. This emergence of figurativity due to semantic distance is in agreement with the elaboration of Dirven's ideas (2003), previously presented in the framework, which state that it is in this leap from concreteness (*head)* to abstraction *(hierarchical structure, person)* that figurativity surfaces. Conversely, the remaining occurrence sanctioning PERSON (*head hunter*) was regarded as literal due to the presence of strong experiential links that allow *head* to stand for PERSON without calling forth figurative interpretations; in Dirven's terminology (2003), this would be categorised as a *linear metonymy*.

The same pattern can be observed in HEAD – N compounds sanctioning the domain of LOCATION (e.g. *Head office, Headwater*, etc.). All 6 occurrences sanctioned a similar, though not identical, metaphoric association between the position of the head in the human body and the location of the entity being referred to. Thus, for instance, in the cases of *head quarter* or *head office*, meaning the centre of operations of an organisation, what is being mapped from

HEAD to LOCATION is the aforementioned conception of the former as centre of agency and intellect. In *headwater* or *headland*, on the other hand, what is being profiled is the spatial attributes of *head* in relation to the human body.

Likewise, in N – HEAD compounds it can be observed that 28 out of 30 occurrences sanction the domain of PERSON, all calling forth figurative interpretations sustained in the same metaphoric relation: *The Head* is *the Boss in a hierarchical organisation.*

For BRAIN – N compounds, a pattern of figurativity was observed in relation to the occurrences sanctioning the domain of THINK (*e.g. brain child, brain storm*). All 3 occurrences could be said to be metaphors underpinned by Dirven's (2003) *inclusive metonymies*, inasmuch as both BRAIN and THINK co-exist as subdomains within HUMAN BEING. Then, this already figurative metonymy is extended. For instance, to make sense of *brain child*, one first must regard ideas as entities conceived –by analogy to giving birth—in the mind. Then, by exploiting the contiguity links allowed by the underlying inclusive metonymy, the more concrete element of brain comes to stand for the more abstract one of mind.

A similar association takes place in those N – BRAIN compounds that sanction the domain of PERSON (e.g. *football brain, business brain*). Altogether, the 8 encountered instances require a non-literal interpretation, where BRAIN comes to stand for a person's overall knowledge and capacities. Likewise, and possibly either as an extension of this or fed by the conceptual metaphor MACHINES ARE HUMANS, when N – BRAIN compounds activate the domain of TECHNOLOGY (e.g. *computer brain, robot brain*) figurativity also emerges.

There is only one occurrence requiring a figurative interpretation in EYE – N compounds— *Eye Candy*. This sanctions the domain of QUALITY, as it refers to something or someone that is "pleasing to the eye". Despite the lack of other instances to look for patterns as to explain the emergence of figurativity, the increased semantic distance entailed by the synesthetic association between the senses of sight and taste that underlies this compound may suggest that, as in previous cases, figurativity comes hand in hand with it.

Finally, for N – EYE compounds, clear patterns in the emergence of figurativity were observed for those instances, 3 and 3 respectively, that sanctioned both the domains of SOCIAL BEHAVIOUR (e.g. *Public Eye*) and SKILL (e.g. *Weather Eye*). In the former case, *eye* stands metonymically for attention, and is then subsequently mapped from the domain of

BODY PARTS unto the domain of SOCIETY. Yielding such an emergent structure, that the overall compounds are interpreted as a widespread social behaviour whereby society in general is paying attention to certain issue or concern. In other words, the domain of SOCIETY is structured in terms of the HUMAN BODY. In the latter case, the metonymic association between EYE and SKILL is a subtler one. To have a *weather eye*, that is, to have a talent for perceiving changes in the weather is a metonymy underpinned by, in the first place, an association between EYE and SIGHT, and secondly, by the metonymic relation of INSTRUMENT for ACTION. Thus, the *eye*, as the instrument, comes to stand for both the sense of sight, and the action of noticing changes in the weather.

5.1.1.3 Syntactic roles

In the collected corpus of NOUN-NOUN compounds containing the lexical concepts of *head*, *brain* and *eye*, there seems to be a remarkable equilibrium in terms of the distribution of literal and non-literal instances. Taken together, the collected compounds require, on average, a literal interpretation 49.3% of the time. Conversely, non-literal interpretation is required in 50.6% of the instances.

The cases that diverge most from the average are, on the one hand, N – HEAD compounds, 93% of which require a non-literal interpretation, and on the other hand, EYE – N compounds, which have a literal meaning on 97% of the instances.

By unpacking the collected corpus according to the grammatical role of the component part, a pattern seems to surface. This pattern follows the distribution of the aforementioned cases of N – HEAD and EYE – N. Thus, there seems to be a slight tendency (62%) for the compound to have a literal meaning when the component sanctioning the domain of BODY PARTS functions as a modifier, such as in headphone, headlight, and head injury. Conversely, when these component parts function as the compound's head, a similar tendency (64%) appears, in this case, however, in relation to non-literal meanings, such as in the cases of *public eye* and *football brain*.

There are, however, plenty of cases in the collected corpus that contradict this pattern. For instance, in the cases where the lexical concept of *brain* functions as modifier within a NOUN - NOUN compound, we see that it requires, despite the aforementioned general pattern,

a non-literal interpretation in 77% of the occurrences. Similarly, when *brain* appears as head of a compound, it requires a literal interpretation 67% of the time.

Altogether, the data shows no clear-cut connection between the syntactic role of the NOUN - NOUN compounds' components and the kind of interpretation that the compound calls for. Thus, syntactic roles should be discarded as a relevant factor in the interpretation of BODY PART-based compounds.

Neither do clear patterns emerge in relation to a compound's component's grammatical roles and the frame activated by the compound's emergent structure. Overall, in the case of the collected compounds where a BODY PART is functioning as a modifier, over 20 different frames were activated. Along the same lines, it was observed that each lexical concept (*head, brain* and *eye*), activated at least 10 different frames when functioning as modifier.

In the case of compounds with a BODY PART as head, the total amount of activated frames was inferior, reaching just over 10 different frames. What is particularly interesting is the fact that the compounds with both *head* and *brain* functioning as heads showed a significantly narrower spread of frames activated by their respective emergent structures: 3 different frames for N – HEAD compounds, and 4 frames for N – BRAIN compounds.

Additionally, in N – HEAD compounds, over 93% of the occurrences' emergent structures sanctioned the same frame—that of PERSON. For example, *deputy head, department head, business head*. All these occurrences turned out to require non-literal interpretations, inasmuch as they were instances of a metaphor whereby body parts are mapped unto hierarchical positions within an organisation. So, *to be the head* of something is interpreted as *being at the top of the hierarchy*; *to have authority*.

No such patterns emerged either for N – BRAIN or N – EYE compounds. In the former, the number of instances for each of the 4 activated frames was relatively homogeneously distributed, and no relation with the compounds' required type of interpretation. Finally, in the latter, over 10 different frames were activated, again, showing no underlying pattern.

5.1.1.4. Intra and Inter-categorial analysis

As it has been seen, both *head* and *brain* display a similar behaviour in terms of the range of domains they activate. This pattern, however, could not be generalised to BODY

PARTS due to the case of EYE, which contradicts the patterns of behaviour observed in the previous ones.

At the same time, BODY PARTS compounds**,** unlike those of the other super-ordinal categories chosen for this study, did not show clear patterns in terms of semantic spread, grammatical roles and figurativity. A possible explanation for this phenomenon is that the analysed components, particularly *eye* have such a metonymic potential that it allows them to refer to a variety of things without calling forth figurative interpretations. On the other hand, it was possible to identify a relation between semantic distance –as measured by the schematicity of the blending network's generic space--- and the emergence of figurativity. Possibly, the highly concrete semantic nature of the items relating to BODY PARTS may explain both the aforementioned lack of clear patterns, as well as the fact that semantic distance has such a significant impact on their interpretation.

5.1.1.5. Representative Case

Within the domain of BODY PARTS, we chose *Headline* as the most representative case so as to analyse it in more detail. Not only because it is the compound with the highest number of occurrences (91,060) to be found in the corpus related to the selected body parts, but also because it draws from the same metaphoric association exploited by expressions like *head coach* and *head office* that, altogether, consistently sanctioned the domains of PERSON and LOCATION in more than 35 instances. As in these compounds, the blend of *headline* is constituted, on the one hand, by the domain of BODY, making use of its structural properties, namely, its vertical distribution, where the head occupies the utmost point, as to structure other domains. In this case, to structure the domain of COMMUNICATION, inasmuch as *headline* is part of the structure of news and similar documents. Thus, these two input spaces are held together by a generic space containing these perceived structural similarities, and once blended, activate the domain of COMMUNICATION yielding an emergent structure so that *headline* is interpreted as the upmost part in the structure of news

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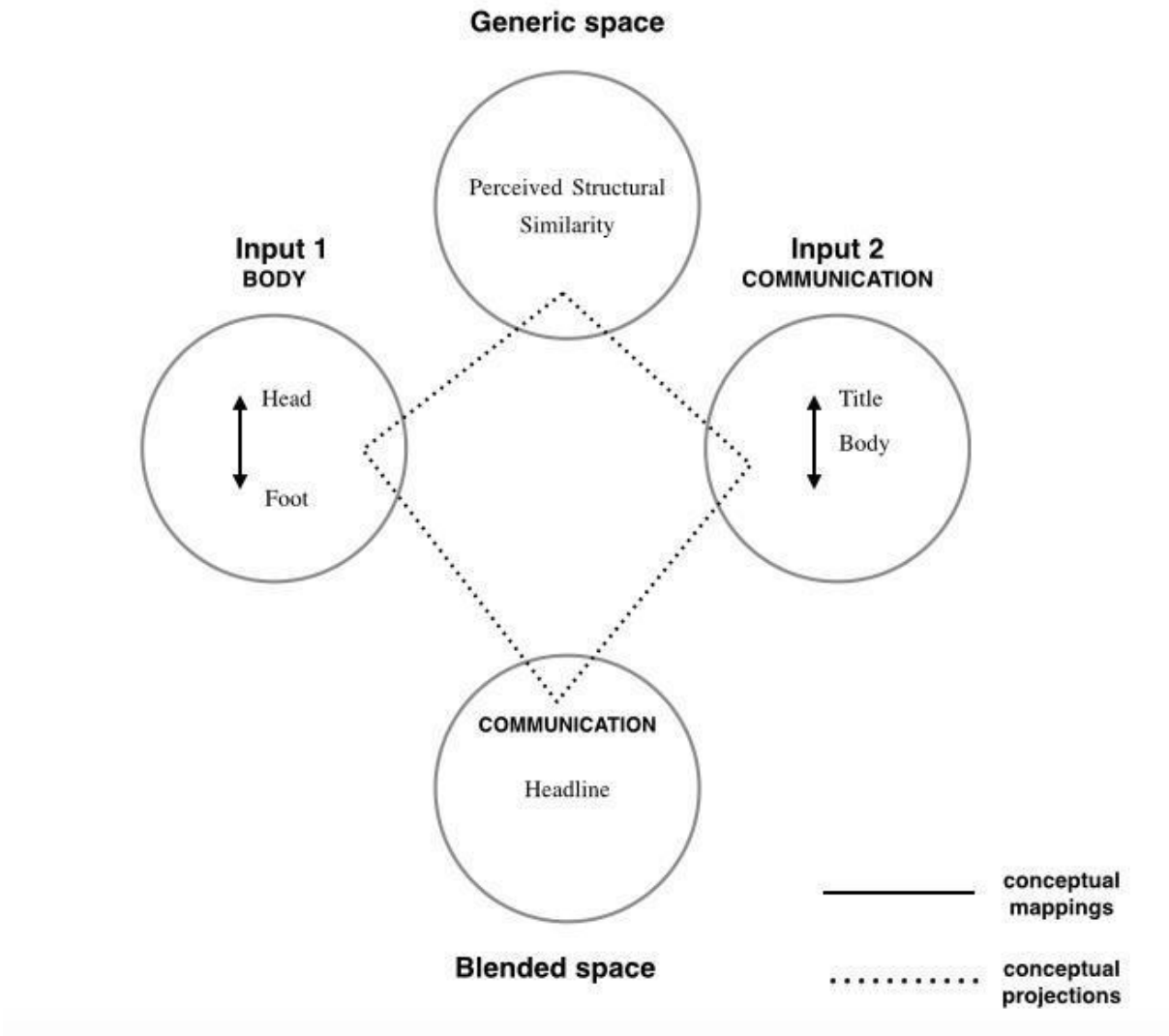

Figure 5.6. The blend analysis of Headline

5.1.2. Animals

5.1.2.1. Conceptual integration and blending

In some of the compounds that were analysed, there is only a very simple process of blending of the mental spaces involved in the formation of a compound, such as with names of animals or plants, like *panda bear*, *bulldog* or *carthorse*, *horseradish* or *bearberry*, or in other cases in which the modifier is only a specification of the head. Such is the case of compounds that specify body parts, such as *dogtooth* or *bear skin*, or specific places, objects or roles such as *horse farm*, *bronze horse* or *dog owner*. Although these words do behave as

one unit – therefore they had to be considered in our investigation – they are of no value for this section of the analysis.

There are other compounds in which the emergent structure does require a slightly more complex process of blending. This is the case of compounds such as *dog house*, *guard dog*, *horseshoe*, *champion horse*, *bear spray*, and *cartoon bear*. In these compounds, the nouns that compose the compound have two similar frames, thus the more schematic one serves as a base which the other elaborates. For example, in *champion horse* the frame of COMPETITION has participants which can be regarded as either winners or losers. This frame provides a base for a participant slot to be filled in by *horse*, therefore a horse who won a competition is a champion horse.

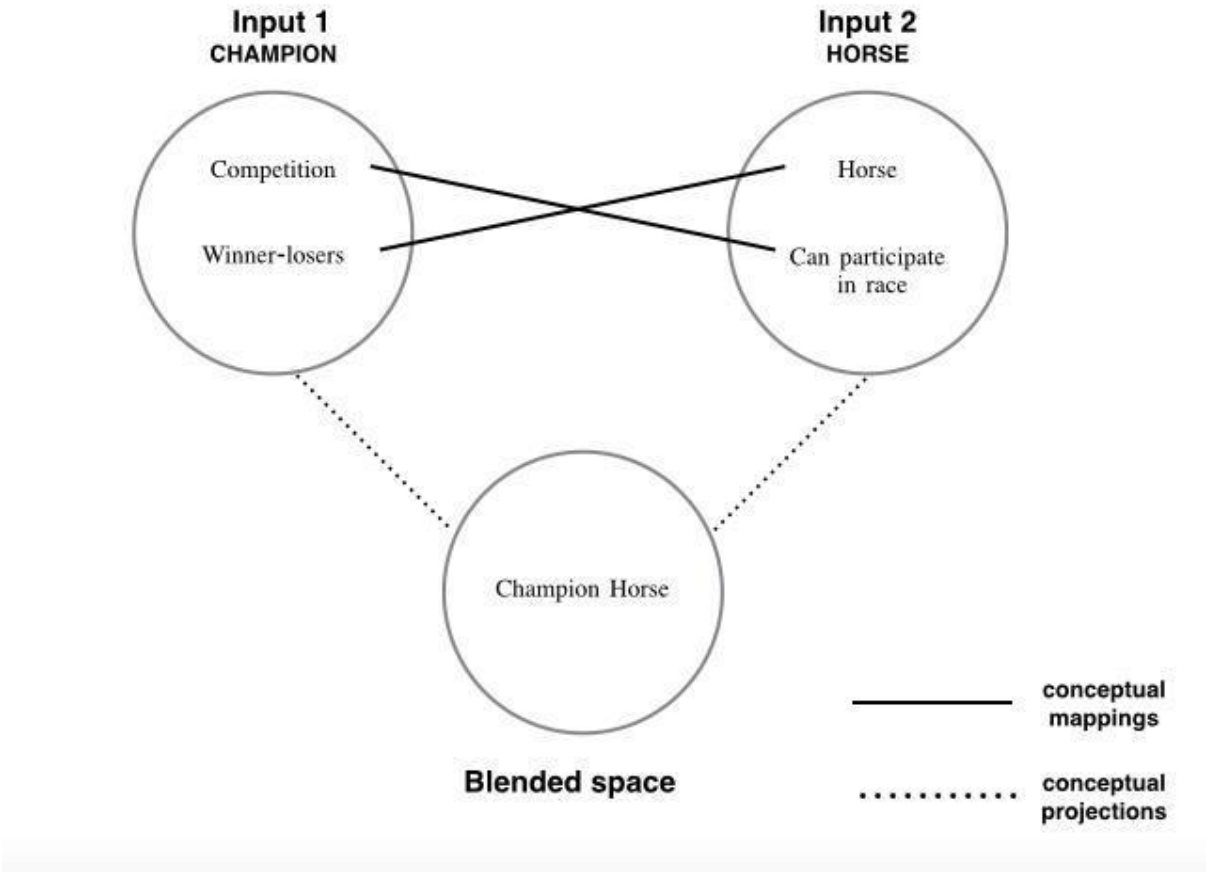

Figure 5.7. The blend analysis of Champion Horse

In these compounds, the noun that serves as a modifier is semantically related to the frame to which the head of the compound belongs. Since between the modifier and the head

already hold a prototypically established relation, the common frame that they share serves as a base to organise the emergent structure. There is no composition nor elaboration involved in the process, since all of the specific aspects of the relationship between one noun and the other are already present in the generic space shared by them – therefore, the generic space is highly elaborated – as opposed to schematic –, since both nouns share many common characteristics.

There are other conceptual integration networks which are slightly more complex, in which the two nouns that form the compound have two different frames, and the emergent structure selects one of these frames as a schematic organizing structure to which the elements of the other noun are mapped. This is the case of compounds such as *dog whistle*, which in politics refers to a subtle message conveyed by a candidate, aimed to a specific demographic group; *warhorse*, referring to the CONFLICT frame, which denotes a soldier who has fought in many battles; and *bear trap*, from the sports frame, which refers to a strategic metaphorical trap for the opposing team. In these compounds the elements from one frame are used in a new way, articulating the use of the participants of the second frame. For example, in a literal interpretation of *dog whistle*, the whistle corresponds to a special object that makes a sound only perceived by dogs.

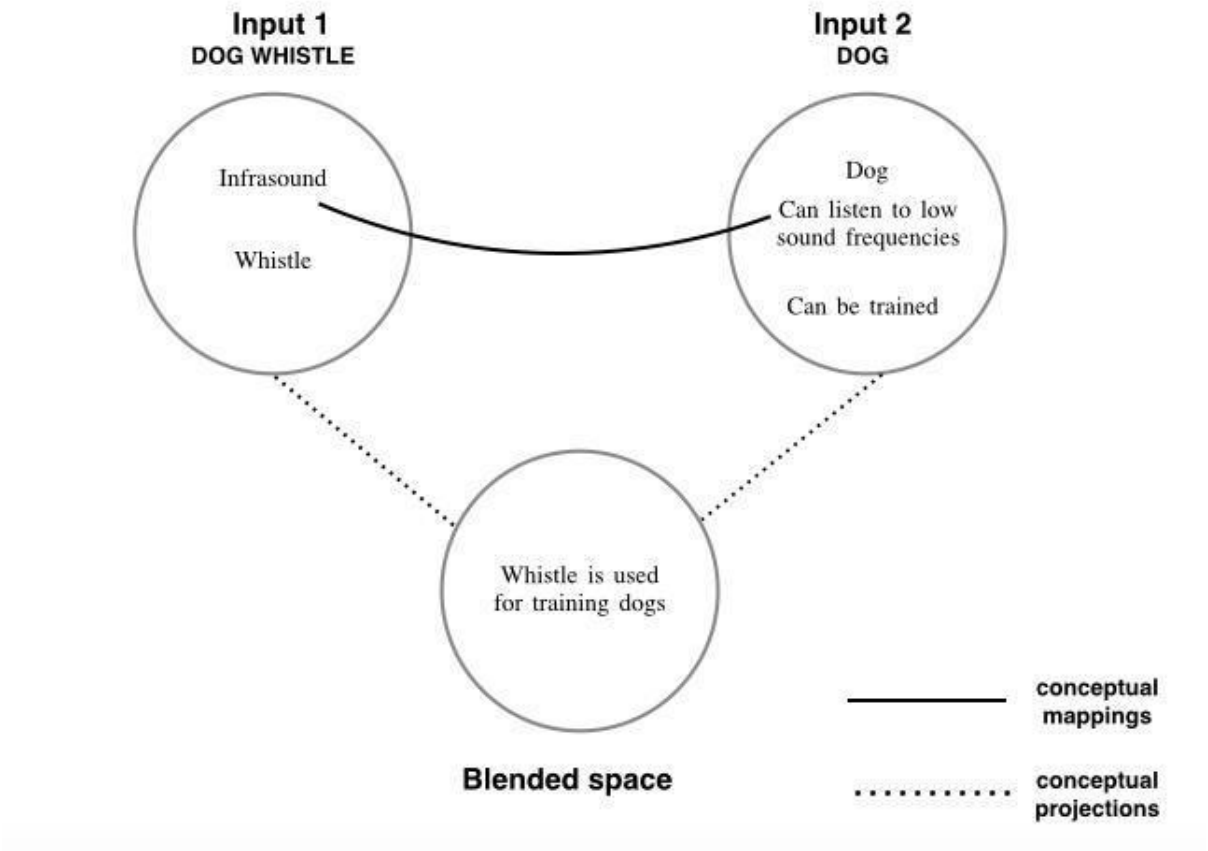

Figure 5.8. The blend analysis of Dog whistle

In the metaphorical interpretation, the elements of politics are understood in this manner. The participants are a candidate or political party, their message, and the general population. The candidate gives a message, which is aimed to a specific section of this population, since it makes reference to issues of which other socioeconomic groups are not aware, thus the full message can only be perceived by the population to which is meant for, similar to the sound of a whistle which can only be heard by a dog.

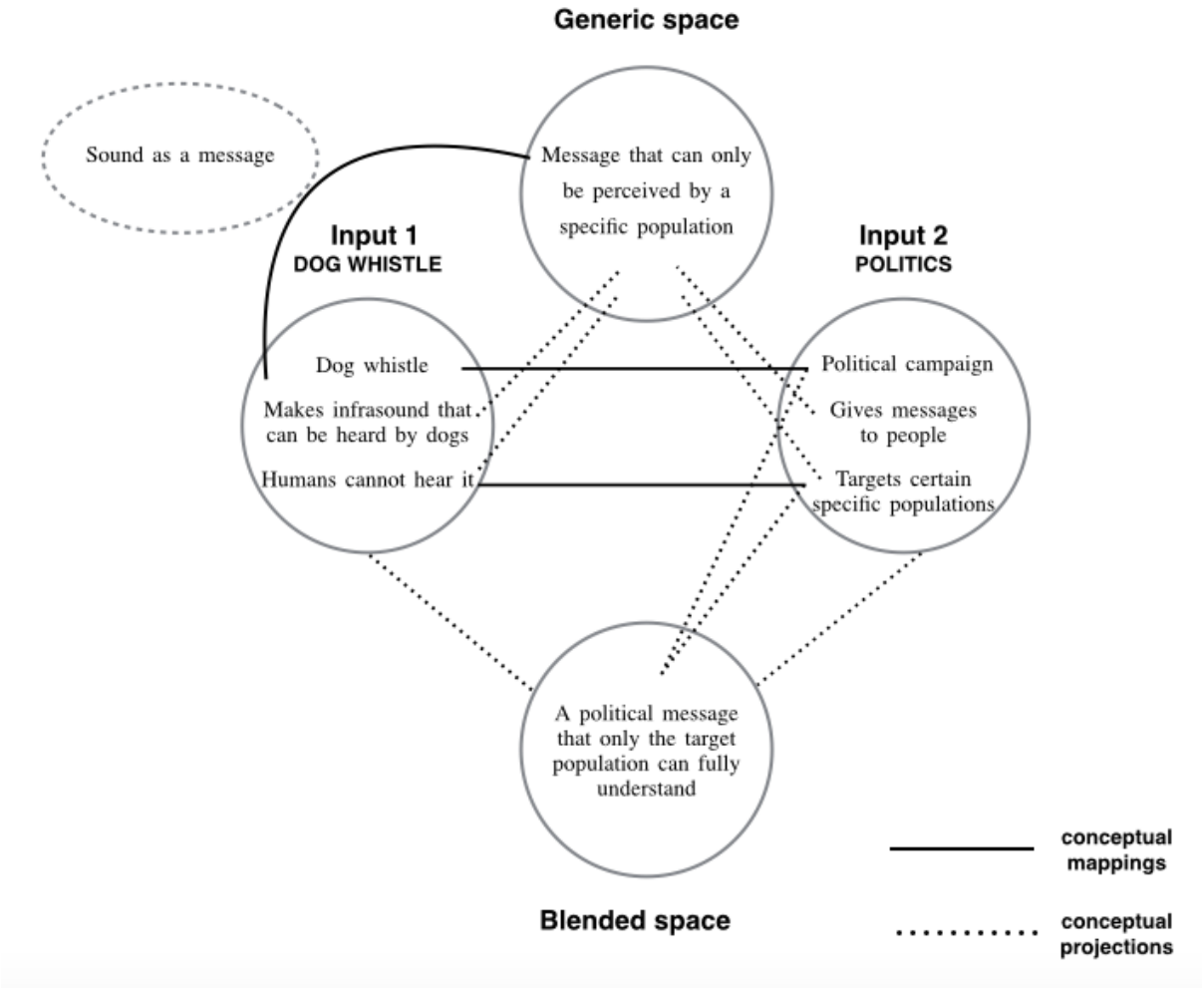

Figure 5.9. The blend analysis of Dog whistle

In compounds such as the one described above the emerging meaning is non-literal, and that the emergent structure is related to the meaning of the literal interpretation of the compound as a whole rather than to the individual components. Other examples of this phenomenon are *watchdog, horseshoe, honey bear, puppy dog*, and many more. In other words, the emergent structure of a metaphorical interpretation of these compounds is a product of extending the meaning of the original compound into a frame which is absent from the nouns, instead of giving a completely novel interpretation to the nouns or to the compound as a whole. Then, in these compounds of extended meaning the literal interpretation of the compound is given by the nouns which form it, and in order to create metaphorical meanings the literal interpretation becomes an input space, while the new

interpretation becomes the other input. The literal meaning frame provides the organizing structure for the new blend. Although in these compounds there is not much transparency, since the nouns from the compound do not prototypically belong to the frame of the emergent structure, the two frames still tend to share things in common, therefore the generic space is highly specific in the common elements between the frames.

Finally, there is another group of compounds in which the frames of the two nouns are blended together. This is what happens with nouns such as *dogochondriac*, the non-literal interpretation of *clothes horse*, and *bear market*. In *bear market*, for example, the two frames involved are bears as animals and the financial frame.

The blend requires that very specific elements from both frames are selected. In this case, from the BEAR frame is that bears can be aggressive animals, and they attack mainly by using their claws, moving them downwards to inflict damage upon their victim. From the financial frame, the selected information is that the stock value is in constant change, and these changes are conceptualized as going up or down, depending on whether the value increases or decreases. The generic space, then selects that bears attack with a "down" movement, and that the value of the stock market is known to occasionally go "down". Therefore, a bear market is a market on recession.

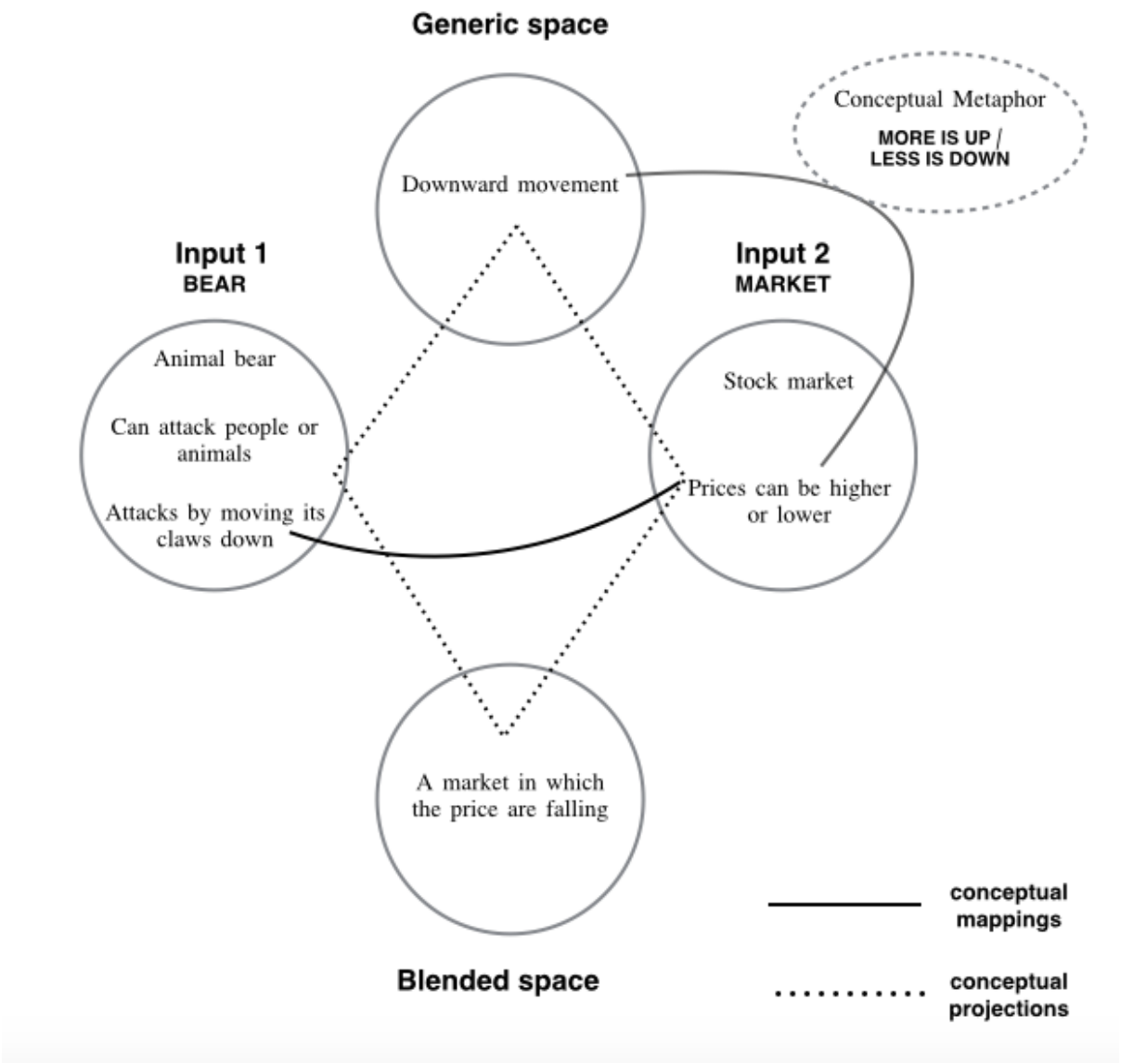

Figure 5.10. The blend analysis of Bear market

Unlike the previous group, it seems that in these compounds, although the meaning is also non-literal, the two different frames are both present in the compound, either literally, as in *bear market*, or metaphorically, as in *clothes horse*, where *horse* is a metaphor for person. In these compounds, the two nouns belong to two very different, and often clashing frames, so the generic space must be highly schematic to allow the integration and blending of the two frames into one coherent emergent structure. Given that the relations between the frames are not prototypical, these compounds tend to be very difficult to analyse, even in

context – thus they are not transparent – unless the reader has previous knowledge of the intended meaning of the emergent structure. The difficulty of analysing these compounds is probably related to several factors. In the first place, the semantic distance between their components, which will be discussed in the following section. Another important factor, which is also related to the semantic distance, is that the two nouns that compose these compounds belong to two extremely different frames, so creating a generic space which can encompass both nouns is a difficult task. Finally, these compounds refer to highly specific areas – for example, in the case of *bear market*, only people who are concerned with the fluctuations of the stock market would be expected to need to use this word – therefore it is expected that the people who will discuss these issues are acquainted with the communicational conventions and slang that belong to the area, so the use of a compound would not be problematic. This would explain that both words have a relatively high number of instances, in spite of being highly creative compounds.

5.1.2.2. Semantic distance

Semantic distance in terms of the differences between the particular component parts of compounds cannot be easily quantifiable; however, it can be in the sense of the amount of different domains that a single set of compounds selects. The total amount of meanings identified for compounds within the superordinate category of animals tends to be between 40 and 55. In the case of ANIMAL – N compounds, these meanings can be categorized in 20-25 different domain, so they have a rather big semantic spread, whereas N – ANIMAL compounds only have 12-15 different domains, according to our classification, therefore, they have a narrower semantic spread. Therefore, when an animal acts as a head the possible meaning of the noun that will form the compounds is more limited, whereas animals can serve as modifiers for a broader amount of nouns. In the category of ANIMALS here seems to be no relation between the amount of literal/non-literal compounds and the amount of domains that are activated.

Regarding the semantic distance between the ANIMAL and the nouns that form the compounds, the reverse happens. There are some interesting differences between compounds where the animal is the head and the ones where it is the modifier. In general, for compounds

where *dog*, *bear* and *horse* act as modifiers, there is little semantic distance between the two nouns. This is the case of compounds such as *dog breeds*, *dog bite*, *horse farm*, *horse meat*, *bear attack*, and *bear skin*, among many others. This asymmetry is probably related to the fact that ANIMALS as heads can prototypically activate a narrower spread of semantic domains, whereas they can serve as modifiers for a bigger range of domains.

In these ANIMAL – N compounds, most of the compounds are easily analysable, thus, they are transparent, in the sense that their meaning is compositional – that is to say, the emergent structure corresponds to the combination of the literal meanings of the head and modifier, without adding anything else nor selecting only specific aspects of the frames. There are cases of figurative meaning, in which the emergent structure is not transparent. However, in these cases the difficulty to analyse the compound does not lie in the semantic distance between components. These compounds tend to take several meanings, and one of them is usually a literal, transparent interpretation. Then, the meaning of this original emergent structure is extended, to create new meanings. Some of the many examples of this mechanism of creating figurative compounds are *dogleg*, *horseshoe*, and *bear trap*. This could be because these compounds have become so entrenched that they can be used to convey new meanings, according to the communicational context.

In its literal interpretation, a *dogleg* is, evidently, the leg of a dog. However, it should be noted that no compounds of this literal interpretation were found within the analysed compounds. However, the general idea of what the leg of a dog should look like is very prominent and prototypical, and thus it is used to convey different meanings. A literal dog leg consists of two long bones connected at an obtuse angle, and this shape is taken as a base and exaggerated to characterize anything that has a bend. For example, an entrenched meaning of *dogleg* is to refer to a section of a golf field which has a bend before reaching the hole. Similarly, another frequent alternative meaning is a sharp bend in a road. Similarly, in horseshoe the shape of the literal horseshoe is used to describe any similar object, or way in which many objects are arranged. Additionally, the term horseshow can also refer to a game which is played with a horseshoe. In the compound *bear trap*, the literal interpretation refers to a device in which the bear unknowingly steps into. When pressure is applied, the device closes, trapping the leg of the bear. There are two different metaphorical meanings to which this compound can refer. One possible meaning is a metaphorical trap either in politics or in

sports set by the opposing party or team, which will somehow lead to their target to be trapped and unable to win. The other meaning is even more interesting, since it exploits the entrenched meaning of bear market – a receding market – that was described in the previous section. In the frame of finance, a bear trap is a false signal that the value of a particular stock is going down.

Whereas the Animal-noun compounds tend to have a large amount of domains which are still somewhat semantically related, the opposite happens with the Noun-Animal compounds. In spite of the fact that the amount of domains is lower for these compounds, the domains that are present are very different and unrelated from each other, so there is a greater semantic distance in the sense of differences between the nouns that make up the compounds, so in general these compounds are less transparent than the ANIMAL – N compounds. As it was mentioned earlier, this phenomenon is possibly caused by the entrenchment of animals within our culture, which causes that the frame of animal is narrowly defined. Because of this entrenchment, there are many prototypical relations within the animal frame, related to types of animals, their functions within our community, and their relations to humans. These relations are easily mapped into compounds, which explains the prominence of frames such as ANIMAL, WORK AND OCCUPATION, ANIMAL HUSBANDRY, SPORTS, etc., and it also explains the fact that the compounds found in these frames are mostly of literal interpretations.

Regardless of these general aspects, there are many category-specific particular cases which stand out because they behave in a slightly different manner. In the DOG – N compounds, there are three instances of a non-transparent emergent structure, which is due to the fact that its components are semantically unrelated to *dog*. These compounds are *Dogfish*, *Dogwood* and *Dog day*. In the case of *dogfish*, which is the name of a type of shark, the two nouns belong to two different frames, which additionally belong to the same category of animal, which makes them being together even more incongruent. Similarly, *dogwood* refers to a type of tree, and unless the reader has previous knowledge of this name or other similar tree names, the context is the only thing that would allow him to discover the meaning of the compound. *Dog days*, on the other hand, doesn't present the same problem as the previously mentioned examples, since in *Dogfish* and *Dogwood* the lack of transparency is given by the difficulty in assigning a common generic space to the two nouns. In the case of

dog days, the two nouns are too broad in their meanings, so that the reader would not know that it refers to a particularly hot, sunny day – ideal to take your dog to the park, for example. Given that the nouns of these compounds are semantically unrelated, it is difficult to connect them in a generic space that allows the blend of the two concepts into one emergent structure.

In all three N – ANIMAL sets a very prominent frame is that of ANIMAL, which refers mostly to breeds of dogs, horses and bears, respectively. In the case of *dogs* and *bears*, a general lack of transparency can be observed, in compounds that refer to dog breeds, such as *gundog*, *sheepdog*, *paint horse*, *cart-horse*, *cinnamon bear*, or *ghost bear*. However, the names do have a motivation, usually related to either the colour of the animal, or the function of dogs and horses. In addition to the breeds of dogs, the N – DOG set of compounds has many interesting cases in terms of the semantic relations between the components of the compounds. In the other most prominent domains besides ANIMALS, WORK AND OCCUPATION, the nouns are usually very close in terms of their semanticity, since they all refer to activities which a dog can carry out in service to humans. The same happens with nouns referring to toys or similar objects such as *robo-dog* or *toy bear*. These are transparent because we know that these items can take the form of animals such as dogs.

Another interesting entrenched use of noun-dog compounds is to describe a person, either because they resemble a dog in physical appearance or in their attitude. Examples of this case are *bulldog*, *puppy dog*, *street dog*, and *hound dog*. These compounds display very little transparency, mainly because although their use to describe people is quite common, there seems to be a lack of consensus in their meaning. In other words, these compounds are probably relatively new, since their meaning is still not entrenched. For example, in the case of hound-dog, when speaking of a person, the compound could be making reference to someone being tenacious, to someone who has a very good sense of smell, or to a man who chases after women.

In the *Horse-noun* compounds there is very little semantic distance between most of the nouns, in the sense that both the head and the modifier belong to the same ANIMAL frame. Some examples of this are *horse stables*, *horse industry*, *horse race*, and *horse whip*, among others. As it was mentioned above, in most cases non-literal meaning is given by extending the meaning of an already formed, literal compound. The N – HORSE set of compounds only sanctions a low number of domains; however, many the compounds are made from unrelated

nouns. Sometimes these unrelated nouns make the compound as a whole difficult to analyse. An example of this is *bronze horse*, which in spite of having a literal meaning – a bronze horse statue – can be misleading given the tendency of breeds of horses to be named after their colours. Other examples are *hobby horse*, a toy rocking horse; *pantomime horse*, two people dressed as a horse; *saw-horse*, a wooden frame used for woodcutting; *clothes horse*, a metal frame for hanging wet clothes; and *mud-horse*, a wooden tool used for fishing. As illustrated by these examples, the same phenomenon that takes places with N – DOG compounds occur, although the amount of domains is low, so there is little semantic distance in terms of amount of domains, the domains are more diverse, and thus have more semantic distance to the head of the compound, in the second sense of semantic distance. This does not entail that there absolutely no relation between the nouns and the emergent structure, only that the relation is not as evident as in other compounds that have been previously mentioned. Given the semantic distance between the compounds, the generic space must be highly schematic in order to articulate a blended space. For example, in *saw-horse*, the general shape of a horse – four legs and a long horizontal back – is mapped into the shape of the tool. Therefore, in this case the relation between the nouns is related to an image-schema, not to the prototypical relations of participants within the frame of HORSE or CLOTHES.

In the set of BEAR – N compounds most of the instances are very easy to analyse. Only a few of them have non-transparent meanings, which have been described in previous sections, such as *bear market*, and the metaphorical meanings of *bear trap*. As for the N – BEAR compounds, the close semantic relatedness of their components usually makes it easy for any person to analyse them. Most of the compounds that have non-literal meanings occur in clusters, so by knowing one of them a person can infer the meanings of the others. An example of these clusters are the bears related to the play, fun domain, such as *teddy bear*, *care bear*, *polo-bear*, *space-bear*, and more. By knowing a prototypical teddy bear, it is possible to apply the specific aspects of the other compounds into the teddy bear frame to organise it. Therefore, a *polo bear* is a teddy bear wearing a polo jersey; a care-bear is a particularly cuddly toy bear, and so on. From the compounds that belong to the PLAY, FUN domain, it can be observed that the blending of STUFFED ANIMAL and BEAR that gives rise to *teddy bear* has become so entrenched that TEDDY BEAR becomes a frame in itself, which serves as an input for the creation of new compounds such as *polo bear* and *care bear*.

The systematic differences observed regarding the semantic distance between the components of compounds within the category of ANIMAL and how this semantic distance has an impact of the emergent structure indicates that the frames of *dog*, *horse* and *bear* have different ICMs – Idealized Cognitive Models – which motivate different entrenched relations of these animals, especially in their relations to humans. In the case of *dog*, the most salient aspects of the frame are dogs either as pets or service animals; therefore, most of the literal compounds are related to these areas, such as *service dog, family dog, dog park,* and *dog owner.* In the case of *horse*, horses are prototypically not pets, but animals that serve a specific function in farming, transportation or sports, which can be observed in compounds such as *work horse, carriage horse, horse race,* and *horse farm.* On the other hand, *bear* has two distinct frames which co-exist, *bear* as a problematic animal which is hunted, which can be attested in compounds such as *bear trap, bear skin, problem bear* and *trophy bear;* and a cultural construction of *bear* as a loving, lovable animal, which is spread by toys such as *teddy bears*, and can also be observed in other compounds as *papa bear, cartoon bear* and *honey bear*. In the compounds that were analysed this second BEAR frame only occurs in N – BEAR combinations, not BEAR – N. This could be due to the fact that *bear* as a head prototypically targets BEAR as a wild animal, since N – ANIMALS compounds tend to belong to the ANIMAL frame, whereas when a noun from a different domain acts as a head, the two *bear* frames compete with each other to map their inputs into the blend.

5.1.2.3. Syntactic roles

In the super-category of ANIMALS, in general, compounds have a slightly higher amount of literal compounds, which fluctuates between 57% and 66%. The exceptions are DOG – N which has 51% of non-literal interpretations, and N – BEAR, which has only 39% of literal compounds, making it the only group of compounds which has a significant higher amount of non-literal compounds in relation to the literal ones. With the exception of *bear*, the analysis reveals that in compounds involving animals the grammatical roles of the components are not a particularly relevant factor. Regarding frame activation, however, there are some relevant differences that arise when the noun corresponding to an animal is the head or the modifier.

When *dog* acts as a modifier, the emergent structure usually profiles a person, object, or action that is related to dogs. In the case of domains that refer to people, such as WORK AND OCCUPATION, SOCIAL EVENT, POLITICS and EMOTIONS, the aspect that is usually profiled is their ability to learn tricks, to work as a team, or to be pets. In other words, a central aspect that is profiled in DOG – N is the function that dogs play in our society. The other prominent aspect of the DOG frame that is activated is their behaviour. Interestingly, features such as "friendly" or "loyal", which are prototypically associated to dogs, are not present. Instead, what is profiled is the dog's occasional tendency towards aggression, in compounds such as *Dog-fight*, or *Dog Bite*. In their discussion of schemas, Dirven & Radden (2007) mention that dogs are prototypically friendly, so stating, for example, "our dog doesn't bite" is not informative, since it is already expected that the dog is not dangerous. However, when the expectation is not fulfilled, in this case, the dog does bite, it is appropriate and even expected that the owner would warn other people about it. It seems that some compounds also follow the same logic of informativity. This would explain, for example, that there are no compounds referring to the most prototypical behaviours of dogs. In many instances profiled traits such as the ones described above do not simply take literal meanings. *Dog-Fight* can take various different meanings, for example, a particularly ferocious struggle between political parties, or an air-combat between military aircrafts. Therefore, after the literal meaning becomes entrenched, the compound can be re-analysed and become a schematic input to take new meanings, according to the referential-situational needs of the speakers.

In general, when *dog* acts as a head instead of a modifier, the most common profiled aspects of the *dog* are also referring to their function within society. Particularly prominent are the different types of services that a trained dog can provide, such as drug detection, hunting, rescue, shepherding, etc. Similarly, in the case of HORSE – N, the most prominent aspects of *horse* that are profiled are related to sports, and to animal husbandry. In other words, the most common domains that are activated correspond to prototypical functions of horses. Most of the compounds refer to objects or people related to these fields, such as *horseshoe*, *horsewhip*, *horse woman*, or *horse trainer*. Regarding the N - HORSE set, the same aforementioned domains are prominent. The modifiers that *horse* takes usually specify the head in terms of the appearance of the horse (*paint horse*, *Shire horse*), the function of the

horse (*farm horse*, *family horse*, *race horse*) or its status within a certain community (*champion horse*, *wonder horse*). There are other two interesting aspects of the *horse* frame that the N – HORSE compounds tend to activate. One refers to the general shape and function of the horse, as an animal to drag things and/or to carry heavy loads. Between the compounds that were analysed, three follow this pattern: *Saw-Horse*, a wooden frame which is used for support when sawing wood; *mud-horse*, an outdated fishing tool; and *clothes-horse*, a household item to dry clothes after washing them. Again, the functionality of the horse is the most prominent element in this type of compounds. The other activation of the *horse* frame that takes place in a regular pattern is related to horses as toys, a frame which has various instances, therefore it can be characterized as an entrenched system of compounds, however these instances are not particularly relevant in terms of absolute frequency.

Regarding BEAR – N compounds, the most prominent frames relate to bear hunting or bears as potential threats, such as *bear season*, *bear country*, and *bear-fur*. Since bears are not domestic animals, the *bear* frame is considerably different from the ones of *dog* and *horse*. However, it is interesting to observe that regardless of this, the aspects of the frame that are profiled are not so different from the other two: essentially, the compounds highlight the most prototypical forms in which bears interact with humans, as in the previous sets of compounds. In other words, there are cultural models – ICMs – regarding animal, which serve as a model to establish the prototypical relations between humans and specific types of animal, depending on whether they are wild animal, like bears, domestic pets like dogs, or farm animals such as horses.

N – BEAR combinations, besides the obvious use of specifying a breed of bear, have a wider variety of activations. The domestic dimension that was absent from BEAR – N compounds is present in this set, either by specifying the roles of domesticated bears, such as circus bear or pet bear, or by making reference to non-literal bears, such as toys. In this set of compounds there are two contradictory frame activations of *bear* present: bears as a ferocious, dangerous animal, or as a lovely, friendly one. These two frames exist separately from each other, and the compounds always select either one or the other as activations. This second meaning probably has its origin in Teddy bears and similar objects referring to stuffed animals, which are very prominent, particularly in terms of absolute frequency.

The most illustrative example of these contradictory meanings that co-exist in the *bear* frame is the use of *Mother Bear* and *Father Bear* to refer to people (or its many variations, such as *mama bear* or *papa bear*). In the case of a mother that is characterized as a bear, the meaning usually makes reference to a woman who is very protective of her children, and will aggressively defend them. On the other hand, a *father bear* is a very proud, friendly father. In fact, *papa bear* doesn't necessarily allude to a real father; it can be used to refer to any man who is big, warm and lovable. This phenomenon can be related to what was previously observed regarding dogs and the lack of activations of prototypical aspects such as dogs as friendly animals. Since it is already known that dogs are prototypically friendly, specifying it would be redundant. The same happens with parents as bears. A prototypical mother is loving and caring, while a prototypical father tends to be stern and is expected to be physically strong. What the compounds that refer to parents as bears profile is, therefore, the contrary to what would be expected from a prototypical parent, a physically strong protective mother, and a loving, sweet father.

5.1.2.4. Intra and Inter-categorial analysis

There are some things that the three members within the category of animals – dog, horse, and bear – have in common in the way that the compounds of which they are part are formed and behave themselves. In general, they all tend to have more or less equal distributions of literal and non-literal meanings, with the exception of the N – BEAR compounds. Regarding the amount of meanings and domains of the compounds, each set of compounds had between 40 and 55 different meanings, and the N – ANIMAL sets tended to have a higher amount of compounds. As was mentioned on a previous section, there are big differences regarding the amount of domains of each set, since in the ANIMAL – N compounds there were 20-25 domains, while the compounds of the N – ANIMAL sets could be classified in only 12-15 different domains. In general, the most frequent domains, both in terms of instance number and absolute frequency were the domains of ANIMAL and WORK and OCCUPATION, which for the most part have literal meanings, and are very entrenched, given that they profile relations between animals that are highly prototypical.

Regarding other categories, the most relevant aspects of ANIMALS is the high amount of domains that they activate, particularly when the animal is acting as a head of the

compounds. It is also interesting to observe that in all 3 animals, both acting as heads and modifiers, we were able to find the maximum number of compounds that we set as a limit to analyse, 50 for each syntactic role. In some other categories there were less than 50 compounds in the corpus that we used, and in two cases (N - FRANKEN and N - CHRISTIAN) there were no compounds for that particular set.

5.1.2.5. Representative case

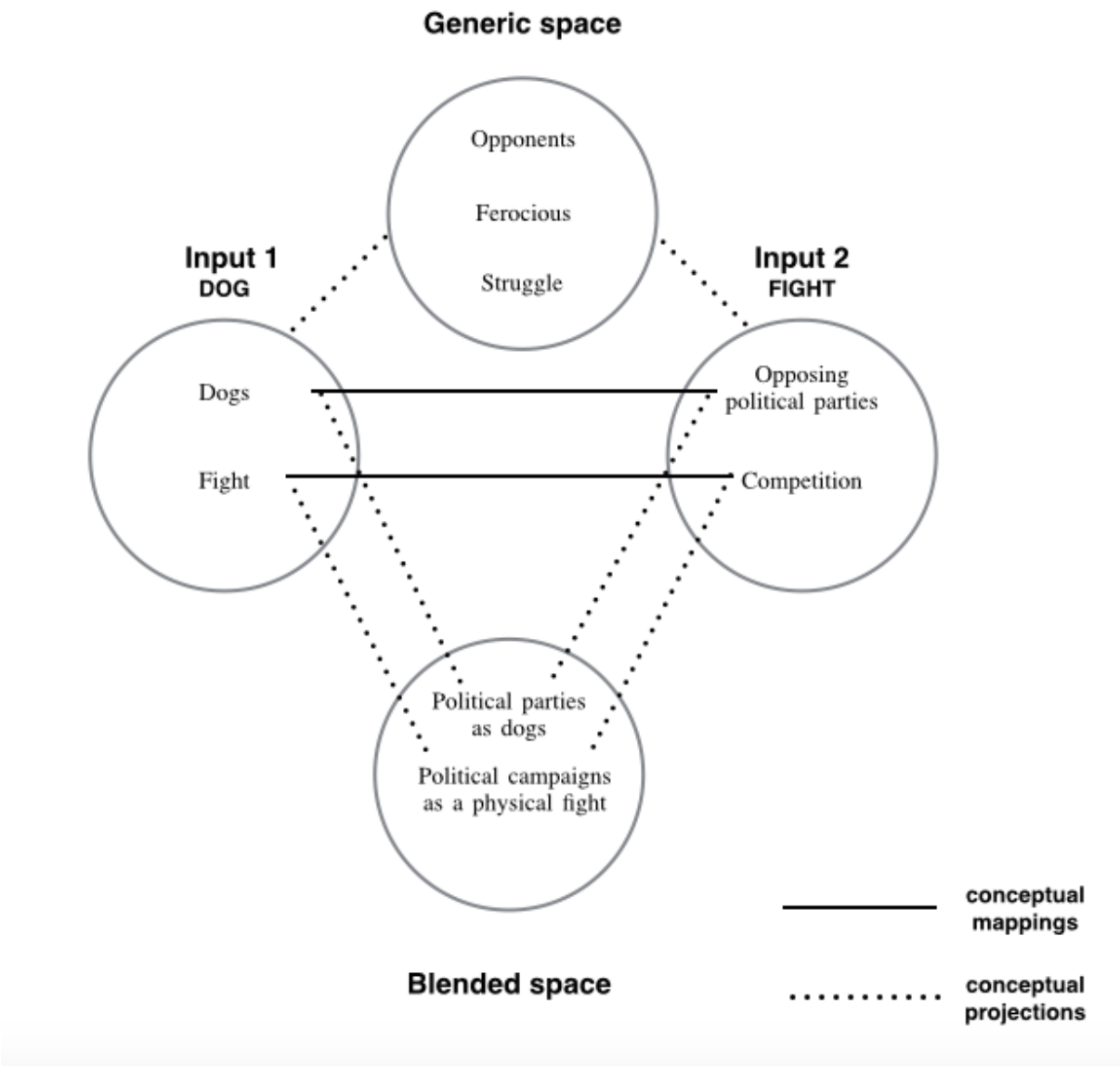

Figure 5.11. The blend analysis of Dog fight

The compounds *dog fight* is one of the many compounds within the category of ANIMALS which takes more than one meaning, one that is literal and two more that are metaphorical extensions of the literal meaning. The most prominent metaphorical extension of *Dog-figh*t is a ferocious struggle between two opposing political parties, with 62% of the compounds taking this meaning, and therefore this sense will be the focus of this section.

In the literal sense of the compound the meaning is a physical fight between two or more dogs, and it is prototypically violent, disorganised, and often results in serious injuries or death for the dogs involved. In the metaphorical sense of the compound what is profiled is the violent nature of a literal dog fight. The struggles between parties, either regarding legislation or the struggle between two opposing candidates for elections, can sometimes escalate in the political strategies and verbal confrontations – for example in presidential debates – to become more and more aggressive, understanding this aggression in metaphorical terms, not physical.

The type of blending is a single-scope network, since the two input spaces belong to two very different frames, the dog fighting frame and the political campaigns frame. However, only the participants of the second frame are considered in the blended space, and it is the dog fighting frame the one that provides the organizing structure for the emergent structure. The participants of the two frames, namely, the dogs that fight and the opposing parties or candidates are mapped into each other, and the physical fight is paired with the competition between parties. Then in the generic space the common aspects between the two frames are the two opposing participants, a struggle between them, and the violent aspect of it.

5.1.3. Fruits

Through the analysis of the compounds that belong to the domain of FRUIT it is possible to reach several conclusions regarding the process of compounding of fruits as a category, and *apple, orange,* and *lemon* as members of the category. As with the other categories, the quantitative analysis lead to other consequences and implications that are more qualitative in nature.

The quantitative data shows that, regarding the amount of literalness, there is a tendency that favours literalness rather than figurativeness in compounds that make use of a

fruit as one of their compounds. Such was the case in four out of the six different groups of compound where there is a clear difference in percentage of literal against figurative, so as to reach a 93% of literal compounds against a 7% of figurative in one case. In the other cases, the percentages were more even, but figurative language only proves to be more frequent than literal language once, and it does so barely with a 52% of figurative compounds against a 48% of literal compounds. In terms of absolute frequency, the set that was most prominent was APPLE – N, providing a total of 23,501 instances across 60 different words. On the other hand, the set that provided the least amount of instances was N – LEMON, with only 28 instances across 14 words. This also goes hand in hand with the fact that out of all the fruits, *apple* is the one with more instances in the *NOW corpus*, and Lemon the one with less than the other two. Likewise, sets provided more instances when they were in the position of X – N and not the other way around, explaining why APPLE – N and N – LEMON were the most and least prototypical in terms of absolute frequency.

5.1.3.1. Conceptual integration and blending

While a compound by definition is a group of nouns that behave as a unit, the blending of mental spaces behind their formation changes from case to case. Therefore, in this group of compounds that belong to FRUIT, we have encountered words in which there is no blending of mental spaces. Some of these cases include, for example, cases in which there is only specification of place, flavor, and parts of a fruit. Examples of this include *orange grove*, *apple field*, *lemon skin*, *lemon cake*, and *orange peel*. In cases such as these the modifier only provides information as a manner of specification of the head, without reflecting a blending of mental spaces behind it. There are other cases, however, in which the process of compounding involves blending of mental spaces. There are several examples of a diverse nature, with cases such as *apple store*, *apple fans* (in these cases it is important to highlight that apple is being used metonymically as a representation of the technology brand, so *apple store* refers to a store that sells products from the brand, and not a store that sells fruits), *road apple*, *orange order*, *Orangemen*, and *Lemon law* that display blending of two different mental spaces to form a compound.

In the first set of cases where there is no blending of mental spaces, the components of a compound evoke two similar frames where the less schematic one is some sort of a base

upon which the more schematic and figurative component plays the role of specifier. For instance, the already-mentioned components *grove, field, skin, cake* and *peel* serve as a base for whoever is decoding and unpacking the word. Upon this base, a specification is applied in such a way that, for instance, apple provides specifying information upon field, lemon upon cake and skin, orange upon grove and peel, and so on. There is a tight semantic relationship and association between the two compounds that makes the interpretation of the aforementioned compound a straight-forward one.

On the other hand, there are also several instances in which there is a blending of mental spaces. These are cases in which the components of a compound belong to frames that are not closely related. These cases tend to be more figurative, as the emergent structure of the compound is not transparent. This implies that in compounds such as orange order, lemon law, and road apple, the words *orange, lemon*, and *apple* are acting as components of a compound that has little or nothing to do with the domain of FRUIT. For example, road apple refers to horse manure that can be encountered in a road, the orange order is a protestant organisation whose name pays tribute to protestant king William of Orange, and lemon laws are laws that govern the right of customers that buy vehicles that fail to function properly. Thus, we are in front of three compounds that make use of components that are fruits, but we have a component that belongs to the domain of BODY FUNCTION (road apple), and two that belong to the domain of POLITICS (orange order and lemon law), going against what one would expect at the beginning. This is not to say that these compounds do not relate to the fruit at all. Actually, the three compounds can be related to the fruit: road apple is a compound that receives this name because horse manure can be found lying in the road, like an apple that fell out of a tree would; and lemon laws receive their name because lemon has adopted several uses throughout history that relate it to "people with a tart disposition" or a "worthless thing", thus projecting that negative quality towards the vehicles that are affected by the lemon laws. The Orange order, and the other compounds that belong to the POLITICS domain, are an even more interesting case that makes indirect reference to the etymology of the word. The word orange, as we know it today, arose only in late Middle English. It is actually a loan word that can be traced back to the Persian word *nārang*. At first, this loan word made only reference to the fruit in the 1300s, but by the 16th century *orange* was also used to describe the colour. What is interesting and particular about this case is that compounds such as orange

order and Orangemen do not actually have any links to the fruit or the colour at all in their etymology. These compounds use the word orange because the orange order is a protestant political institution that pays tribute to William III of England. William III's nickname is William of Orange, because he inherited the title of Prince of Orange, a commune in France, in 1544. This means that the use of the word orange in those compounds stems from a coincidence of form between the fruit or colour and a town in France. That being said, this coincidence in form and people's association of the word *orange* to the fruit or the colour has created several associations between these uses of *orange* and the institution. This includes their uniform, flags, and banners, all orange-coloured. There is also a heavy use of orange-related imagery with regards to the fruit. That means that while it began as a coincidence in form, time and use established new relationships that do link the Orange order to the orange colour and the fruit. In the other, less particular cases, there was a process of extension of the meaning of the original fruit, which served as a base for a creative and innovative use. These compounds show a lesser degree of transparency since the relationship between the fruit itself to the meaning and analysis of the word is less clear and it requires for us to delve into the word's history or look into the figurative workings that are inside the compound. In these cases, the blending process includes a selection of attributes of each individual mental space that is applied in the emergent structure. This process of selection of attributes is what was described, as shown in the following figure:

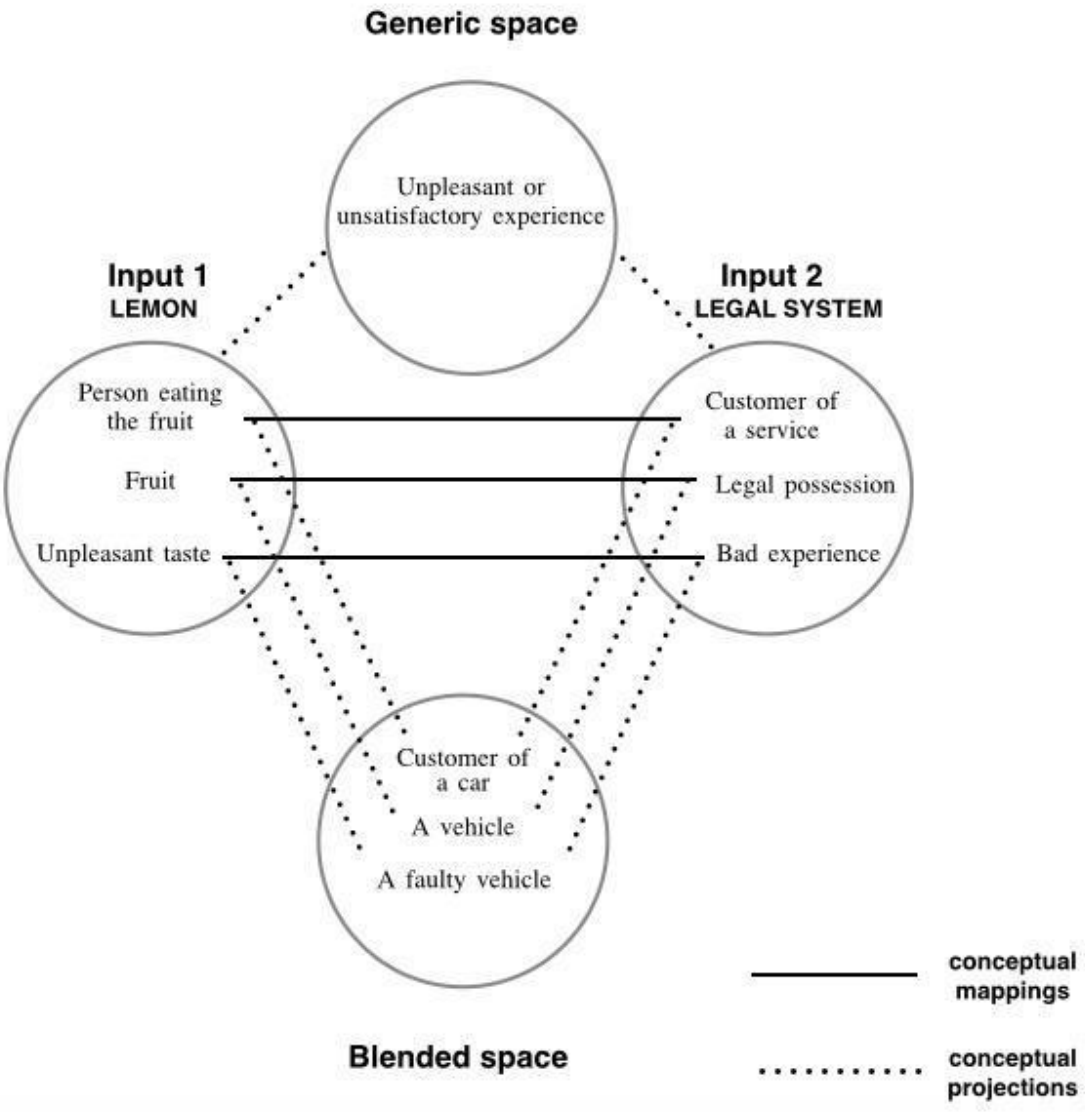

Figure 5.12. The blend analysis of Lemon law

There are other cases, specifically regarding the component *apple*, in which compounds that make reference to several fruits make use of the *apple* as its head. More interestingly, these fruits that are referred to are not apples, as they receive a different classification and are considered as a different species of fruit. Examples of this phenomenon include *water apple*, *sugar apple*, *custard apple*, and *elephant apple*. All of these fruits do not belong to the same species as *apple*, so *apple* is used as a metonymical device that carries the meaning of fruit. Observe the case of *water apple*, a fruit that belongs to the species of *S. Samarangense* (As opposed to the *apple*, which belongs to the species of *M. Pumila*). The

shape of this fruit is somewhat similar to the pear, but its skin displays a bright-red colour with a rugged texture. Due to its size and even more so due to its colour, one might argue that those are the reasons as to why it is called an apple when it belongs to a different species. Take a look at the following figure:

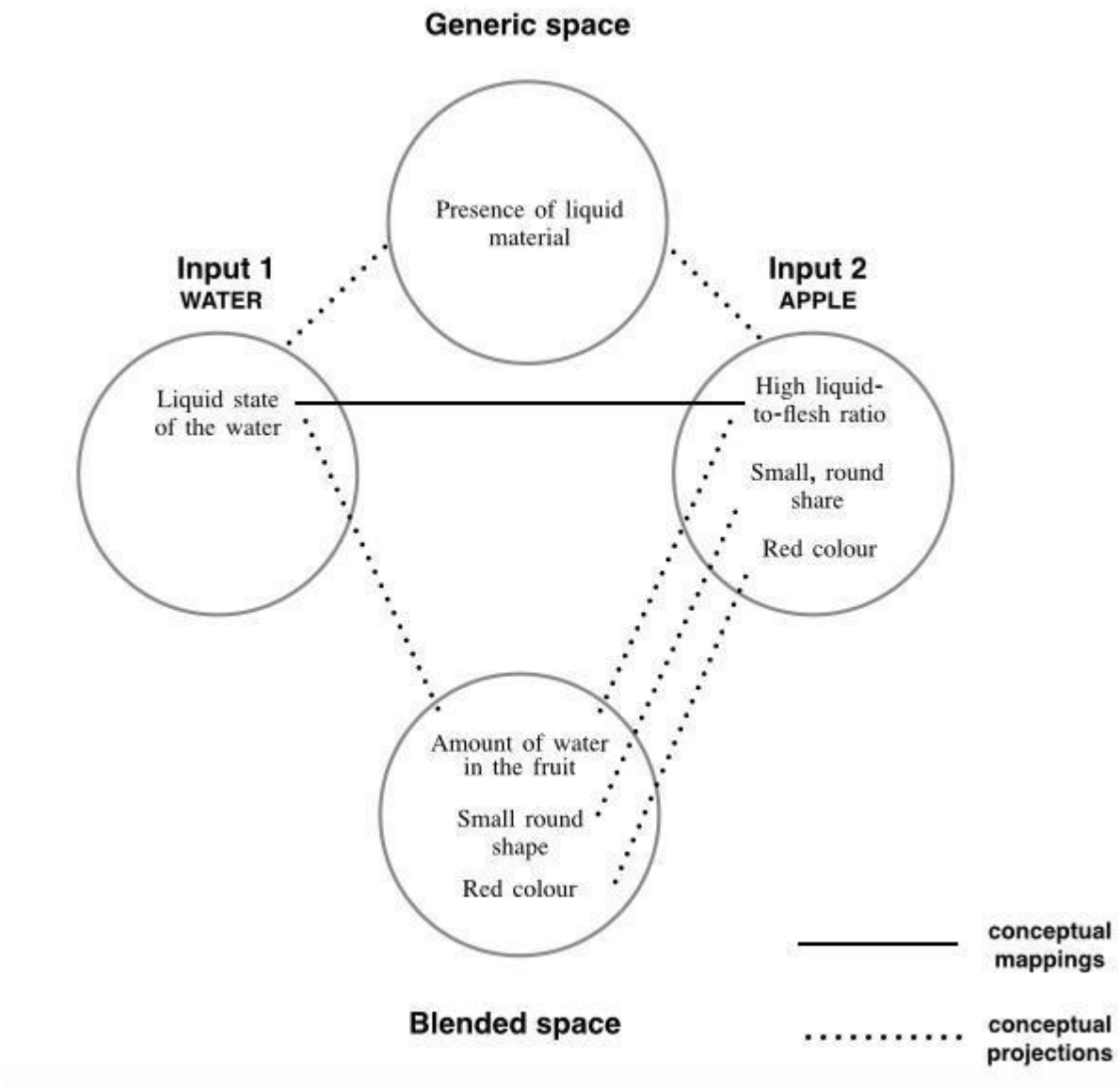

Figure 5.13. The blend analysis of Water apple

The example of *water apple* gives the impression that there are several species of fruits that are not apples but that share several resemblances with apple, resemblances that could be of shape, colour, or taste. However, this seems to be the exception rather than the

rule, as the other cases of *sugar apple, custard apple,* and *elephant apple* do not feature the same relationship in their blending. Both *sugar apple* and *custard apple* refer to the same fruit, which is the *Annona reticulata,* a relative to the cherimoya. And in both of these cases the word apple only provides referential information that delivers the message that the compound in itself is a fruit. The apple, as the most prototypical exemplar of the category FRUIT, takes over other fruits, hence why other fruits also have the component *apple*. The difference between the choice of words of sugar and custard lie in the fact that *sugar apple* is called as such because, like sugar, it is sweet. *Custard apple* is a case that is more complex, because it features other rhetorical devices such as metonymy that are at play within the word. Custard is a sweet culinary preparation whose main ingredients are milk and egg yolks, giving it a white and creamy consistency. This serves as a point that puts *custard apple* as more complex than *sugar apple*, as *sugar* only maps to the sweetness of the fruit, but *custard* metonymically maps to the fruit's inner colour, texture, and taste. The case of *elephant apple* has its motivation on an even more far-fetched element, as *elephant apple* is called that way because it grows on trees that are so tall that are only megaherbivores, such as elephants, can reach them. There is nothing on an elephant in itself that is linked to the *elephant apple,* the only motivation is the fact that elephants are tall enough to eat them. In cases such as the last one, the generic space is much more schematic, because the relationship between the two components elephant and apple requires for us to broaden our scope to the point that we can identify the relationship of a megaherbivore eating its food from a high place. Other cases with mappings that are less far-fetched have generic spaces that are less specific and schematic. Take the example of the already mentioned *lemon law* example. It is important to consider that faulty or defective vehicles are also named *lemons,* but more importantly it is possible to see why without too much difficulty. Since lemons are typically associated with bitterness, which is prototypically seen as an unpleasant sensation, the generic space that underlies the compound does not have to be so schematic, and instead of a very wide scenario or space that encases both input spaces, a more specific one will suffice. Thus, within the blending behind *lemon law*, we can see the generic space as something along the lines of *an unpleasant feeling caused by something unsatisfactory*, whereas in the case of *elephant apple* the generic space would be something along the lines of *size as vertical elevation as a prerequisite for ingestion.* This generic space does not mention any specific animal, fruit, or

sensation. It is very schematic because it needs to be like that so the link between the two input spaces can be identified.

5.1.3.2. Semantic distance

Insofar as semantic distance is concerned, this can be also understood as the semantic distance between the different compounds that feature the same component and how the distance of these compounds give an account of the semantic spread of a component. In general, in the category of FRUIT, it can be observed that there is little semantic spread. In general terms, the group that activates the most amount of domains is APPLE – N, which activates 13 domains, while the group that activates the least is N – LEMON, which activates 4, with an average of 8.5 of domains activated. As it can be seen, the word at the basic level *apple* provides a high amount of semantic spread, whereas *lemon* has a rather low semantic spread. This carries over to the whole set of compounds and words at the basic level that were analysed instead of being isolated cases. *Apple*, for example, shows a high amount of semantic spread in both positions, both as a modifier and as a head. As a modifier, it activates 13 different domains, and as a head it activates 10. In the middle of this, *orange* activates 10 domains as a modifier, and 4 as a head. On the other end of the spectrum, opposite to *apple*, we have *lemon* which activates 6 domains as a modifier and 4 as a head. This highlights an implication regarding the word themselves. This difference in the amount of activated domains points to the fact that *apple* and *lemon* can be seen as opposites regarding the different uses that they receive in creative language. *Apple*, on the one hand, is a fruit that is highly present on everyday non-creative and creative language, as the information given by the *NOW corpus* shows. In the corpus, the word *apple* is the one with the highest frequency, appearing 339,780 times. This is vastly superior to the 99,530 occurrences of *orange* and the 30,047 of *lemon*. Likewise, the frequency of the compounds tended to be higher in compounds with the component *apple*. The average frequency of the compounds of APPLE – N is of 390.1, which is once again higher than the 210.8 of ORANGE – N and the 205.7 of LEMON – N. This evidence also supports the already-mentioned argument behind components such as *sugar apple* to explain why the word *apple* can and often is metonymically used to refer to any other fruit. This is the reason why *apple* activates so many domains, which range from the more expected and prototypical one such as FRUIT, and FOOD, to others such as

TIME and SOCIAL GATHERING which are also activated despite being less prototypical. The same cannot be said for *lemon*, which is a word that has a lesser degree of creative usage. Most of the domains that the compounds that have the component *lemon* are more related to the lemon as a fruit, so besides *lemon law*, not many other interesting or noteworthy cases can be found.

That being said, each and every FRUIT, including *lemon*, tend to activate specific domains that are not really activated as much or in the same way in the other fruits. The case of *apple* might be the easiest one to recognise, because of the ever-growing popularity of the technology brand *Apple*. While the company apple has nothing to do with fruits, it has been revealed that there is a relationship between the fruit and the company's intended product quality. At least this was the case for Steve Jobs, the co-founder and CEO of the company, who while working at an apple orchard, realised that the fruit was "fun, spirited, and not intimidating" (Isaacson, 2001). For him, the apple was the perfect package that mixed something that did not damage easily, it was comfortable to eat, and that delivered high nutrients. He wanted to create something similar in the realm of technology, and thus the name for his future company was decided. That being said, this motivation for naming the powerful company is just that, a motivation which explains the *why* behind the name of the company, but the component *apple* in words such as *Apple store, Apple products, Apple fans, Applecar,* and *Apple care* is used metonymically to refer to the brand itself, but the blending process does not actually map things between an apple and the product or the compound in question. It is a metonymical use to refer to the brand of the product.

The case of compounds with the component *orange* also has a quite distinguishable feature besides the already mentioned and explained case of compounds with *orange* that talk about the protestant political organisation. This is the activation of the domain of COLOUR. This distinguishable feature is also exclusively considerably present in the structure of N – ORANGE, whereas in the other cases is isolated and reduced to only a couple of instances, including the structure of ORANGE – N, in which there are only 5 instances, a 13% of the total. In other structures, the presence of the domain of colour remains peripheral: 2 in APPLE – N (3% of the total), 1 in N – APPLE (2%), 5 in LEMON – N (8%), and 1 in N – LEMON (1%). This peripheral condition of the activation of COLOUR does not apply in N – ORANGE, where it boasts a total of 53 different words that activate the domain of COLOUR, which makes

up for the 88% of the total amount of compounds that have the structure of N – ORANGE. The reasoning behind this is that orange, as was already mentioned, is a relatively new word to describe a colour. This means that, for centuries, what we know today as orange was a subsection of what speakers considered red, so it is quite possible that orange as a new reference word needs another word that specifies or that can serve as a reference to a specific shade of orange. More interestingly, there are several types of words that are used as reference for a specific shade of orange. These range from very transparent and descriptive cases, such as *peach orange*, in which the reference is based on the colour of a tangible object. This is a case in where there is metonymy, although a simple one. A more complex case of metonymy can be found in cases such as *sunset orange* or *inferno orange*, because here the reference point is not a tangible object but rather a phenomenon or an abstract notion like sunset or inferno, respectively. These things do not have a colour per se, but they feature some sort of association with the colour orange, hence why the metonymy is more complex and the compound is less transparent. Even less transparent and more complex are compounds such as *safety orange* and *prison orange.* In these cases, there is an even deeper abstraction in which words that offer less imagistic content are related to the colour orange. In the case of safety, it is because of the orange shade that several safety-related signs have. Likewise, the association of orange with prison comes from the colour of the prison uniform, which tends to be orange. This is more complex because things such as inferno or sunset have more imagistic content which in itself does feature the colour, whereas prison in itself or safety do not have a colour at all.

Finally, the case of *lemon* and the domains that it activates is less interesting than the other two peers of the category, as can be expected. Most of the domains that *lemon* activates are the expected and predictable literal domains such as FRUIT, or FOOD. There is one exception to this, which is made up of the compounds that activate the domain of PARTS OF A PLANT. In total, the 25% of the compounds of LEMON – N activate this domain, coming in second place behind of FOOD, which activates the 40% of the compounds. Some of the cases of this phenomenon are *lemongrass* and *lemon balm*. The reasoning behind the creation of this compound is that these plants are usually used for culinary of medicinal purposes, and their scent or flavour is reminiscent of the citric flavour of the lemon, this being a case of yet another metonymical relationship in which the flavour and scent of the lemon is used. What

is more interesting about this is that throughout the analysis, *lemon* has been the constituent that has enjoyed the less amount of prototypicality and domain activation in every respect, but *lemon* here is the central part of a metonymical relationship in which the word *lemon* stands for citric flavour. This becomes even more interesting as we realise that *orange* also has a citric flavour, but *lemon* appears to be more prototypical of it.

5.1.3.3. Syntactic roles

As it was succinctly stated, the overall pattern in terms of grammatical role regarding literality is that there is a tendency that favours literalness over figurative language, with the exception of the compounds that feature the component *apple*. Once again, this exception can be attributed to the higher degree of creative use that *apple* in general enjoys, which means that there is more freedom for speakers to use apple in a more creative way. This can be observed in a better way when we look at the other end of the continuum and see how little space for creativity lemon offers beyond the already explained case of the activations of the domain of PARTS OF A PLANT.

Another important pattern that can be observed regarding the grammatical roles is that, like in the other categories, the pattern seems to be that there is a rather regular difference and distance between the amount of domains that are activated when the noun at the basic level is in the modifier position (more domains activated), and when it is in head position (less domains activated). That being said, the domains that are activated tend to be similar between the two different grammatical roles that a noun of the FRUIT domain can take. Of course there are several exceptions to this, but these exceptions seem to be a case-by-case scenario and not a pattern that is present in all three fruits. The most remarkable case of these exceptions is the already mentioned asymmetry between the degree of activation of the domain of COLOUR between N – ORANGE and ORANGE – N. While in N – ORANGE, the domain of COLOUR clearly takes the first place, in ORANGE – N it acts more like the other sets, activating FOOD and FRUIT as the most prominent domains, which make up for 44% of all the different compounds of that set. Other less remarkable cases are the 18% of compounds of ORANGE - N that activate the domain of POLITICS, and the 25% of LEMON – N that activate the domain of PARTS OF A PLANT, both being cases that have been mentioned. Several other domains such as FINANCE is only activated in APPLE – N for compounds such as *Apple peak*,

but these are exceptions that have not become entrenched to create more compounds that also activate the domain. In any case, these differences in domain activations depending on the syntactic role is not as prominent as the dominant presence of domains such as FOOD and FRUIT in both syntactic roles.

5.1.3.4. Intra and Inter analysis

As it has been seen, the three nouns at the basic level show many similarities, as all three of them activate certain domains with a surprising amount of consistency. For example, the domains of FOOD and FRUIT are always activated, in all three nouns and in the two different grammatical positions. Moreover, these two domains are prototypically the ones that are the most activated, with some exceptions being the set of N – ORANGE in which COLOUR takes the first place and FRUIT is barely activated with only one example (*navel orange*). Nevertheless, the domain is still activated. This is something that cannot be said of other superordinate categories, since in some of them there is a much more marked difference between different peers of the same category that activate domains that are completely different. In this case, there seems to be a marked pattern in which there are domains that are prototypically activated in all three peers of the category of FRUIT.

The difference between the peers of the category, once again, appears to be a case-by-case scenario. As explained before, there is a specific phenomenon that affects the semantic spread of each one of the three fruits, this being the popularity and influence of the technology company in the case of *Apple*; the emergence of a somewhat new word for a colour with the introduction of *orange* that caused implications such as needing for another noun to provide a point of reference in *orange*, and the metonymical interpretation lemon as a citric flavour in the case of *lemon.* These rather specific phenomena changed the way that we use these words creatively, and concomitantly it changed their semantic spread as well. All in all, besides these specific cases, the pattern shows that there is a tendency that favours literalness and compounds in which the modifier serves as a specification of the head instead of an emergent structure where there is a blending of spaces behind it. A representative case that is present in all three nouns at the basic level is the one of N - JUICE.

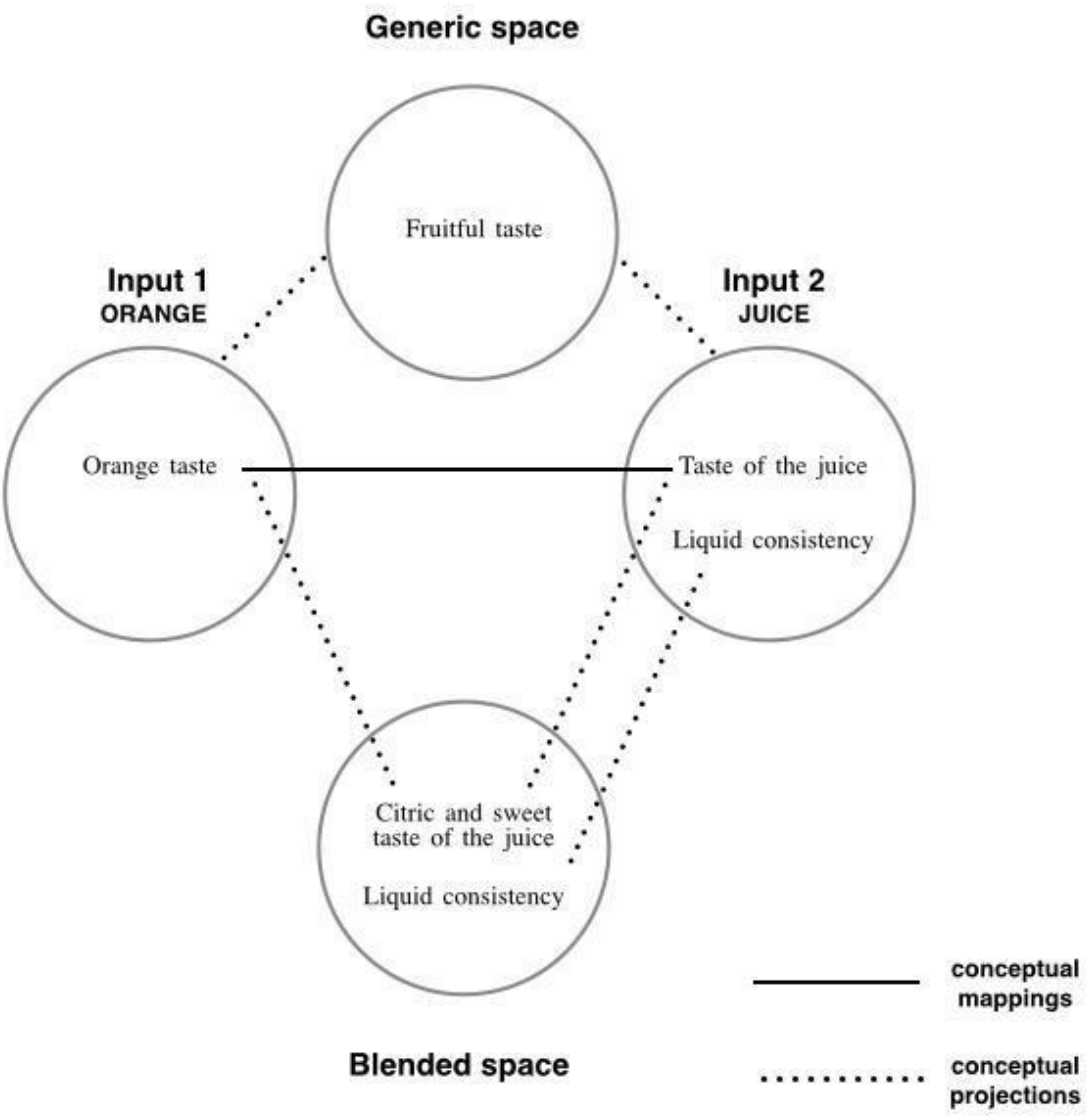

Figure 5.14. The blend analysis of Orange juice

Cases such as these are not really complex since the only figurative device that can be found is the metonymy of FRUIT FOR TASTE, but it is a minor metonymy that serves as a manner of specification and packing of a juice that has the taste of a particular fruit. While it may not be the most complex of cases, it is the most representative since it is a similar case with other words such as *lemon tree*, *apple grove*, and others.

Finally, one of the most remarkable features of this group is the fact that, in general, the amount of domains that are activated is relatively low compared to other superordinate categories, especially ones such as ANIMALS that feature a large amount of components

across all three nouns at the basic level and the two different grammatical positions. As it was observed, the amount of domains activated by components such as *lemon* was as low as 4, something that is drastically lower when compared to other superordinate categories that activate something between 20 and 30 domains. In general, the category of FRUITS always provided activations of more than one domain, something that is shared across all other concrete categories but does not apply for some abstract categories that have certain structures (such as N – PHOBIA) that only activates one domain for all the compounds. There were some remarkable and particular cases such as the big amount of activations of COLOUR in N – ORANGE, but it is more of an isolated case that does not correspond to a bigger pattern.

We think that the fruit activates a small amount of domains because there is a high degree of creativity that can be used to talk about compounds that have component that belong to the category of FRUIT; but there is little flexibility for activation of innovative domains. This accounts for the category of FRUIT as one that has a small amount of activated domains, as well as having a small number of activations for domains that account only for isolated cases. Another similarity that corresponds to an ever wider pattern is the fact that, like in other categories, the syntactic role of modifier provided to be more prominent in terms of absolute frequency than the syntactic role of head. This is something that cuts across both concrete and abstract categories as the pattern indicates that having the word as a modifier will provide more data than having it as a head.

5.2. Abstract categories

5.2.1. Emotions

5.2.1.1. Conceptual Integration and Blending

In relation to the presence of blending of the mental spaces involved in the formation of a compound, not all the compounds display an elaborated blending. This, because the generic space shared by the two inputs is not extended in meaning according to the assumption that it does not occur a semantic extension from the prototypical meaning. Thus, the meaning of the generic space is rather conventional with respect to the inputs involved. In cases such as *love relationship, school love* or *phobia treatment*, the modifier is only a specification of the head, thus there is not presence of an elaborated blending rather than a simplex one. In general, the three sets of emotions (*love, phobia* and *rage*) present a high number of

compounds that specify persons as in *love guru, love rival*, or in *phobia* and *rage* compounds such as *phobia expert, phobia patients* or *rage victim*.

Differently from the compounds in the *love* set, the sets of PHOBIA - N and RAGE - N also coincide in terms of the great number of instances sanctioning the semantic domains of SOCIAL BEHAVIOUR and HEALTHY. The compounds that can be found here are *phobia class, phobia culture, rage yoga, phobia remedies, phobia therapy, rage vomit*, etc. In these cases, we also encounter the presence of a modifier that specifies a head.

In terms of compounds in which the emergent structure requires the process of a more complex blending, we have examples such as *love beeper, surf rage* or *zoo rage*. There exist different types of blending and in the set of emotions that we analysed we were able to find the presence of some of these types.

The first type corresponds to *simplex networks* and can be observed in compounds such as *love letter, love song, phobia sufferers, phobia patients*, etc. In this type of blending occurs that a domain contains a set of slots that need to be filled in by the elements present in the other domain. Thus, the components of the compound evoke two similar frames and thus the more schematic one serves as a base which the other elaborates. In the case of *phobia patients*, *phobia* (modifier) and *patients* (head), these share a human cultural history that has provided a common frame. In this case we have a prototypical established relation between the modifier and the head. Thus, these two components share a common frame that serves as a base to organise the emergent structure. Consequently, there is not extension of meaning at a generic space level and not elaboration in the process due to the fact that the generic space shared by the two input spaces evoked by the components contains all the specific aspects of the relationship between the components. Thus, the generic space is semantically well-formed and conventional in terms of the linguistic units (input 1-input 2).

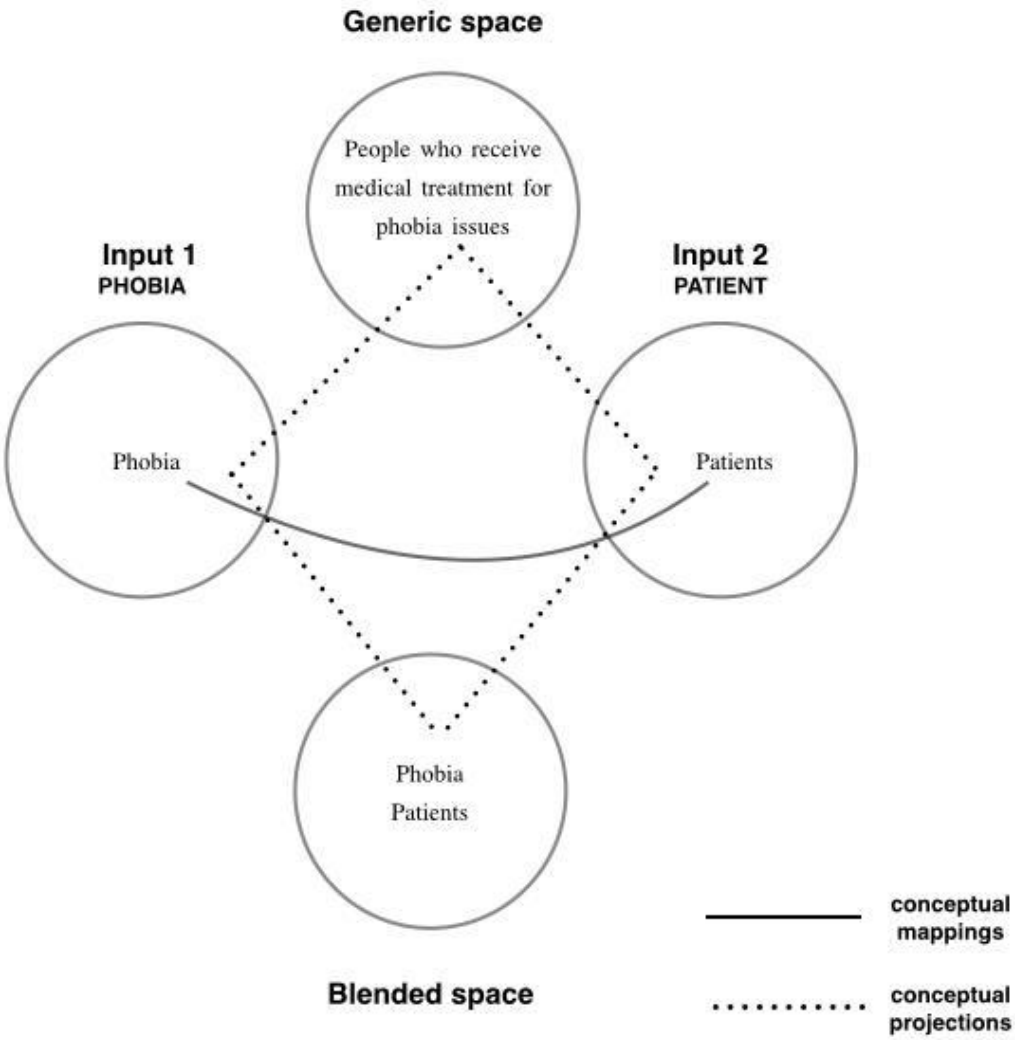

Figure 5.15. Simplex-scope networks blending of Phobia patients

Apart from the *simplex-scope networks* there is also the presence of more complex instances of blending. In the set of emotions the other blending that was found is the *double-scope networks* blending, in compounds such as *love rat, love nest, emporiophobia, gallery rage*, etc. In a double-scope network we have inputs with different frames (*love* and *nest*) as well as a frame for the blend which contains parts of the two input frames and has an emergent structure of its own. Thus, the blend of these different frames within a shared emergent structure offers a highly creative network.

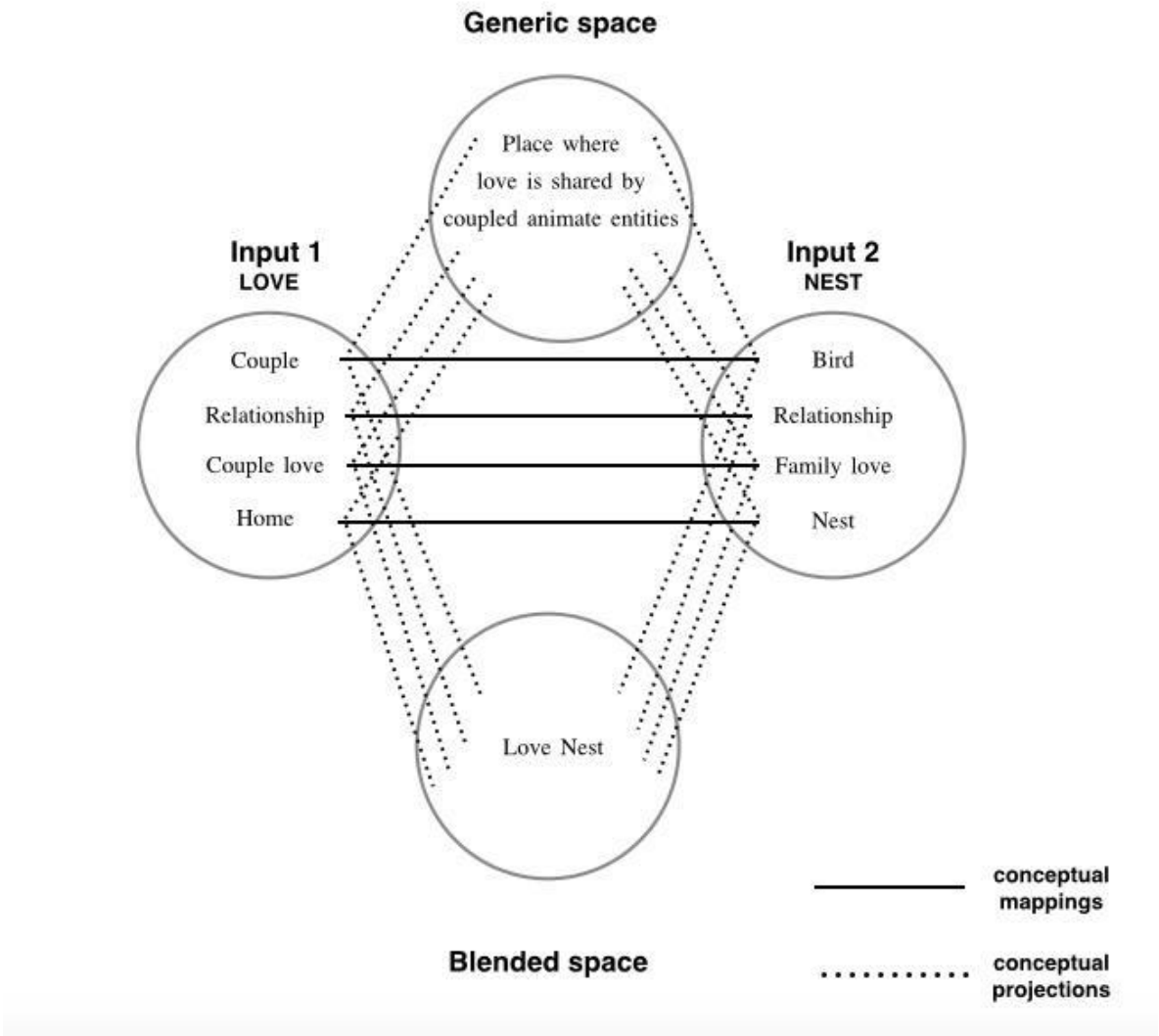

Figure 5.16. Double-scope networks blending of Love nest

5.2.1.2 Semantic distance

In terms of the semantic distance present among the different semantic domains displayed in each emotion we have that the overall number of domains in EMOTION - N is 34, which indicates a big semantic spread and possibly a low prototypicality. In contrast, in the case of N - EMOTION the number of semantic domains is only 2, which indicates a quite narrow semantic spread and a possible high prototypicality. These results can give us an estimation of the semantic distance present between the components that form the compound. More concretely, when emotion acts as a modifier, it can modify a great amount of nouns

and even result in different emergent structures. On the contrary, when emotion acts as head, it can also take a considerable amount of modifiers but its emergent structure will remain as pertaining to emotion.

In order to recall what semantic distance is, we understand it as the possibilities of an extended common space where the participants of the frames can be related. Thus, this comes to be a more abstract and schematic generic space that needs to be generated if necessary. The consequences of this abstract and schematic space are different levels of integration, from literal to non-literal. Besides, the concept of prototypicality comes to be understood from the concept of extension in the sense that while less extended the meaning of the generic space more prototypical. Thus, a more schematic generic space is the result of a great semantic distance between the components of the compound and therefore a less prototypical meaning is the result at a generic-space level.

The results here are that a big semantic distance within domains and also between the components of the compound shows a low prototypicality of the compound. While, a narrow semantic distance within semantic domains and between the frames activated by each input, shows high prototypicality of the compounds, due to its prototypical meaning is not extended.

The sets of compounds in LOVE - N show 14 different semantic domains. Some of these compounds are *love interest, love triangle, lovebite, love rat,* etc. At the same time this compounds present low prototypicality, especially *lovebite* and *love rat*. This lack of prototypicality is given by the extended meaning of the generic space, which does not allow an immediate recognition of the meaning of the compound only on the basis of the inputs. In other words, we cannot trace back the line of ascent and look into the components to get the meaning of the compound.

Not many but still some examples in N - PHOBIA are also part of this category, such as *cosmophobia* and *emporiophobia.* Both compounds present components that between them are not semantically close. *Emporio* makes reference to “free markets” while *phobia* refers to the “mistrust of” or “resistant to” these free markets. Thus, the frames activated by each input are not related prototypically nor due to elements within the frames. And this lack of connection makes these types of compounds less prototypical than others.

Finally, N - RAGE also corresponds to this category due to the great semantic spread present within its modifiers but also between input 1 and input 2. Some examples are *wrap*

rage, surf rage, gallery rage, among others. *Gallery rage*, for instance, means the "rage when visiting overcrowded art galleries or art exhibitions in general". Neither the emotion of *rage* in an art gallery nor in a museum is prototypical, but this is a relatively new compound whose origin stems from the current increase of art-lovers. From this fact, we understand the low prototypicality of the compounds and also we get the evidence that great semantic distance among modifiers means low prototypicality of the word *rage*.

In the case of the sets N - LOVE, PHOBIA - N and RAGE - N there is a narrow semantic distance among semantic domains. The semantic domain activated by most of the compounds was EMOTION. In reference to the semantic distance between components, N - LOVE displays modifiers that correspond to the same frame of LOVE or modifiers that have elements in their frame that are prototypical to elements within the frame of LOVE. The same occurs with PHOBIA - N and RAGE - N. This activation of similar frames or related elements within them makes these types of compounds quite prototypical in historical, biological or cultural terms. For instance, in the case of N - LOVE, most of the modifiers activate RELATIONSHIP, FAMILY or PERSON frames or elements which are prototypical of the LOVE frame. In the case of PHOBIA - N the head activates mostly elements from a MEDICAL frame; and finally, the head in RAGE - N activates mostly elements related to the frame of CONFLICT. These results indicate that the narrower the semantic distance between components, the more prototypical the meaning of this compound due to the lack of extension at a generic-space level.

Observing the great amount of inputs (semantic domains) that can be compounded when the syntactic structure corresponds to EMOTION - N, we can infer that the semantic distance between the two components affects the *transparency* of its emergent structure such as the case of LOVE - N. This, because the different nature of the domains activated allows the formation of more or less transparent emergent structures. For instance, in the case of compounds such as *love bird, emporiophobia* and *surf rage,* none of the inputs that give place to the blending correspond to the same frame. Therefore, in these cases the semantic distance between components is bigger. Consequently, they present a more schematic generic space what results in a less transparent compound.

In contrast, in compounds such as *love letter*, the frame of LOVE and the frame of LETTER form an emergent structure which is quite prototypical due to the historical importance of letters and its classification. Thus, the semantic distance between components

is not big, the generic space is less schematic and finally resulted to be a quite transparent compound. The same situation is given in the case of *rage attack*, where the two inputs correspond to the same frame.

In relation to figurativity, in the case of emotions, what is observed is that the presence of figurative compounds is concomitant to a high semantic distance between components. For instance, all the compounds in RAGE - N where the head corresponded to nouns such as *attack, problem* or *wars* ended up meaning CONFLICT, due to the fact that they correspond to the same frame of CONFLICT. Thus, these compounds resulted to be less figurative because there exists a close semantic distance between their inputs. However, when the semantic distance between components is greater, this results in more figurative compounds. Take for instance the case of *surf rage, air phobia* or *baby love*. In all these cases, there exists a schematic generic space resulting from the great semantic distance between their components. Consequently, these compounds are more figurative than the aforementioned ones with a narrower semantic distance.

The pivotal characteristic of these figurative compounds is that their meaning is not readily interpreted and traced back to their components. On the contrary, their meaning is the result of a previous meaning extended through the generic space and therefore more opaque or less transparent.

5.2.1.3. Syntactic roles

At this point, it is important to highlight that 100% of the N - RAGE semantic spread instances correspond to EMOTION. This is due to the fact that *rage* as the head of the construction, determines the profile of the compound. However, the figurativity of these compounds, which results to be quite high, depends on the semantic distance between components and the lack of transparency as a result of a very schematic generic space, and therefore low prototypical. A representative example of this schematic generic space that results from N - RAGE is *air rage.* In this example, the meaning of the compound is EMOTION but it is still figurative due to the fact that the modifier of the compound is distant to *rage* in semantic terms. Besides, this is pivotal when referring to grammatical roles and frame-activation since *rage* as modifier only specifies the meaning of the compounds but does not determine it.

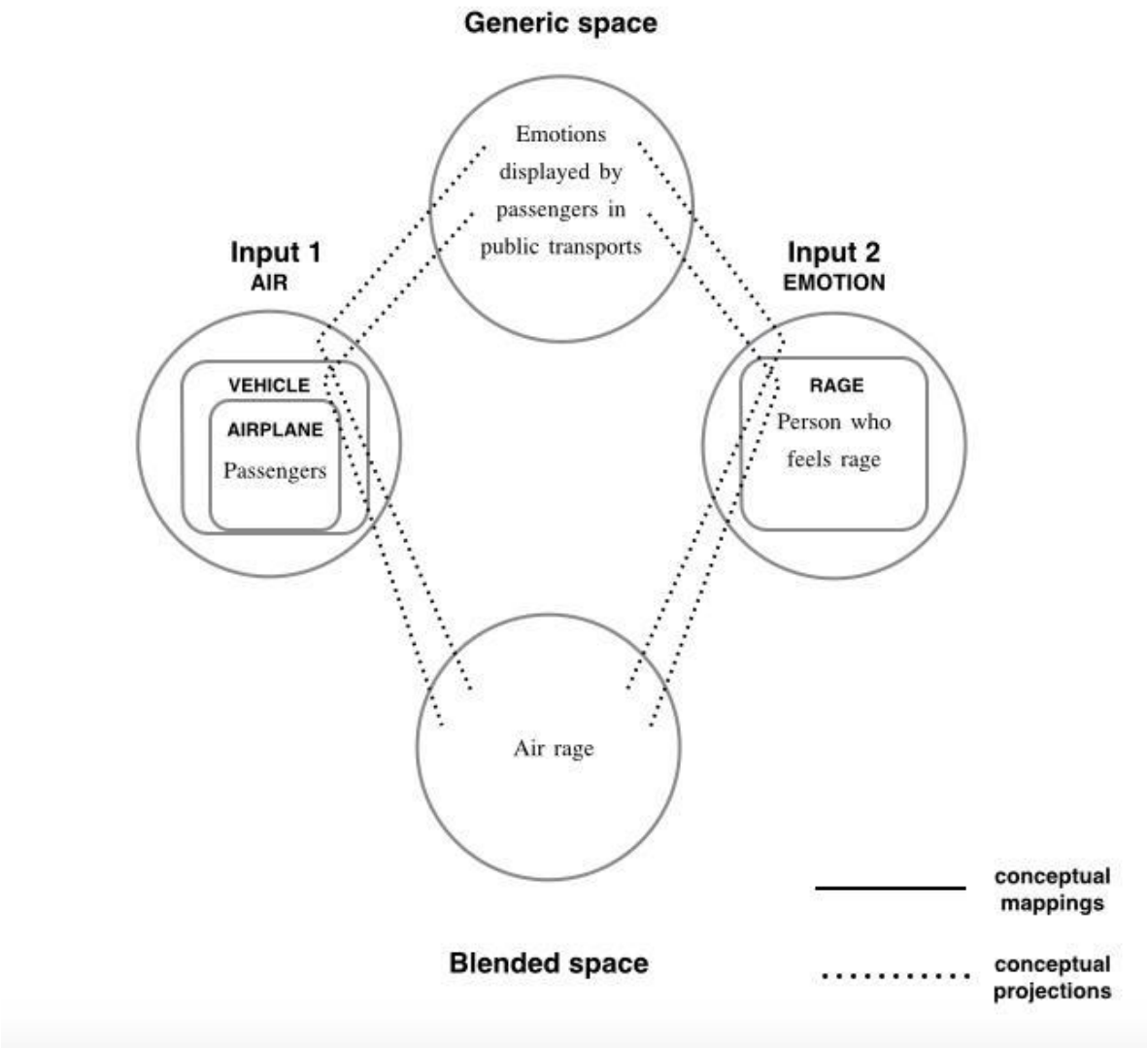

Figure 5.17. Grammatical roles and frame activation in N rage: Air rage

Despite this, in the case of N - LOVE and N - PHOBIA, almost 100% of the compounds are literal, sanctioning the semantic domain of EMOTION. This means that these two emotions only take modifiers that correspond to their own frame, either due to prototypicality or elements within the frames (as you can see different from N - RAGE). Some examples are *brother love*, *fan love*, *fairytale love* or *negrophobia*, *snake phobia* and *ebolaphobia*. *Brother love* is a case where the modifier is an element that can be found in the LOVE frame due to family bonds (most of the cases in N - LOVE are quite similar). The case of *ebolaphobia* is prototypical due to the fact that Ebola is a death disease easy to be feared. In the case of *negrophobia*, its prototypicality comes from a discriminatory and cultural issue.

Insofar as the cases of EMOTION - N are concerned, *love* and *rage* present more non-literal cases when acting as modifier than *phobia* does. This means that *phobia* as modifier tends to take heads that belong to its same frame such as *phobia therapy, phobia treatment* or *phobia sufferers*. In contrast, *love* and *rage* take heads that in the continuum of semantic distance are not closely related, such as *lovebite, loveseat, rage comics* or *rage yoga*. The reason of this is that *phobia* tends to be more prototypical than *love* and *rage* when acting as modifier. Even though *phobia* is an emotion, the word is quite entrenched in medical terms, thus tending to be more prototypical than other emotions. On the contrary, in relation to *love* there have been many discussions about its prototypicality (from psychologists to linguists). It can be characterised as *happiness, caring, helping, establishing a bond,* etc. Moreover, it can be prototypical in terms of *love objects*: brother, mother, sex partner, self and God (Fehr & Russel, 1991). In the same path *rage* is an emotion that as modifier loses its prototipicality due to the fact that it can be present in many situations (*conflict, behaviour, person, state health, action,* etc).

5.2.1.4. Literal/non-literal interpretation

Although the semantic sets of emotion compounds show a preference in terms of grammatical roles and literal/non-literal interpretation, this preference is not definitive. Actually, N - LOVE, N - PHOBIA and PHOBIA - N show a marked tendency to literal compounds, while LOVE - N, RAGE - N and N - RAGE display a great number of non-literal compound. The tendency, as we observed above, is also related to prototypicality and frame activation.

Hence, we can observe that PHOBIA - N and the nouns that can elaborate the constructional schema can activate only literal frames related mostly with HEALTH, PERSON and SOCIAL BEHAVIOUR. These semantic domains as it can be seen are prototypical to the PHOBIA frame. In the case of N - PHOBIA the only frame that is activated is FEAR or REJECTION OF SOMETHING due to prototypicality in relation to mainly cultural matters.

With respect to *love* occurs something different. N - LOVE compounds resulted to be almost in a 100% all literal but when the syntactic roles changed (LOVE - N) a 64% of the compounds were non-literal. It can be observed that when *love* acts as head it activates only literal meanings but when acts as a modifier the meanings activated are in most of the cases non-literal. In the case of N - LOVE we have examples such as *brother love, routine love,*

summer love, etc. The semantic frame activated in all these cases is the one of EMOTION which is modified by a modifier that corresponds to elements within the same frame. The only exception present in this syntactic structure was *baby love* which rather than activating an emotion, the head *love* activates a person, one of the lovers. This occurs because the noun *love* is prototypically used to name the person that somebody loves, apart from referring to the emotion. The prototypicality of *love* as *lover* follows from the fact that it lies in the 5th place (out of 30) in the table N - LOVE (appendix) with a high absolute frequency.

Some of the LOVE - N cases are *lovebite, loveseat, love rat,* etc. These examples show us that the modifier and head activate their own frames. These frames correspond to the domains of COMMUNICATION, RELATIONSHIP, PERSON, LIFE, WRITTEN MATERIAL and HOUSEHOLD EQUIPMENT in most of the cases. Here the only frames that are semantically closer to the frame LOVE are RELATIONSHIP and PERSON. But the rest are semantically distant from LOVE. This indicates that due to the lack of prototypicality and related elements within the frames, the meaning of the compound ended to be non-literal. Maybe it would be interesting to exemplify this with the double-scope network blending of the compound *lovebite,* and from this to understand the difference between frames that leads to the non-literality of the compound.

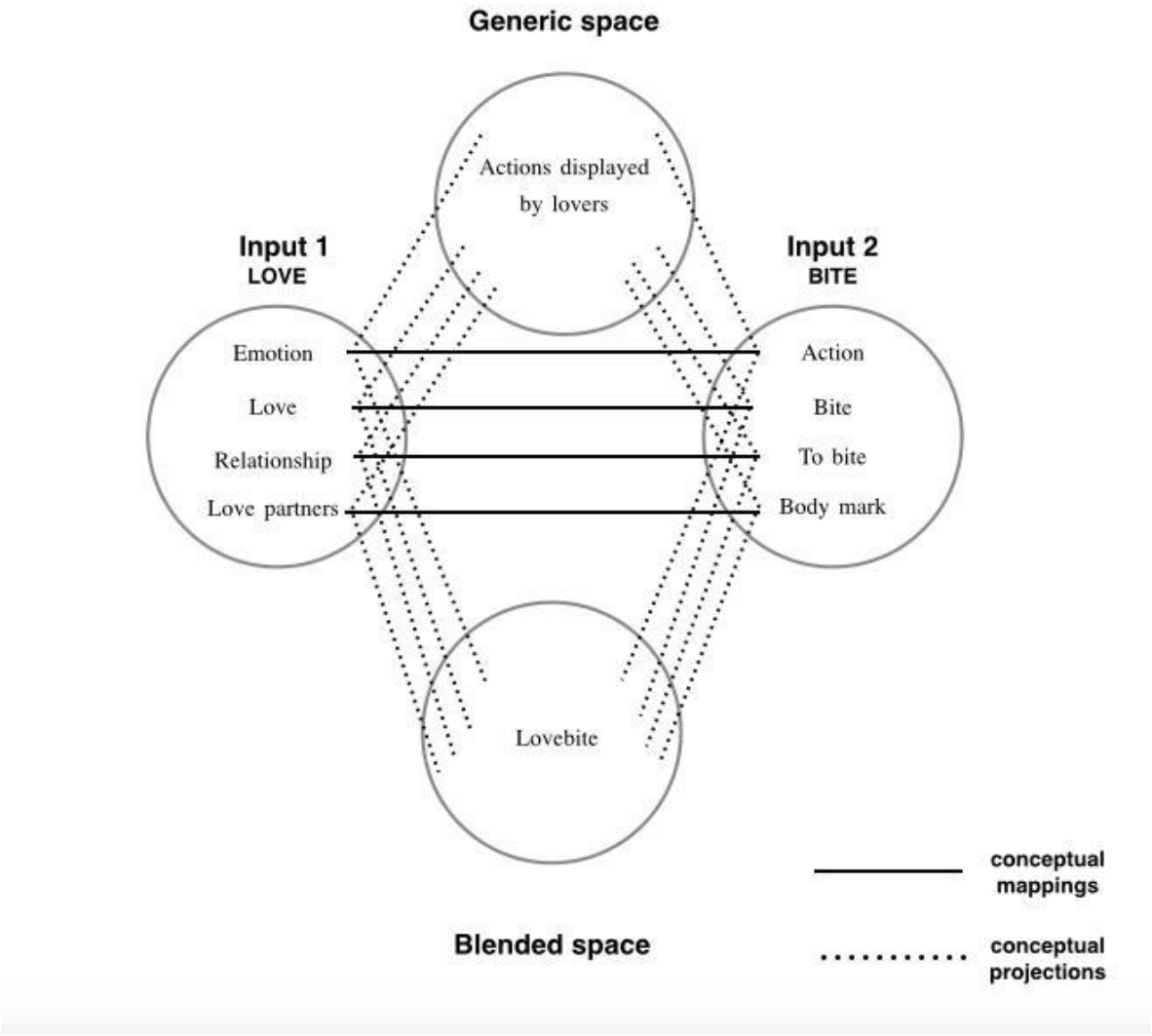

Figure 5.18. Non-literal interpretation in the grammatical structure Lovebite (LOVE - N)

In relation to the emotion *rage*, something different from *phobia* and *love* occurs. Most of the compounds were non-literal, independently of their grammatical order. Some instances of RAGE - N are *rage yoga*, *rage-quitter* and *rage-blind*. The semantic frames activated in these cases were PERSON, SOCIAL BEHAVIOUR, HEALTH and others such as STATE and ACTION. However, the semantic domain mostly activated in terms of absolute frequency was CONFLICT in which most of the compounds were literal. This, due to the link, in terms of frame, that exists between the inputs. Thus, when the head of the compound activates frames that are semantically distant from the frame activated by the modifier *rage*, then the compound results non-literal due to the extension of meaning that occurs at a generic space

level. On the contrary, when the head of the compound activates frames that are semantically close to the frame activated by the modifier *rage* such as the frame CONFLICT, then the meaning of the compound is literal due to the lack of schematicity at a generic space level.

The case of N - RAGE proves to be the most special one because, differently from N - LOVE, the majority of the compounds were non.literal, independently of the EMOTION domain that was activated. That is due to the semantic frames that each input activate resulted to be quite different the one from the other. Some examples are *surf rage, air rage, wrap rage, gallery rage*, etc. Thus, *rage* as head presents a dependence on the modifier due to it takes modifiers semantically distant the one from the other and besides distant from the semantic frame of *rage.*

5.2.1.5. Intra and inter-categorial analysis

Not all the compounds displayed an elaborated blending due to the fact that it does not occurs a semantic extension from the prototypical meaning. In cases such as *love relationship* or *phobia treatment* the modifier is only a specification of the head. In general, the three sets of emotions (*love, phobia* and *rage*) present a high number of compounds that specify persons as in *love guru, love rival*; or in *phobia* and *rage* compounds such as *phobia expert, phobia patients* or *rage victim*. This because emotions are an essential and pivotal part of the human beings. Thus, is quite prototypical to link them with the PERSON frame.

In the sets of emotions that we analysed we were able to find two types of blendings: *simplex-scoupe networks* and *double-scope networks*. In the first case, the generic space is semantically well-formed and conventional in terms of the linguistic units (input 1-input 2) and thus, the relationship between components is a one of specification. In this type of blending occurs that a domain contains a set of slots that need to be filled in by the elements present in the other domain (ex. *Phobia sufferers*). The second type of blending *double-scope networks* presents cases such as *love beeper, love rat*, etc. where both inputs present different frames. The blend of these different frames within a shared emergent structure offers a highly creative network.

In terms of Semantic Distance, the results are that a big semantic distance within domains and also between the components of the compound shows a low prototypicality of the compound. While, a narrow semantic distance within semantic domains and between the

frames activated by each input, shows high prototypicality of the compounds, due to its prototypical meaning is not extended.

In the case of great semantic distance between constituents and low prototypicality occurs in *Gallery rage* (N - RAGE), for instance. This means the "rage when visiting overcrowded art galleries or art exhibitions in general". Neither the emotion of *rage* in an art gallery nor in a museum is prototypical, but this is a relatively new compound whose origin stems from the current increase of art-lovers. From this fact, we understand the low prototypicality of the compounds and also we get the evidence that great semantic distance among modifiers means low prototypicality of the word *rage*. When the constituents change their roles to RAGE - N the semantic distance is narrower and therefore the prototypicality is higher. This due to most (not all) of the heads in RAGE - N activates mostly elements related to the frame of CONFLICT. Which is quite prototypical to the *rage* emotion.

In the phobia cases occurs the same as in *rage*. PHOBIA - N presents a narrow semantic distance among semantic domains and also between the constituents due to most of them correspond to the same frame of MEDICAL TERMS which indicates high prototypicality. In relation to N - PHOBIA, as in N - RAGE, there exists a great semantic distance among semantic domains and also between the constituents due to most of them correspond to different domains.

While *rage* and *phobia* acts similarly when referring to semantic distance and prototypicality, the case of *love* is different. Because of love is a prototypical emotion applied to a serie of different situations or scenarios when acting as head is when it displays its major prototypical meaning. The great prototypicality of the word *love* leads it to become less prototypical due to it loses its prototypical meaning. It can be characterise as *happiness, caring, helping, establishing a bond,* etc. Moreover, it can be prototypical in terms of *love objects*: brother, mother, sex partner, self and God (Fehr & Russel, 1991). At the same time, when acting as modifier love can modify many semantically different heads. It can be adapted to the head it accompanies. Thus, when presenting the structure LOVE - N, there exists a big semantic distance among semantic domains and also between the constituents due to most of them correspond to different domains.

Figurativity and transparency coincide in relation to grammatical roles and semantic distance. The pivotal characteristic of these figurative compounds is that their meaning is not

readily interpreted and traced back to their components. On the contrary, their meaning is the result of a previous prototypical meaning extended through the generic space and therefore more opaque or less transparent.

In terms of prototypicality and frame activation, N - RAGE activates only the frame of EMOTION. However, the figurativity of these compounds, which results to be quite high, depends on the semantic distance between components and the lack of transparency as a result of a very schematic generic space, and therefore low prototypical. In contrast, in N - LOVE and N - PHOBIA almost 100% of the compounds are literal, sanctioning the semantic domain of EMOTION. This means that these two emotions only take modifiers that correspond to their own frame, either due to prototypicality or elements within the frames (as you can see different from N - RAGE).

In the sets EMOTION - N, *love* and *rage* present more non-literal compounds than *phobia*. *Phobia* as modifier tends to take heads that belong to its same frame such as *phobia therapy. Love*, more than *rage*, takes heads that in the continuum of semantic distance are not closely related, such as *lovebite, loveseat.* In *rage* some similar cases are given such as *rage comics* or *rage yoga*. *Phobia* is an emotion quite entrenched in medical terms, thus tending to be more prototypical than other emotions. On the contrary, in relation to *love* there have been many discussions about its prototypicality. The case of rage is more in the middle in relation to the extreme non-literality of LOVE - N and the extreme literality of PHOBIA - N.

In conclusion, the sets of compounds in *love* show marked differences when the syntactic structure changes. LOVE - N is less prototypical, more figurative, less transparent and presents more semantic distance between components. While, N - LOVE compounds are more prototypical, less figurative and with a narrow semantic distance between constituents. The cases of *rage* and *phobia* are different to *love* but similar between them. RAGE - N and PHOBIA - N are more prototypical and presents a narrow semantic distance but they differentiate due to the first presents more figurative compounds while the second presents less figurative ones. Finally, N - RAGE and N - PHOBIA presents both less prototypical compounds with a great semantic distance between their constituents but in terms of figurativity the first one tends to be more figurative than the second.

In comparison between concrete and abstract semantic categories it was interesting to observe that emotions in spite of being abstract semantic category tends to be somehow in

the middle of both semantic categories (concrete and abstract). The word *love* proved to be quite similar to the concrete category BODY PARTS, especially *head.* This, due to both concepts display an extremely high prototypicality that it ended losing its prototypicality because of the varied set of situations and scenarios in which can be present. *Love* and *head* are quite difficult to categorise due to they can be applied to many categories. Thus, it could be said that they bring down constraints.

5.2.2. Culture

Regarding the analysis of the domain CULTURE, several conclusions were obtained about the process of compounding, resulting in very interesting cases to analyse and explain. As a general note that characterises the nature of the creative use of words that belong to the domain of CULTURE is the very limited amount of creativity and its flexibility of use. This results in a great majority of literal words against a very limited amount of cases that make use of figurative language. That being said, the limited cases of figurative language in the CULTURE domain are sometimes very interesting cases that will be analysed in detail in this section. Out of the three nouns at the basic that are part of this analysis, *culture* is the one that boasts the highest absolute frequency, with 488,550 instances. In second place, the word *Christian* provides 193,886 occurrences, leaving *Nazi* in the third place with 35,281 instances. This difference of absolute frequency between the three different peers that belong to the same superordinate category actually makes sense, taking into account the scope that each word has. The word *Nazi* comes from *National Socialism,* which is in turn associated with the Nazi Party in 20th century Germany. The Nazi party and Nazism in general are also widely associated to many of the atrocities of the Second World War and the controversial and authoritative figure of Adolf Hitler. Moving up on the order of frequency, we have *Christian,* a noun that has roughly five times the amount of absolute frequency than the word *Nazi. Christian* differs from *Nazi* in that its use is much wider. While it is true that the word *Nazi* is widely used in many world languages even to this day, it is still highly enclosed within a specific time (20th century) and space (Germany). *Christian*, on the other hand, is related to Christianity, one of the world's most popular and largest religions with more than 2 billion adepts. Clearly, the scope of *Christian* reaches far beyond a single country, it reaches the entire western world. Even more global is the term *culture*, having more than double of the amount of instances of *Christian* and roughly 14 times the amount of instances of *Nazi.*

Christianity might have billions of followers and be one of the world's most important religions, but its scope is still limited. We cannot really talk about Christianity when we talk about atheist people, people who believe in other religions, and people in the eastern world where Christianity is not as popular as it is in the western world. On the other hand, we can always talk about *culture*, no matter the beliefs or the place that we are referring to. This explanation helps to understand why *culture* is the word with most instances in the corpus, followed by *Christian* and then *Nazi*.

That being said, this pattern marked by the absolute frequency is actually not representative of what happens with nouns that belong to the superordinate category of CULTURE. This leads to a very interesting phenomenon. One of these very interesting results is encountered in the case of the compounds that follow the structure of N - CHRISTIAN, as no compounds were found in the *NOW Corpus* where the word *Christian* acts as a head. The only cases in which *Christian* is preceded by a noun is in cases of normal sentences or predication, without forming a N – N compound. For instance, *Church Christian* is found in the corpus, but not as a compound but as part of a bigger sentence such as "This building is the *church Christian* people love to visit in the summer" where both words are next to each other in the sentence but do not belong to the same clause. In such cases there is a pronoun *that* that is silent. Thus, in all of the available of compounding cases, *Christian* acted as a modifier, something which is only shared with the group of components of N – FRANKEN, which belongs to the superordinate category of NARRATIVE ENTITY. A possible explanation for this is that both superordinate categories are abstract, so they are less entrenched in the sense that the freedom of creative and innovative use is more limited. In all other superordinate categories there is a difference between the two grammatical position, but not as drastic as this one. There are many activations of several domains when the nouns at the basic level are acting as the head of the compound noun, as opposed to the little amount of domains activated when the noun at the basic level is acting as the modifier, which is a pattern that is repeated across other superordinate categories. This result is the extreme case, but in general it happens that when the nouns at the basic level are in the modifier position the number of activations regarding its semantic spread are very limited: N – CHRISTIAN doesn't have any compounds, therefore there are zero activations; N – CULTURE had only one activation with all 60 compounds that were analysed in which all 60 of them belonged to the

domain of SOCIAL BEHAVIOUR; and N – NAZI had two activations, being the exception the literal cases of actual Nazi locations. In terms of frequency, the basic level that had the major concentration of compounds was CHRISTIAN – N, with a total of 48,289 instances of the compound across the 60 words. On the other hand, the basic level that concentrates the least number of instances was N – NAZI, having a total of 1,257 instances across 23 words. The stark contrast between the 48,289 compounds that have the structure of CHRISTIAN – N compared to the 0 that N – CHRISTIAN have is quite surprising, showing how prominent the word *Christian* is, but at the same time showing that there is not a lot of room for creative uses.

This way, it was proved that when the set of compounds responded to the X – NOUN formula, we can find major instances and creativity than when we have compounds with the inversed formula, which is very restricted in terms of creativity.

5.2.2.1. Conceptual integration and blending

When it comes to conceptual integration and blending, it is important to keep in mind that the processes related with these concepts can vary depending on the components. In the particular case of the superordinate category CULTURE, several cases were found in which the processes involving blending of mental spaces were very simple or inexistent when it comes to the formation of a new compound, and those cases generally go in hand with a literal interpretation of the compound created and can be interpreted as a rather simple case of providing additional information such as specification of place or area of knowledge. Good examples that illustrate these cases are the compounds that activate the domain of PERSON, because they tend only to specify further the role that this person fulfils in our society and they tend to be very literal. At the basic level, the three words that were analysed showed an important preference to the compounding process related with human entities and the already mentioned domain of PERSON, and therefore the blending of mental spaces tends to be very literal and basic. Some examples of these cases are *Christian leaders, Christian women, Nazi officer, Nazi soldiers, Grammar Nazi, Food Nazi, Culture Minister* and *Culture Secretary*, to name a few. As it can be seen, in these cases the modifier only provided specificity regarding the role or status of the person, and as a result, no blending of mental spaces was required in order to create or understand them.

There are other instances, however, in which more complex processes of blending were necessary to unify two different input spaces that belong to and activate different frames and therefore had different emergent structure. In such cases, there is some sort of commonness between the two frames that are activated and take one particular characteristic of the first frame to specify and elaborate the second one. What is very interesting with the superordinate level of CULTURE is that, as they are abstract entities, in general the space for creativity is very restricted and therefore the compounds that are formed are very literal in their meanings, although we can consider a portion of these compounds as representatives of figurative language. A good example to illustrate these cases of figurative language amidst a set of compounds that tend to be very literal is the compound *culture vulture*. It is clear that the compound is not literal, because the compound in question does not refer to an actual vulture. The compound noun *culture vulture* is a compound that refers to a person who has an obsession towards the arts and consumes it compulsively. Vulture belongs to the input space of ANIMAL, and culture to the input space of SOCIAL BEHAVIOUR, so clearly there is a mismatch between the literal meaning of the components and the meaning of the compound. hence why the compound *culture vulture* carries a figurative meaning. Furthermore, SOCIAL BEHAVIOUR is a domain that is typically related to human entities and not to animals, which makes this compound to have an even bigger semantic distance between the input spaces and a more schematic generic space, due to the unlikely relationship between input spaces. But if we decompose both frames and create the blending of the mental spaces that are triggered in this compound, we can find that the mappings that relate these two compounds have some kind of relationship between them that make possible the figurative association of vulture to a person. This relation is illustrated in the following figure.

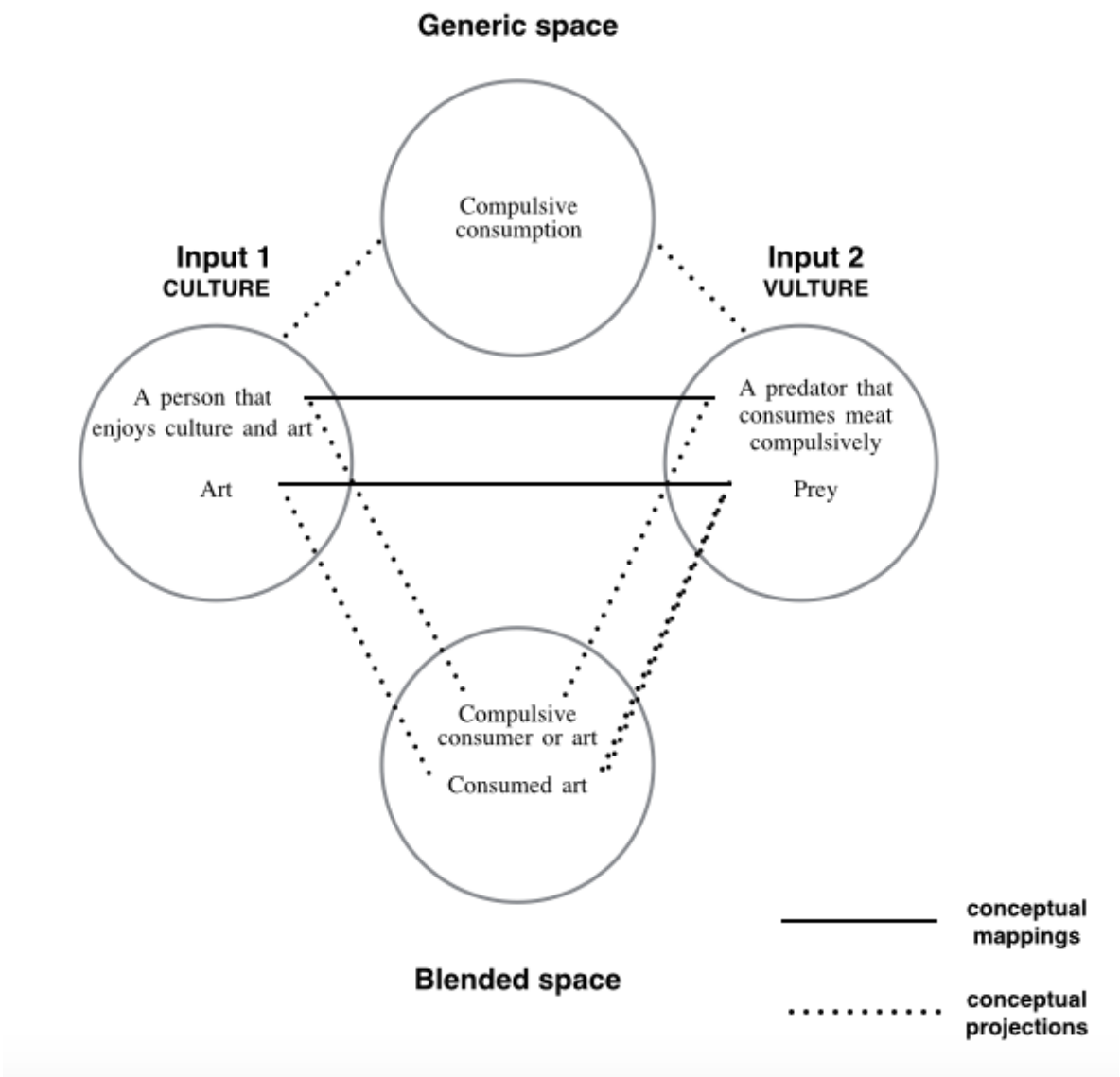

Figure 5.19. The blend analysis of Culture vulture

Figure 19 displays that the input spaces of the compound *culture vulture* are CULTURE and VULTURE. This rather complex case of blending shows that while the two input spaces have a high degree of semantic distance, there are mappings that link these apparently unrelated input spaces. The first mapping links the vulture in itself, an animal that is described as a predator that eats meat viciously and compulsively; with a person, an essential part of domains activated by the input space of *culture* such as CULTURE and SOCIAL BEHAVIOUR. These two things are mapped in order to create something in the blended space, which would be a person that belongs to a culture but is some sort of vulture, judging from his behaviour. The other mapping relates to the motivation that causes the aforementioned behaviour.

Vultures are animals that behave viciously and compulsively when eating something, this something being meat of their prey. The prey, from the input space of *vulture* and the domain of ANIMAL, maps with something of the input space of *culture*, which in this case would be artistic material. This may also be part of a greater conceptual metaphor network, where ideas are objects, the mind is a stomach and getting the intellectual pleasure of aesthetics equals to pleasure from ingestion (Sullivan, 2013). This allows for the creation of a blended space that carries the correct interpretation of *culture vulture*, someone who, like a vulture to his prey, devours culture viciously and compulsively. Additionally, we have to address that there is another possible motivation for this compound based on the stylistic feature of rhyme, since both *culture* and *vulture* rhyme, the compound *culture vulture* has a catchy tone. However, the phenomenon of blending still occurs and it is not affected by the presence or absence of rhyme.

This is a complex case in which the two input spaces blend to create a figurative compound that is a quite interesting case that is found amidst a set of rather straight-forward and literal compounds. But this is not the only type of interesting compounding that can be found within the analysis of nouns at the basic level that belong to the category of CULTURE. There is another type of blending which does not have two input spaces that blend one into the other to create a different blended space. Instead, this other type of blending offers interesting and creative uses of words in which the modifying noun creatively affects the head noun. The difference can be better explained if we compare it to the case of *culture vulture*. *Culture vulture* is a noun that, in the end, is not referring to culture in itself nor a vulture, but this other type of blending works differently. A good example that exemplifies this other type of blending would be the non-literal cases of N – NAZI that activate the domain of PEOPLE. such as *Grammar Nazi, Nipple Nazi, Word Nazi, Sandwich Nazi, Recycling Nazi*, among others. Take a look at the following figure:

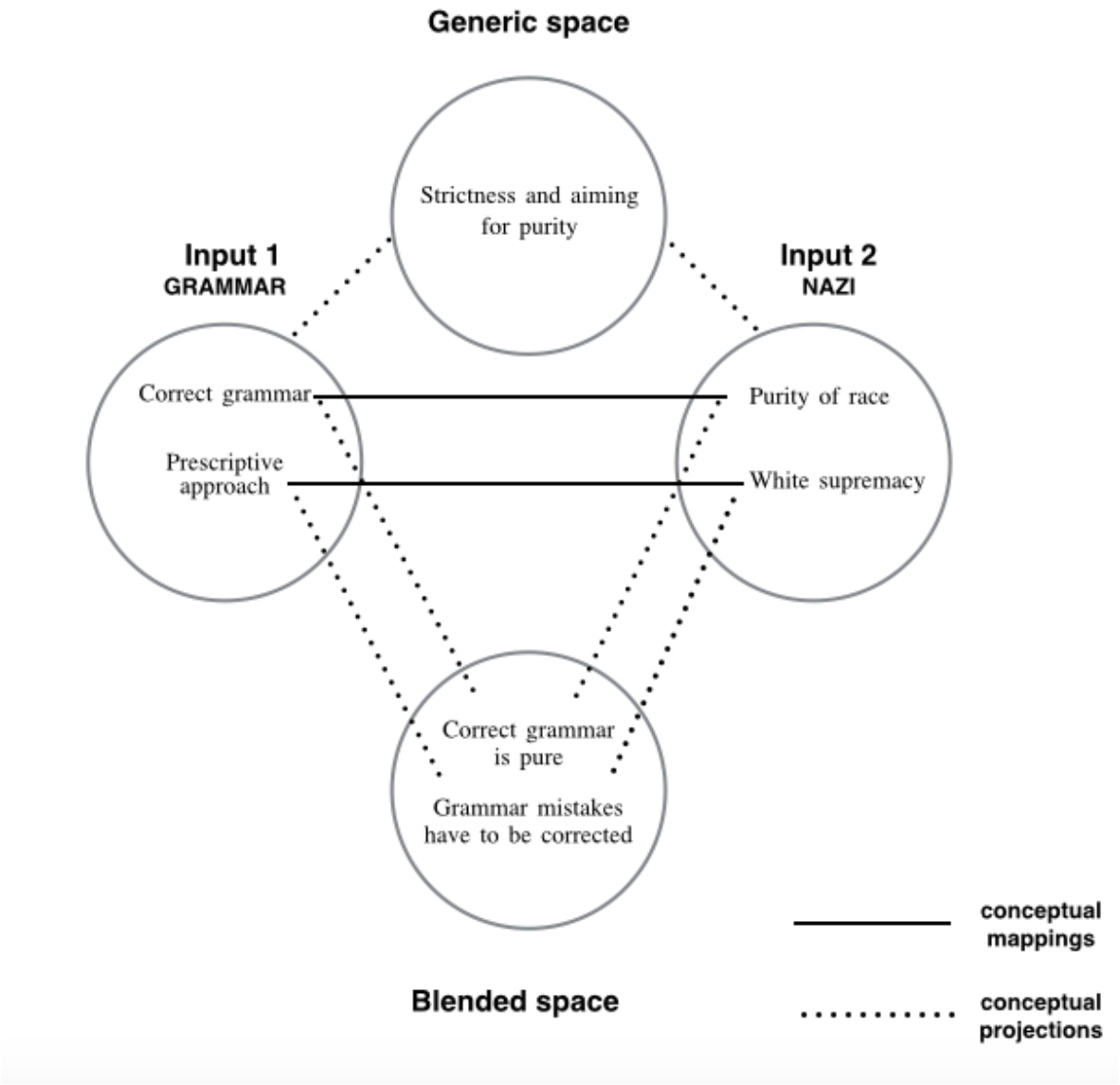

Figure 5.20. The blend analysis of Grammar Nazi

The compound *Grammar Nazi* is a figurative compound because it has nothing to do with the National Socialist ideals or the Nazi Party of Germany. Instead, *Grammar Nazi* is used as a compound to refer to someone who is very strict towards grammar, always correcting others and having a very purist disposition towards their own and others' grammar. The mappings between the two input spaces are somewhat similar as both of them refer to this purist perspective. The first one, is the mapping between what is correct in grammar and the purity in race that the Nazis perceive. In other words, there is some sort of analogy of the white race, something better and purer according to the Nazi ideals, which is perceived as

the counterpart of correct grammar in language, as grammar can be consider as an inflexible rule. In other words, the fanatic aspect that *Nazi* implies in this case, is understood as a hyperbole of grammar. This is linked to the second blending, of having a prescriptive approach and always correcting others in the input space of *grammar*, mapped to the white supremacy movement in the input space of *Nazi*. White supremacy is the movement that actively tries to convince people of the idea that white people are superior, which is seen as something somewhat similar to the movement of *grammar Nazis* when they actively reprimand others and correct them on their grammar. Therefore, a *grammar Nazi*, just like a Nazi from Germany, is seen negatively because of their hostility and strict views.

What sets *grammar Nazi*, and other similar compounds such as *word Nazi* and *recycling Nazi* apart from other compounds that follow the structure of N – NAZI that are literal, is precisely that. These compounds are creative and go beyond literality. Compounds such as *wartime Nazi* are highly transparent and easy to unpack and decode, as they refer to an actual Nazi that was alive during the war; therefore, it is considered as a frame-based composition. The set of creative compounds that have the structure of N – NAZI, on the other hand, never refer to someone who is a Nazi sympathiser or someone who subscribes to the National Socialist ideals. All of these compounds refer to someone who is usually a fanatic and an extremist towards something. Hence, *recycling Nazi* refers to someone who is a recycling fanatic, someone who is probably actively convincing other people to recycle so much that it becomes something hostile. A *recycling Nazi* would probably yell at someone who litters the street, discriminating them in a violent way. The same can be said of other similar components, *sandwich Nazi* will be likely used to refer to someone who has a very strict set of ideas about sandwiches and behaves as a fanatic who would likely get into an argument.

As it was stated, these cases of figurative N – NAZI nouns show a different type of blending because in these cases, while we are not talking about an actual Nazi sympathiser, it is still much a much more familiar input space as compared to *vulture*. When we talk about *vultures*, one tends to activate the frame of ANIMAL, and activating the domain of PERSON would be something somewhat unlikely. On the other hand, when we talk about, say, *nipple Nazi* (a metonymic compound that describes someone who is very openly against breast-

feeding in public), we are activating the domain of PEOPLE, which is also activated when we talk about *Nazi* as an isolated word.

5.2.2.2. Semantic Distance

In regards to semantic distance, it has been already shown that the amount of semantic distance is something that varies from case to case. More specifically, we have seen how there are some cases in which one noun merely specifies and provides additional information about the other. In these cases, the semantic distance between the two components of the compound is low. Let's refer, once again, to the CHRISTIAN – N compounds. Most of the components that are acting as heads are closely related to what *Christian* as a component prototypically activates: words such as *church, community, leader, pastor, faith,* among other words that are closely related to RELIGION, the frame that *Christian* activates. This is why there is a low semantic distance, because the two words and the relationship that they establish is something quite expectable. That being said, there are cases in which the semantic distance is greater. We can refer once again to the example of *culture vulture.* If we take each component as a separate entity and we try to brainstorm ideas that relate to it, we would probably not make the mappings that are behind the compound *culture vulture*. In other words, when we think about *culture,* or the domain of SOCIAL BEHAVIOUR, *vulture* will not be one of the things that people will think about. The same applies the other way around, when people think about the domain of ANIMAL or about *vulture*, things such as *culture* or the domain of SOCIAL BEHAVIOUR will be likely absent. This is why when we encounter a compound like *culture vulture* it stands out the way it does, because it includes the union of two words that we would not expect to unite, breaking away from the pattern. The fact that the majority of the compounds are straight-forward only makes the impact of a blending like the one behind *culture vulture* even more impressive. This also means that the semantic distance between those two input spaces is much greater, which in turn also makes the generic space much more schematic. That being said, cases such as *culture vulture* are only isolated examples and not representative cases. This also makes them more interesting for our analysis. In general terms, the more prototypical case in terms of frequency regarding the superordinate category of CULTURE is a case in which there is little semantic distance because of the straight-forward and transparent nature of the majority of the compounds.

Additionally, the superordinate level CULTURE does not activate many domains when it comes to semantic spread. However, there is a tendency of a higher amount of activations when the word at the basic level is acting as the head of the compound, in contrast with the limited number of domains that are activated when the words are at the basic level. The most interesting case regarding semantic spread is the one that holds of the component *Christian*. When *Christian* is acting as the head of the compound it activates a total of 10, these being, more prominently, PERSON, ORGANISATION and RELIGION. This may be explained considering that Christian is a religious entity that, despite being an abstract noun, activates very concrete ideas, as in general this basic level word is used to specify entities and things that are commonly related to the religion. What makes this particular component so interesting is not the amount of domains that it activates as CHRISTIAN – N, but rather the complete absence of N – CHRISTIAN compounds. The average of activated domains in all six different cases (including N – CHRISTIAN) is of 6.83, so having on one side one that clearly surpasses the average with 10 activations and another one in which no cases at all are activated is highly peculiar. Once again, this occurs because as an abstract entity there is no room for creativity, and the compound has to say within a very delineated and demarcated sets of domains that can be activated. This well-defined set shows that there can be extensive compounding with *Christian*, but not a lot of innovation.

Culture also shows certain special features regarding the domains that are activated. On one hand, there is the already-mentioned curious case of the exclusive activation of the domain of SOCIAL BEHAVIOUR in the structure of N – CULTURE, something that does not happen in any concrete category and is only repeated in the category of EMOTION. CULTURE – N, once again, is a structure that activates much more domains than its counterpart, concretely 11 different domains. That being said, there is no abundance of interesting cases beyond *culture vulture*, with the only exception of several compounds that while mainly activating SOCIAL BEHAVIOUR, they are also an account of several metaphors that are employed when talking about *culture*, such as CONFLICT related compounds such as *culture clash, culture warrior, culture crash*, and others. These are activated like so mainly because of globalisation, a phenomenon that creates a sudden and sometimes conflictive encounter between several cultures.

The same can be said of the word *Nazi*, because as a modifier it activates 13 domains, and as a head, only 2 (PERSON and LOCATION). Paradoxically enough, the interesting cases regarding *Nazi* are encountered when *Nazi* is acting as a head, because of the already mentioned examples of *grammar Nazi* and other similar words. On the other hand, NAZI – N, only offers compounds that are more straight-forward and transparent, such as *Nazi officer, Nazi party, and Nazi Germany.* This pattern confirms what was established at the beginning, saying that these words have a low semantic spread because they are highly enclosed within a few domains when they are acting as a modifier, which prevent them from activating new, unseen domains. This is due to their abstract character and how entrenched they are in society: there is a lot of material, but only within the comfort zone of the usage of the word.

5.2.2.3. Syntactic roles

The differences between the grammatical roles that a word at the basic level can take have been explained throughout previous sections, because the differences that can be observed that concern grammatical roles also concern things such as types of blending and semantic distance. That being said, it is important to address the fact that, in general, this category at the basic level largely favours literalness. The average of literalness in all cases is of 68.6%, which implies that for CULTURE there tends to be more literal language than figurative. It is also important to note that there is a great deal of structures in which there is a complete dominance of literal language over creative language, having three (N – CULTURE, CHRISTIAN – N, and NAZI – N) entire sets of structure that are entirely literal. Beyond that, there seems to be no real pattern besides the sometimes total dominance of literal language over creative one. We say this because the several cases of 100% predominance over literal language contrasted with cases in which non-literal makes up for most of the compounds. These are cases such as N – NAZI in which there is a 74% of non-literal language, and CULTURE – N, in which 83% of the compounds are non-literal. This means that, in general, there is not a clear pattern that can be applied in a uniform way for the difference in the grammatical roles of words at the basic level. The only exception to this case of no pattern is the marked dominance in terms of absolute frequency regarding the number of words that were found when looking for the noun as a modifier, as opposed to the lesser number of instances that are found when the component is acting as a head

5.2.2.4. Intra and Inter analysis

As it was mentioned before, the superordinate level of CULTURE has many interesting cases to analyse when it comes to the N – N compounding process. In general, the three sets of compounds had in common the fact that, in the most of the cases, the new words that were formed had a tendency to have literal meanings, putting in evidence that when it comes to creativity, abstract entities are very limited. Another thing that all of these sets share is related to the domains that they activate, PERSON and SOCIAL BEHAVIOUR being the more recurrent ones amongst the sets. This particular case is quite revealing in the sense that the words that were analysed at the basic level belong to the superordinate category of CULTURE, and in general culture is a characteristic that is proper to humans, and only humans. Therefore, this may explain the reason why those domains that are also closely linked to humans were the ones with major frequency within this category.

Another thing that is very interesting and worth mentioning is the surprising change that occurred when the words at the basic level acted as a head or a modifier of the compound. The case of *Christian* is a really special instance because when the analysis corresponded to CHRISTIAN – N a high amount of absolute frequency of the word at the basic level were found, being the set with more instances out of the three sets that were analysed. But when the construction changed to N – CHRISTIAN, no instances of compounds were found in the corpus. Nevertheless, this is not an isolated case, as in general when the construction corresponded to NOUN – X the instances found were very reduced and activated a least amount of domains. And this particular characteristic is found also beyond the superordinate level of CULTURE, having representative cases in other abstract categories such as NARRATIVE ENTITIES and EMOTIONS.

The complete absence of N – CHRISTIAN compounds is even more interesting if we think of the abundance of N – NAZI compounds. Previously, we mentioned than N – NAZI compounds referred to someone who aims at purity and is very strict regarding something, adopting a fanatical attitude. It is a compound that has negative meaning, because compounds like *grammar Nazi* are often used as pejorative words. That being said, it is possible to imagine a similar compound with the construction of N – CHRISTIAN, but with a positive connotation instead of a negative one. For example, being a *butter Nazi* would mean that somebody likes butter so much that he goes to an extreme of discriminating someone who

does not like butter and who would act almost violently. On the other hand, *butter Christian* is a compound that we can imagine and that would make sense, referring tosomebody who really likes butter and is devoted to it, a butter fanatic who is not violent and does not discriminate others. However, these types of compound do not exist. We believe that these compounds of N – CHRISTIAN do not exist because the component *Nazi* has a political motivation that is often related to the World War, after which the Nazis were openly despised worldwide. The component *Christian,* on the other hand, refers to a sacred religion, so using N – CHRISTIAN nouns freely would be problematic because there is a big risk of insulting somebody by talking about something that is sacred to them.

5.2.2.5. Representative case

The most representative case within the superordinate level of CULTURE is the great amount to instances that activated the domain of PERSON across the analysis of the three words at the basic level. As it was mentioned before, this phenomenon is closely related to the fact that in general terms *culture* is proper to only human beings, therefore it is likely to find compounds that have relation with the specification of the role of a person in our society within this category.

The case of *Christian Minister* seems to be very straightforward at the beginning, as both of the components of the word refers to a hierarchical position within society, and the mapping that occurs shows that the two input spaces do not hold a lot of semantic distance. Nevertheless, if we analyse this case in depth, we may find that between the two components we do not have generic space at all, resulting in a very complex type of ICM instead of a blending.

However, this is not an isolated case, as there are plenty of cases that present the absence of a generic space due to the fact that sometimes the two different frames that form the compound selects one of these frames as a schematic organising structure to which the elements of the other noun are mapped.

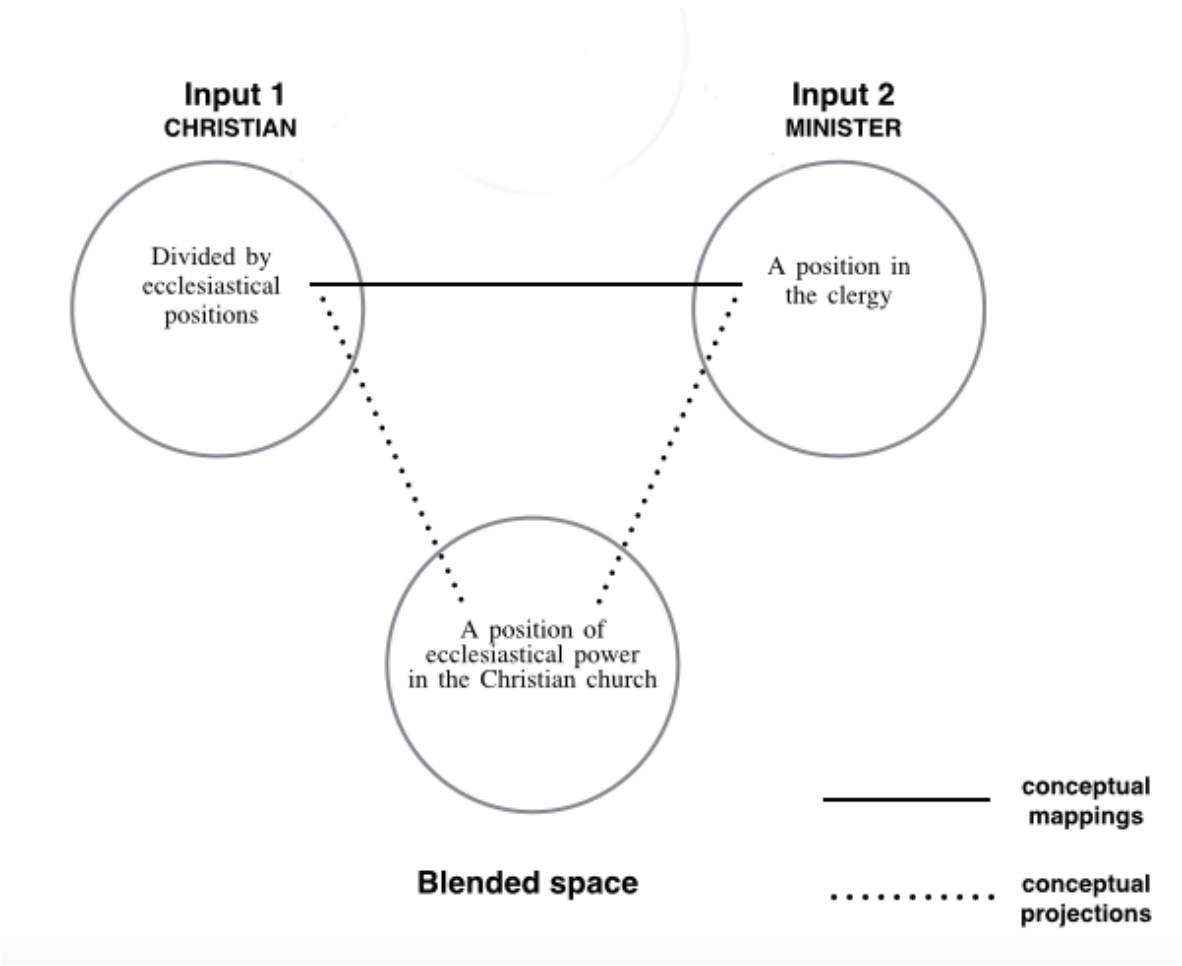

Figure 5.21. The analysis of Christian minister

This is the case of the compound *Christian minister*, as we can find a frame of roles within the mapping that belong to a socio-cultural organization with hierarchical levels that come together in order to give meaning to the new compound. Furthermore, what may have happened in these cases is that, sometimes, the first noun starts to become and behave as an adjective. *Christian* is not the only component that experiments this, as *Nazi* in compounds like *Nazi memorabilia* also behave like an adjective. The reason behind this is that despite the limited creativity, the values and ideas that are associated to *Christian* and *Nazi* are so entrenched within our minds that can use them as an adjective that modify a noun head.

5.2.3. Narrative entities

5.2.3.1. Conceptual Integration and blending

In general, the majority of discourse metaphor based compounds share an emergent structure that is sufficiently entrenched to have become lexicalized. That means that one of the constituents, either head or modifier, projects a discourse metaphor that stands metonymically for the ICMs, thus the metonymy itself is very prototypical. Therefore, the prototypicality itself can be comprehended to the frame level of integration in which the domain of NARRATIVE ENTITY serves as the focal activation that embodies shared commonalities of many targets as input spaces.

In the case of NARRATIVE ENTITIES – N compounds, a large majority of non-literal compounds usually profile the concrete categories such as PERSON (39%), FOOD (37%) being the most frequent compounds. Then, the abstract categories such as the organisation (17%), TECHNOLOGY (10%), EMOTION (5%) are followed. Interestingly, it seems that the more frequently a compound activates its identical domain from the head noun, the more prototypical the compound is. For example, the compound *frankenfood* is a very prototypical compound, since this encloses a very prototypical metaphorical relation - that is to say, the compound can be easily accounted for with the help of conceptual metonymy. The domain that comprises a set of cultural ideologies about the FRANKENSTEIN STORY is filled by a set of elements that contained the domain of FOOD, then a new type of MONSTROUS FOODS is emerged in the blended space (see figure 2 in sec. Determinant factors). Also, regarding the composition of this compound FRANKEN - X, it can be concluded that both constituents generate different domains. So possibly, the semantic distance between constituents is already presented at the frame level of integration since this provides the commonness within the single frame.

In contrast, there are some cases in which the metaphorical relation between the constituents is itself lexicalised, so even if the compounds are non-literal, they would be quite transparent because the metaphoricity itself could be very prototypical. For example, expressions such as *frankenstein monster* or *godzilla monster* that profile the category of PERSON, apparently seem to hold a redundant semantic structure since both constituents belong to the same frame. However, the type of blending belongs to the simplex network because the cross-space mapping between the input spaces is a frame-to-representation

connection - that is to say, we have a blend in which some of the structure of the FRANKENSTEIN STORY frame is integrated with the elements of MONSTER frame. So, the emergent structure may also be presented at a frame level because the prototypicality has already subsumed the shared commonalities of both input spaces in the process of re-categorization (see figure 7).

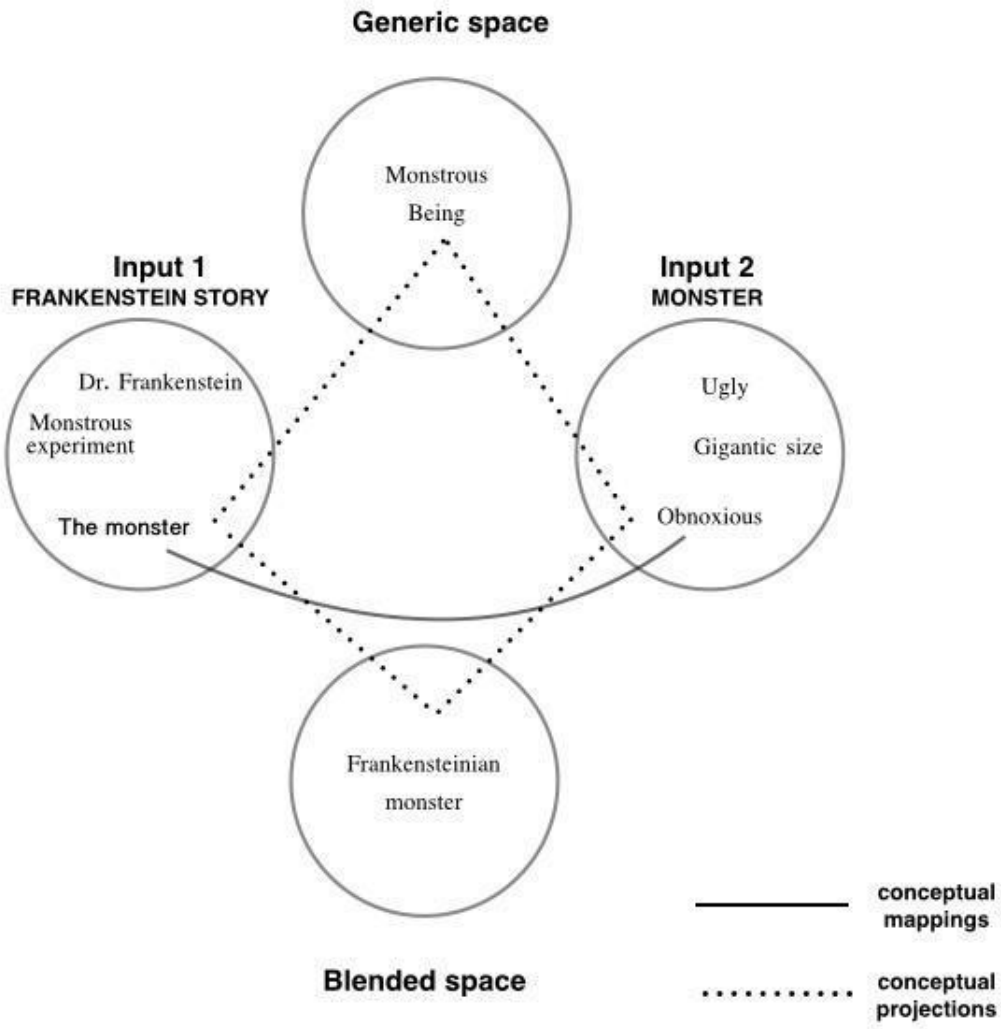

Figure 5.22. The blend analysis of Frankenstein monster

In the case of NARRATIVE ENTITIES – N compounds that profile abstract categories, overall combinations seem to be less prototypical in comparison to *Frankenfood* because its

compounds do not fairly activate a frame identical to that of NARRATIVE ENTITIES, but its extension which metonymically evokes the entire scenario or frame. For example, compounds such as *frankenbites* and *zombie government* are the main exemplars. Firstly, *frankenbites* denotes a metaphorical meaning of "several recording clips edited seamlessly together in the making of reality television shows". Here, some relevant attributes from the frame of FRANKENSTEIN'S MONSTER, e.g., the quality of being a monster created by a scientist from pieces of various human corpses, are filled in by a set of elements that sanction the frame of SOUNDBITES. Conversely, in the expression *zombie government,* the pre-modifier *zombie* does not activate the identical frame of ZOMBIE but, the operational stage of ZOMBIE STORY is filled in the frame of GOVERNMENT - that is personified as a zombie. Accordingly, the metaphorical meaning of this compound refers to "a government that had lost its parliamentary majority, and had even been defeated in a formal vote of no confidence, could still stagger on- in office, but no in power" Here, the government is illustrated as a person who does not have powers of its own after having been infected, as a zombie whose body is uncontrollable and vulnerable.

Interestingly, the most frequent non-literal compounds seem to have the major degree of prototypicality. As well, the extendibility of these compounds would be determined through the identification of a continuum, ranging from prototypical to non-prototypical compounds. Considering that there are prototypical relations between concepts, possibly further creative metaphorical compounds are extended on the basis of already existing ones. For example, in FRANKENSTEIN – N compounds, the source domain FRANKENSTEIN STORY has triggered people's imagination ever since Mary Shelley's novel was published and has been used in various written materials and mass media. Additionally, this source domain can be mapped onto a wide variety of target domains, but it seems to carry a relatively fixed set of negative associations and connotations, often referring to the adverse outcomes of hubristic scientific activity. On the other hand, the most prominent frame is that of FOOD, achieving the highest amount of semantic instances and absolute frequency. Specifically, the discourse metaphor based compound *frankenfood* is the most frequent non-literal expression, and its extensions such as *frankenfood*, *frankenburger*, *frankenwheat* and *frankenfats* then seem to share a common generic abstract metaphor of GENETICALLY MODIFIED FOODS ARE FRANKENFOODS.

Similarly, in the set of N – ZOMBIE compounds, the most prominent frame is that of PERSON. Essentially, the majority of compounds here highlight the most prototypical aspects of a *zombie*, a monster that represents an empty "other" that can be filled with whatever meaning the language user wishes. Also, unlike other narrative entities, in the zombie myth narrative, there is not just one, or a hundred, there are millions. Some examples of these are *cyber zombie*, *phone zombie*, *tv zombie*, *smartphone zombies*, and *laptop zombies*. Here we have different modifiers that activate the same generic metaphor that integrates certain aspects of TECHNOLOGY associated with social behaviour and emotional responses, e.g., the metaphor TECHNOLOGY IS A VIRUS. In other words, there would exist a prototypical relation between concepts that would be trivially part of a prototypical frame that sanctions an underlying generic metaphor - that either activates a pre-existing category or establishes an ad hoc category with the technological devices as the prime exemplar. Therefore, this pattern of compounds can be comprehended through a multiple-scope blend, consisting of three input spaces: a ZOMBIE domain, a TECHNOLOGICAL DEVICE and the TECHNOLOGY/VIRUS domain, the latter being a blend in itself between the two domains of TECHNOLOGY and VIRUS (see figure 8).

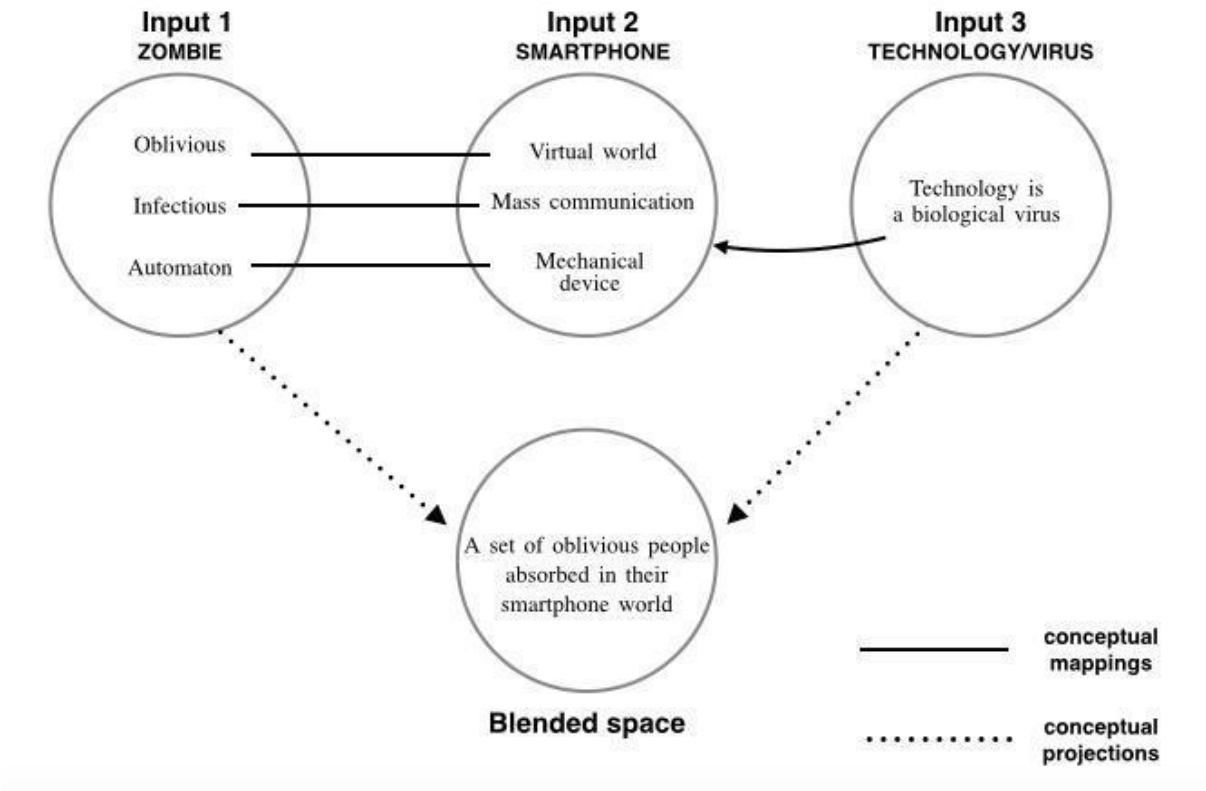

Figure 5.23. The blend analysis of Smartphone zombies

5.2.3.2. Semantic distance

In general, the semantic distance of NARRATIVE ENTITIES compounds seems to have no relation to the transparency beyond the literalness and non-literalness of compounding. Considering that all three concepts of narrative entities comprise very strongly entrenched metaphorical cultural ideologies, the domain activation of the accompanied noun, either as the head or modifier, will be determined by the prototypical relations between constituents. In the set of N – NARRATIVE ENTITIES compounds, the total amount of domains identified for N - ZOMBIE and N – GODZILLA can be categorized in 3 different domains per each set of compounding. Interestingly, 2 of 3 domains, namely, PERSON and ANIMAL - that belong to the most prominent domains - are repeated in both N – ZOMBIE and N – GODZILLA compounds. Therefore, it can be said that when a NARRATIVE ENTITY acts as a head, the possible meaning of the compound will be more limited, providing a narrower semantic spread. Having a very

tied semantic spread, all compounds are non-literal and there is a greater semantic distance between the constituents, in the sense that both the head and the modifier activate different frames. So, the semantic distance between frames invoked by the components necessitates to abstract over the component frames, generating an abstract generic space from the level of integration. Some examples of this are *mombie, consumer zombies, chicken zombies, bridezilla, mumzilla and ratzilla.* The generic space here shares elements that are prototypically common between the constituents, for example, *bridezilla* which refers to "a bridal monster that is created by the maniacal need to have the perfect wedding" (*Wordspy*) shares many commonalities between the frame of BRIDE and GODZILLA such as the personality traits, animate entity, volitional behaviour, etc. (see figure 9).

In the case of NARRATIVE ENTITIES – N compounds, the total amount of domains identified for compounds can be categorized in 20-25 different domains, so they have a rather wide semantic spread in comparison with N – NARRATIVE ENTITIES set of compounds. Considering this, it can be said that when a narrative entity acts as a modifier, the possible meaning of the noun get fairly elaborated mainly because the narrative entity (either *frankenstein, zombie* or *godzilla*) serves as a very prototypical input that easily activates the blended structure that has a schematic script-like structure where the NOUN takes the position of frame-participant, so possibly whatever NOUN could be the head, the emergent structure of a NARRATIVE ENTITIES – N compound is sufficiently entrenched to have become lexicalized in some degree. Therefore, although compounds have a non-schematic structure, the prototypicality of the narrative entity will act as a focal source that would provide the inference that is relevant to the input space of a head noun. Furthermore, in the literal compounds, there is little semantic distance between the constituents since both generate almost the same frame. Some examples of this case are *frankenstein myth, zombie story* and *godzilla film*. Given that the relations between the participants are prototypical, these compounds are highly analysable. In contrast, overall non-literal compounds such as *godzilla tax, zombie computers* and *frankenmower* have a greater semantic distance between the constituents, however, its composition is quite transparent since the frame of NARRATIVE ENTITY portrays an image metaphor that highlights a very common ideological base for its generic space, thus, the metaphor is sufficiently entrenched to motivate the prototypical relations between the constituents.

5.2.3.3. Syntactic roles

In the superordinate category of NARRATIVE ENTITIES, the majority of the compounds are non-literal compounds, which fluctuates between 60% and 100%. Remarkably, the N – NARRATIVE ENTITIES set of compounds has the highest rate of figurative composite expressions (100%). Possibly, when NARRATIVE ENTITY acts as a head, the prototypicality of the NARRATIVE ENTITY is sufficiently entrenched so that it does not generate more prototypical commonness between elements of the constituents. Interestingly, the entrenchment of projected perspectives in all three narrative entities shares almost the same negative connotations within our human socio-cultural identity that is conjured up by *monstrous entities*. Because of this entrenchment, there are many prototypical relations between the NARRATIVE ENTITIES frame and the PERSON frame. Precisely, the most prominent frame that is profiled in N – NARRATIVE ENTITIES compounds is PERSON, in which the most salient aspects of the NARRATIVE ENTITY are brought into focus so as to be fused with the PERSON, creating a new exemplar into the PERSON frame.

In the set of N – NARRATIVE ENTITIES compounds, the modifier affects upon it to profile the specific frame of NARRATIVE ENTITIES in order to get the typicality effects that provide the emergent structure. For example, when *zombie* acts as a head noun of a compound, the emergent structure chiefly profiles a person that possesses some characteristics of a zombie, at 91% respectively. The concept of *zombie* can be defined as "a person or reanimated corpse that has been turned into a creature capable of movement but not of rational thought…" (OED). Considering this, the head N – ZOMBIE portrays an image metaphor of this fictitious entity that highlights a very common ideological base for its generic space, qualities such as being infectious, oblivious, uncontrollable, absent-minded, etc. Therefore, there is a possibility of a generic space being very entrenched. Some examples of this are *party zombies, classroom zombies, ebola zombie, credit zombie*, etc. Similarly, when *godzilla* acts as a head, a large majority of compounds denote usually person and animal, at 50% and 37% respectively. Compounds such as *mumzilla, promzilla, fishzilla* and *ratzilla* refer to any animate entity that is monstrous either in size or behaviour.

In the set of NARRATIVE ENTITIES – N compounds, the NARRATIVE ENTITY as a modifier acts as a prototypical input that activates some relevant attributes of the frame. Then,

it is filled to the NOUN frame that is personified as a *monstrous entity* denoted by the modifier. For instance, when *frankenstein* acts as a modifier, the emergent structure usually profiles FOOD, PERSON and EMOTION that are not just related to the *monstrous entity*, but it is attached to the frame of FRANKENSTEIN STORY that affords for a de facto demonization of the entire volitional endeavour that created the monster. For example, an entrenched meaning of *frankenstein fear* is to refer to the visceral fear of scientific, technological or other associated areas of innovation that have outpaced society's comfort zone. Exceptionally, ZOMBIE – N and GODZILLA – N have a slight amount of literal compounds, with 37% and 40% respectively. When *zombie* acts as a modifier, the literal compounds usually profile CONFLICT and DISASTER. Some examples of this such as *zombie attack, zombie outbreak, zombie invasion* and *zombie plague*. Possibly, these compounds have an entrenched literal meaning because both constituents profile the two domains that are prototypically related to each other. As well, the concept of *zombie* within our culture and society has been progressively entrenched as the new apocryphal myth that embodies a wide range of fears to many people's anxieties in an apocalyptic event. In non-literal compounds such as *zombie machines, zombie banks* and *godzilla tax*, the NOUN ENTITY acts as a modifier providing a certain aspect of human nature that is singled out in the personification of the head noun.

5.2.3.4. Intra and Inter-categorial analysis

The superordinate category of NARRATIVE ENTITIES seems to make compounds a special case in comparison to other categories. The general semanticity of these compounds comprises a discourse-based metaphor that highlights very entrenched metaphorical cultural ideologies within our society. In other words, the domain of NARRATIVE ENTITIES projects a metaphor that stands metonymically for the ICMs, in which the metonymy itself is very prototypical. In the case of these particular narrative entities, *frankenstein, zombie* and *godzilla*, their input space either as the head or as the modifier of the compound serves as a focal source that triggers some shared negative evaluations that are filled in the input space of many targets in the blending. In general, compounds are non-literal with a greater semantic distance between the constituents, however its composition is quite transparent because the metaphorical relation between the constituents is itself lexicalised, the prototypicality then has already subsumed the shared commonalities of both input spaces at the frame level of

integration. Regarding the extension of these compounds, their constituents share some but not all elements of the prototype in their generic spaces. Therefore, this process of highlighting just some relevant attributes would contribute to the creativity of these compounds.

Regarding the amount of domains of the compounds, the NARRATIVE ENTITIES - NOUN sets tended to have significantly a higher amount of domains, whereas the compounds of the N – NARRATIVE ENTITIES sets could be classified in only 3 different domains per each set. Indeed, there were no compounds for the set of N – FRANKENSTEIN. In general, the most frequent domains for the set of N – NARRATIVE ENTITIES were the domains of PERSON and ANIMAL in which all compounds have non-literal meanings. From the aforementioned aspects, it can be said

5.2.3.5. Representative case

As the most representative compound in the superordinate category of NARRATIVE ENTITIES, *bridezilla* is a blend word between the constituents *bride* and *godzilla*, which means "A bride-to-be who, while planning her wedding, becomes exceptionally selfish, greedy, and obnoxious." (*Wordspy).* It is worth mentioning that the two input spaces are BRIDE and GODZILLA, where the latter acts as the source domain and the former the target domain, thus here we are accessing the concept of a bride through the image of Godzilla, a Japanese hybrid beast. Considering Fauconnier's theory of conceptual integration, the projection from the inputs to the blend is selective, i.e., not all elements from the input domains are projected to the blend. Additionally, Kovecses supports this idea, suggesting that when a source domain is applied to a target domain, not all aspects of the various domains are brought into focus, thus the metaphor will concentrate on certain aspects of the source, a process that is called *highlighting*. Therefore, both input spaces here are selectively projected into the single-scope type of blending: The blend inherits an organizing frame that projects from the source input GODZILLA, and certain roles of the frame are filled by elements from the target input space BRIDE (see figure 9). Moreover, the most general vital relation between BRIDE and GODZILLA is that of *change* coupled with the cross-space mapping of *identity* between the two input domains. Brides are definitely not identical with Godzilla-like monsters but in the blend they are compressed into *uniqueness*, where *bridezillas* are both

brides-to-be and Godzillas and the two different identities are fused in the blend. Also, the vital relation of *cause-effect* is presented simultaneously in the cross-space mapping, since planning the wedding (the cause) would result in the acquisition of certain negative features such as “greedy” or "obnoxious" (the effect) and consequently, a change of personality traits and appearance would emerge in the blended space. Furthermore, the generic spaces of the two input spaces have nothing in common, that of *bride* is WEDDING while that of *Godzilla* is NARRATIVE ENTITY, the semantic distance between the constituents would be perceived from the frame level of integration, where the commonness is given within the single frame. Respectively, it is possible to comprehend the metaphor THIS BRIDE IS A GODZILLA due to the reason that the cross-space mapping of identity also brings about a change of category. In general, *brides* are more attached to the category of PERSON whereas *Godzillas* belong to the category of ANIMAL, and then, its selection of elements within the domains of participants, i.e., BRIDE-TO-BE WOMAN and OBNOXIOUS ANIMAL share the same generic space, namely, their personality traits, volitional action, etc. Regarding the conceptual integration, some default attributes of the prototypical bride will remain hidden, e.g., young, beautiful, being dressed in white, wearing a veil, etc. However, this hiding would possibly contribute to the creativity of the blend. The concept of *bridezilla* probably introduces a new exemplar into the BRIDE frame, that of the “Godzilla bride”. Moreover, both input spaces happen to be entrenched in long-term memory since they can be immediately activated due to our individual and cultural experience with and background knowledge of brides and weddings on the one hand, and Godzilla beast on the other, the latter being based on the world-famous film of the same name, popular within and outside Western culture.

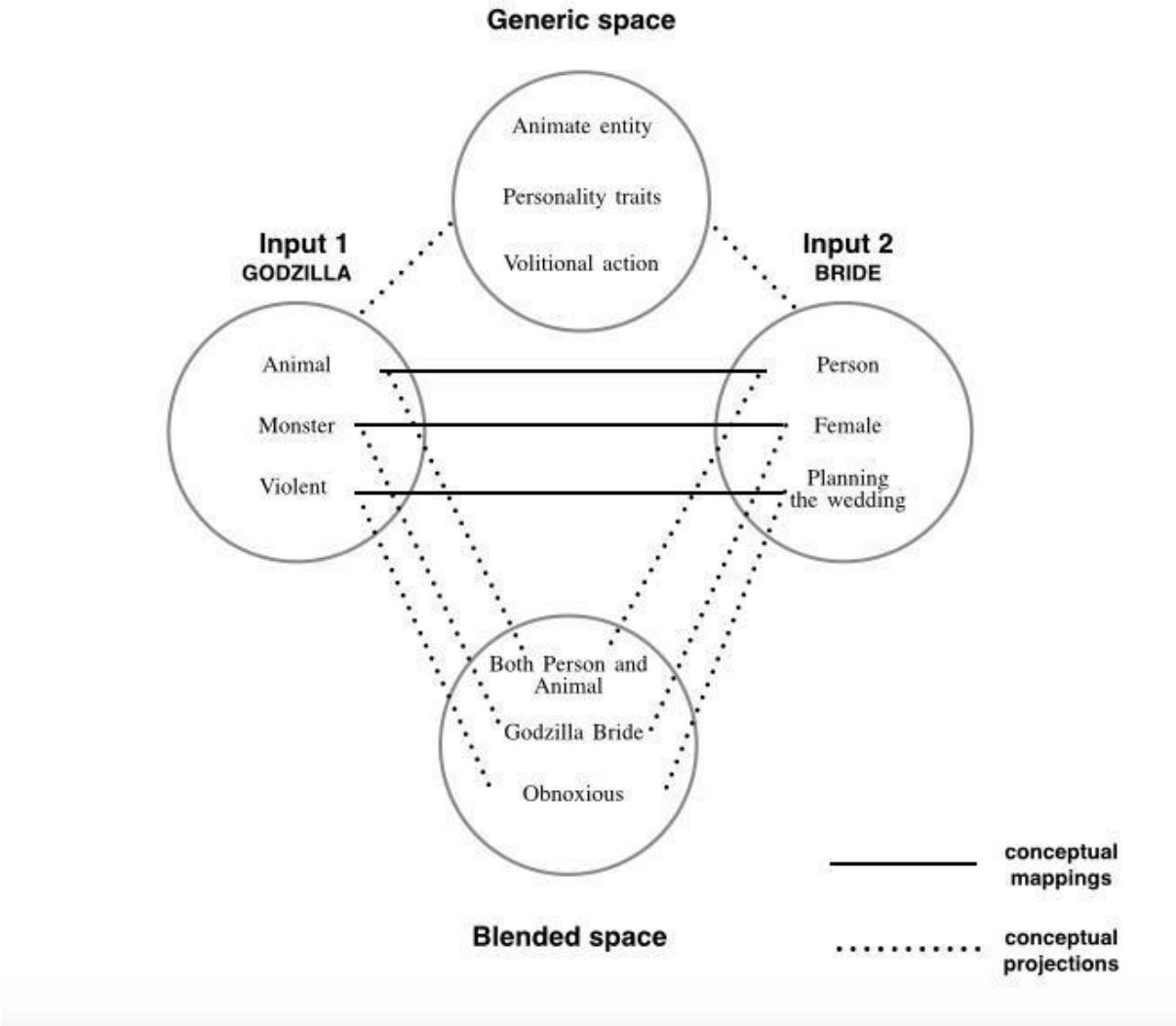

Figure 5.24. The blend analysis of Bridezilla.

5.2.4. Internet

5.2.4.1. Conceptual integration and blending

In connection with the conceptual integration and blending of different mental spaces in compounds related to cyberspace, a set of three words were analysed: INTERNET, TROLL and SPAM. First of all, it is important to bear in mind that many of the concepts related to cyberspace have a highly and evident metaphorical base full of "Highways, webs, clouds, matrices, frontiers, railroads, tidal waves, libraries, shopping malls, and village squares [that] are all examples of metaphors that have been used in discussions" (Wyatt, 1998)

Sinc internet is a recent human creation that has become a pervasive part of our lives, compounds are created throughout blending processes in order to conceive the artificial experience. Hence, the set that contained INTERNET/NET – N and N – INTERNET/NET showed a significant amount of instances in comparison to SPAM – N, N – SPAM and TROLL – N and N – TROLL (24,738 - 7,502 and 1,488 respectively), which, to a certain extent, denotes a connection between frequency and entrenchment. The set also manifests blending structures that moved around structures, building, connections, giants, specialized language, protocols and even citizens as in *Internet Portal, Netcode, Netspeak, Internet Giant, Netiquette, Netizen.* In the case of the *internet,* set great amount of instances fall within the domains of BUILDING and COMMUNICATION. However, in the majority of the cases the modifier is only a specification of the head, making reference to the structure of internet as well as the way in which the information of internet is delivered, as in *Internet Infrastructure, Internet Portal, Internet traffic, Broadband Internet.* The modifiers specify the profiling head; therefore there is no presence of a deep elaboration. Basically, real world structures are projected into the space of internet with the aim of creating a certain structure that mimics the tangible human experience. Thus, cyberspace is conceived as a space in which one can elaborate conceptual information (see figure 10, Blending based on Tomaszewski's Conceptual Metaphors of the World Wide Web)

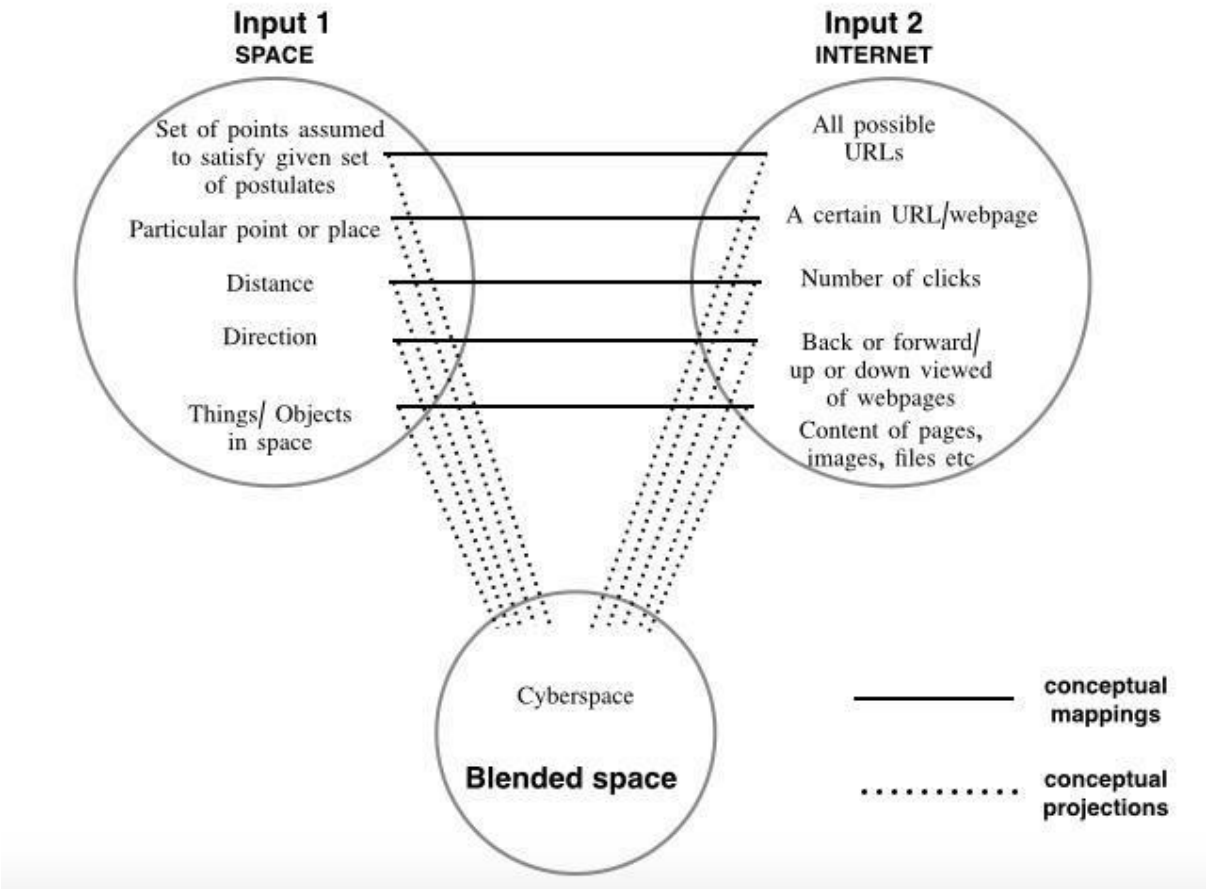

Figure 5.25. The blend analysis of Cyberspace

In very few cases, and only with the INTERNET/NET set, there were frames fully blended as in *Networkers, Netroots, Netcode, Netspeak* and *Netiquette,* all of them constructed with the clipping *net* only. Due to the fact that people conceive the internet as space, it is possible to create compounds such as *Netizen* where the frame of an INTERNET PARTICIPANT and CITIZEN are blended into one single compound (see figure 26). Pivotal and precise elements from both frames, the INTERNET PARTICIPANT and the CITIZEN, are highlighted in order to select the necessary components to conform the blend. The characteristics of a citizen in the real world as a participant in society, who is ruled by laws and obligations of a determined society/nation, capable of expressing opinions freely is blended with the PARTICIPANT, who is part of the internet system or virtual nation. The participant must follow terms and conditions stipulated in social networks, web pages, etc. if he wants to be an active participant, additionally to be a functional element means to be

present in the system throughout the expression of opinions and decisions as comments, posts, etc.

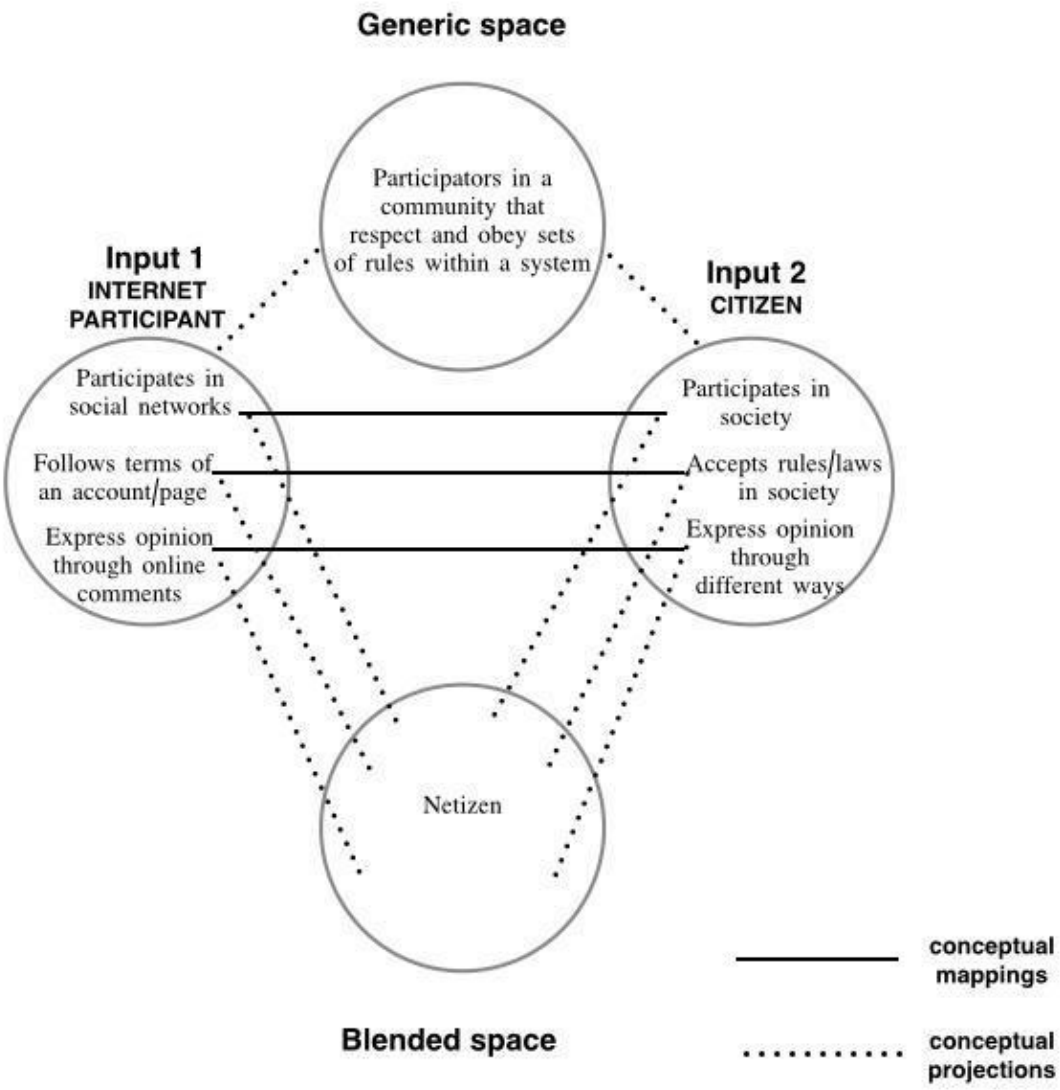

Figure 5.26. The blend analysis of Netizen

In relation to TROLL and *spam* compounds in the context of CYBERSPACE, both are constructed on the basis of extended meanings of the generic spaces of a previous blend: on one hand, the mythological image of troll plus the internet participant and on the other, the low-quality meat and low quality amount of emails. Furthermore, within the aforementioned category the image of a troll itself manifests a blending process, since it does not make

reference to a supernatural creature who hates and annoys humans but to a person who posts deliberately provocative commentaries with the intention of causing maximum disruption or argument against a cyber-community denoting a troll-like attitude.

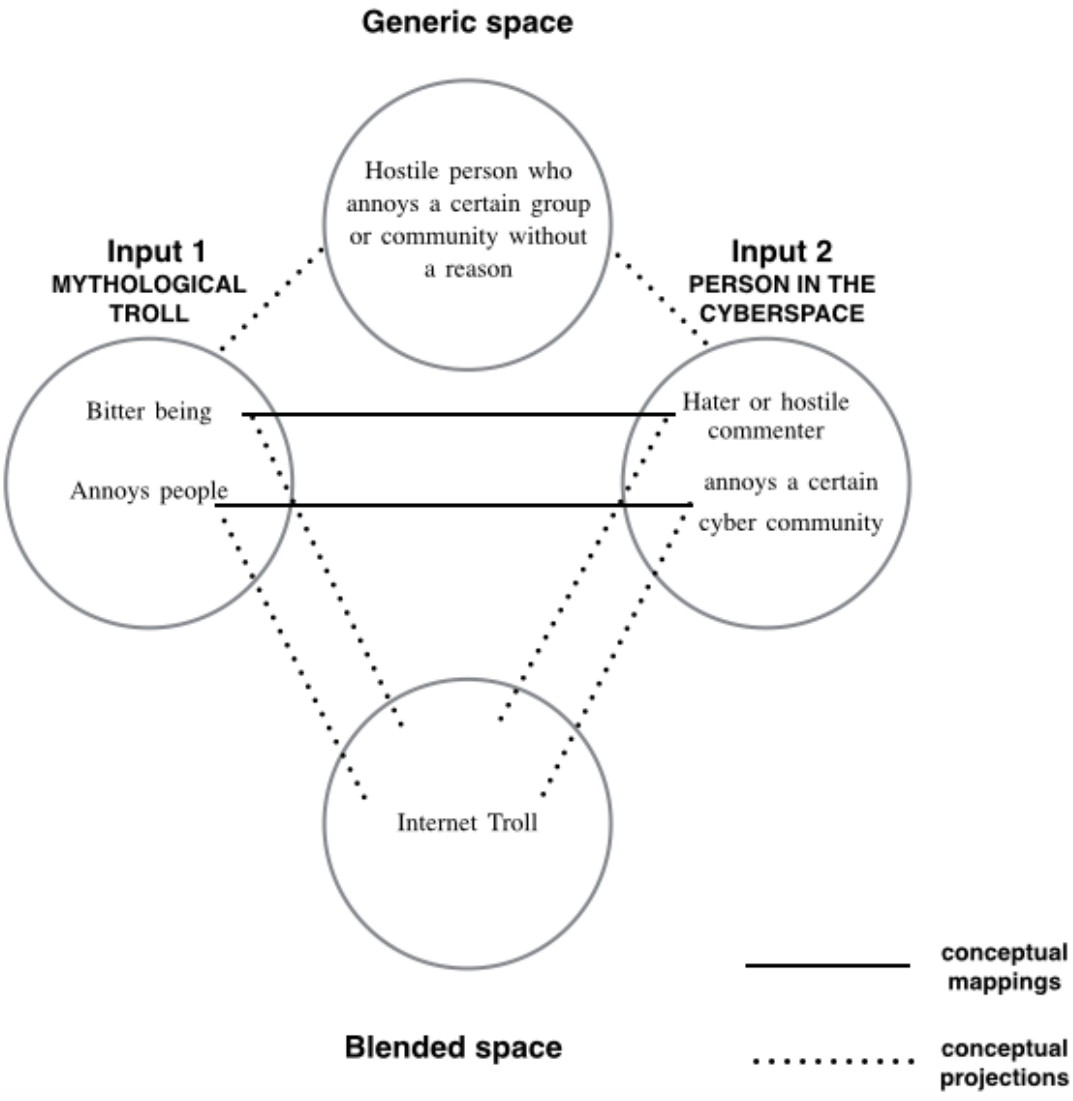

Figure 5.27. The blend analysis of Internet Troll

Once the blend is fixed within the cyberspace frame, it is used to create other types of blendings that can be used even in a literal way, indeed more than the 50% in the case of TROLL - N and 70% in SPAM-N are literal compounds. Additionally, they work just as a specification of the head resulting in transparency of meaning, such as *Troll Behaviour, Troll*

Culture, Spam messages, Spam Folder. Different is the situation of N – TROLL and N - SPAM when they work as modifier. In this case, the vast majority of the constructions tend to be figurative and non-transparent as in *Bitch Troll, Photoshop Troll, Grenade Spam, Snowshoe spam.*

Regarding the *spam* set, nowadays spam refers to "irrelevant or unsolicited messages sent over the Internet, typically to a large number of users, for the purposes of advertising, phishing, spreading malware, etc." (English Oxford Living Dictionaries). The *spam* level involves a previous blending process between the domains of INTERNET and FOOD. The word 'spam' makes reference to a low quality trademark of cheap tinned meat product made mainly from pork shoulder meat, with ham meat salt, water, modified potato starch. This type of meat was extensively distributed along different countries around the world during the World War II. In first place, the main element present in both inputs is low quality items that are massively given. Thus, the generic space shared by both inputs is in the boundaries of low quality, massive and widespread units.

In a remarkable amount of instances *spam* is combined with the following domains: TECHNOLOGY, ORGANISATION, TOOL, COMMUNICATION and PERSON. Precisely, the last three domains are constantly present when *spam* is placed as head (N – SPAM), as in *Celebrity Gossip Spam.*

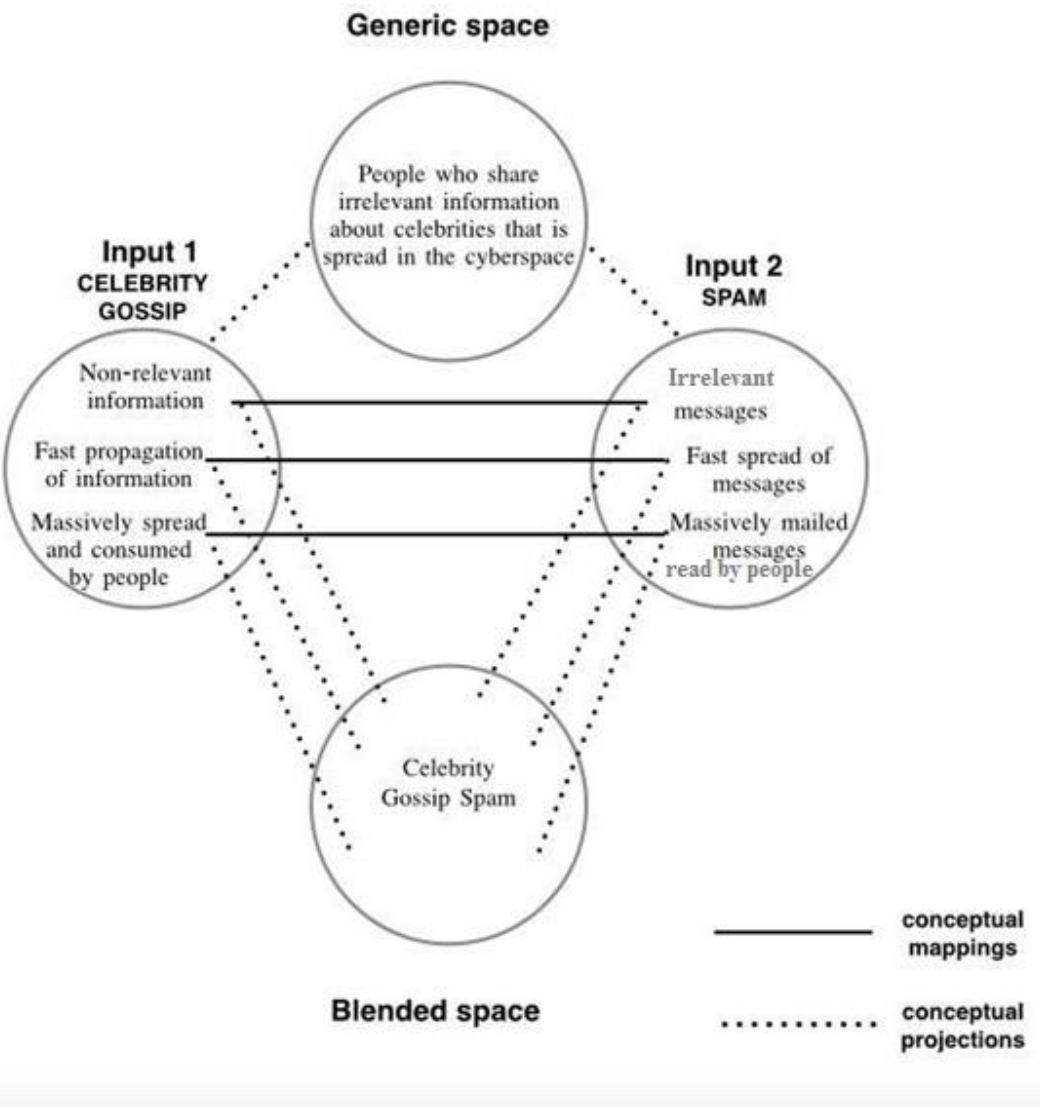

Figure 5.28. The blend analysis of Celebrity Gossip spam

The Input 1 profiles people who share celebrity information about show business industry as non-relevant, which is massively spread and consumed by a large group via internet. It is compared and considered as spam info by a group who is not interested in that type of information but is received it anyways throughout their participation on social networks, pages, etc. The frames are extended in meaning in order to create a novel compounding structure that has its own meaning as a whole piece, beyond the literal interpretation of the separated constituents. Both units, *celebrity gossip* and *spam* as well as the mythological troll and *Internet Troll*, are combined in order to create a novel and creative construction that is not available if we attempt to decompose the compound.

5.2.4.2. Semantic distance

In relation to the semantic distance present among a wide range of semantic domains, it was revealed that CYBERSPACE category of compounds tends to have high semantic spread.

Specifically, the level that activates the most quantity of domains is SPAM and INTERNET, especially when they work as modifier rather than head. In relation to TROLL, the amount of domains is little, particularly when it behaves as modifier but when it behaves as a head the domains are narrower. Accordingly, SPAM - N and N - SPAM activates from 17 to 13 domains, INTERNET - N activates 12 domains and TROLL - N activates 10, while the set that activates the least are N - INTERNET and N- TROLL, that respectively activate 9 and 3 domains. Therefore, it evidently shows that INTERNET and TROLL present a larger quantity of semantic spread, particularly when they function as modifiers as they make a total of 69 instances versus 25 in TROLL. Even when it shows fewer instances, the same pattern is reflected in the case of TROLL when it works as modifier. However, only in the TROLL case, there is significant differences when the category works either as head or as modifier, the former activates 10 instances while the latter only 3. A possible explanation of the aforementioned difference in the amount of activated domains lies in the frequency and entrenchment that TROLL may have since it is a barely recent word within the blending of *Internet Troll* (compound that arises in a certain virtual context within a virtual community.) As a consequence, the element TROLL has not the possibilities of creating different types of creative compounds in comparison to more frequent compounds created within the CYBERSPACE, since the occurrence of compounds with the component INTERNET and SPAM is vastly higher. In comparison to *troll*, both categories have a big representation on the *NOW corpus* where *internet* appears 24,738 times, *spam* 3751 and the category *troll* only appears 744 times within the corpus. Hence, TROLL is less entrenched is more restricted in terms of domains, which basically move around 3: PERSON, ORGANISATION and ACTION.

5.2.4.3. Syntactic roles

In relation to the literality of the superordinate CYBERSPACE category, in general, there is a balance between literalness and figurativeness in the levels. Statistically, compounds are divided into two main groups: CYBERSPACE - N, which conforms a 50% of

the universe of literal compounds and N - CYBERSPACE correspond to the other 50% of figurative compounds. Firstly, regarding both groups, the importance attributed to the position of head and modifier within a compound is central in order to explain the syntactical roles. Secondly, it is important to bear in mind that all compounds are embedded in the conceptual metaphor INTERNET IS SPACE.

If we analyse the first group, CYBERSPACE compounds act as modifiers of the head noun. Fundamentally, the role of SPAM, TROLL and INTERNET as modifiers is to profile, provide a description or specificity about the head. For instance when SPAM, TROLL and *internet* work as modifier they usually profile four main domains: TECHNOLOGY, ORGANISATION, TOOL, and COMMUNICATION. As seen in examples such as *spam calendar, spam accounts, spam messages, troll accounts, troll bot, voice-over-Internet, community internet,* among others.

As for the second group, in N - CYBERSPACE the modifier causes an impact on the profiling contributing to the elaboration of CYBERSPACE frame. Furthermore, the noun modifier helps to shape, classify, give context but most importantly, it provides precise characteristics to shape the frame of INTERNET. In each case, when SPAM is modified by a noun the emergent structure seeks to profile the image of a widespread low quality virtual device that is used with personal, commercial, or even malicious purposes by companies and people, as seen in compounds such as *baby spam (*a person who constantly shares images of babies in the internet), *marketing spam* (organisations that massively spread non relevant emails as advertising strategy). In a high amount of cases, TROLL profiles the characteristics of offensive or provocative online posts or attitudes with the aim of upsetting someone as in *Troll comment, Troll behaviour, Troll factory.* In relation to *internet*, the image of a virtual space is highly frequent in different manners, but as a space it also involves the presence of a community or 'population' that inhabits the internet space. This idea is manifested in compounds such as *Home internet* and *Household internet.* Additionally, in few instances the metonymy location-population is present in compounds such as *community internet* and *team-internet.* Regarding the domains activated by N - INTERNET, they are 25 in a universe of 64 instances, less than 39%, thus the quantity is significantly low. The domains more activated in N - CYBERSPACE are COMMUNICATION, PERSON AND TECHNOLOGY.

5.2.4.4. Intra and Inter-categorial analysis

Regarding the relation among the three categories, the sets behave in a particular fashion. The categories of INTERNET, SPAM and TROLL imply a very entrenched metaphorical image of the cyberspace or internet space. As for domains, the most activated domains by the three levels tend to be TECHNOLOGY, COMMUNICATION, ORGANISATION and PERSON. The majority of INTERNET and SPAM compounds fall into the domains of TECHNOLOGY and COMMUNICATION, such as *satellite internet* and *spambots*, among others. As compounds emerge from the aforementioned metaphorical image of internet, either as head or modifier, it prompts compounds denoting technology elements and tools since internet is considered a technological invention in its own right. Hence, SPAM and TROLL are inserted in the frame of CYBERSPACE, while CYBERSPACE is embedded within the frame of TECHNOLOGICAL INVENTIONS. Accordingly, due internet is considered a central transmitter of communication, which gives space to the creation of new linguistic expressions, the COMMUNICATION domain is easily triggered since internet facilitate information in a rapidly and widely spread way among internet participants.

It has been already exposed that TROLL compounds behave differently within the CYBERSPACE. Moreover, either as a head or modifier the quantity of TROLL absolute frequency is substantially lower than the other categories mentioned. It has been shown in compounds N- TROLL that there is a connection between the figurativeness (54, 5% compounds were figurative) and the only 3 domains it activates: PERSON ,ORGANISATION and ACTION. Respectively, the domains of PERSON (80%) and ORGANISATION (14%) can be grouped as ENTITIES. Thusly, since more than 94% of the whole N - TROLL universe refers to the frame of ENTITIES, the moderate amount of figurativeness as the restricted amount of domains could be explained throughout the underlying (and recent) blending process of *troll* manifested in the types of domains addressed.

According to the data examined on the *NOW corpus*, it reveals that from a total of 990 entries a moderated amount of instances are compounds related to either the mythological troll creatures present in role-playing games or to expressions related to the fishing domain (Trolling as a method of fishing). Even when the meaning of TROLL is fairly new, they present a high frequency on the corpus, especially if we consider the polysemy of the word. The aforesaid situation hints of the rapid spread (because of the internet) and development

of TROLL since the extended meaning of troll is more frequent than the prototypical and traditional meaning presented on the *NOW* corpus. Some characteristics of the development of *troll* can be spotted by the conversion of functional shift to the verb 'trolling', this types of conversions suggests something about the prevalent effect that internet may have in word creation.

5.2.4.5. Representative case

The most representative compound in the category of CYBERSPACE is *troll farm*. The expression blends the elements of TROLL and FARM, which means "an organisation whose employees or members attempt to create conflict and disruption in an online community by posting deliberately inflammatory or provocative comments." according to *wordspy.com*. Indirectly, the expression makes reference to white collars (especially people who work in agencies) that spend time in the social networks while they are at work.

In this case, Input spaces activated are three, *troll*, *farm* and the metaphor of COMPANY AS A FARM. Thusly, the blend could be understood throughout a multiple-scope blend.

Besides the metaphorical image of company, there are characteristics activated inside each mental space, collaborating to create an emergent structure about the behaviour of entities as participators of an organised system (see figure 29).

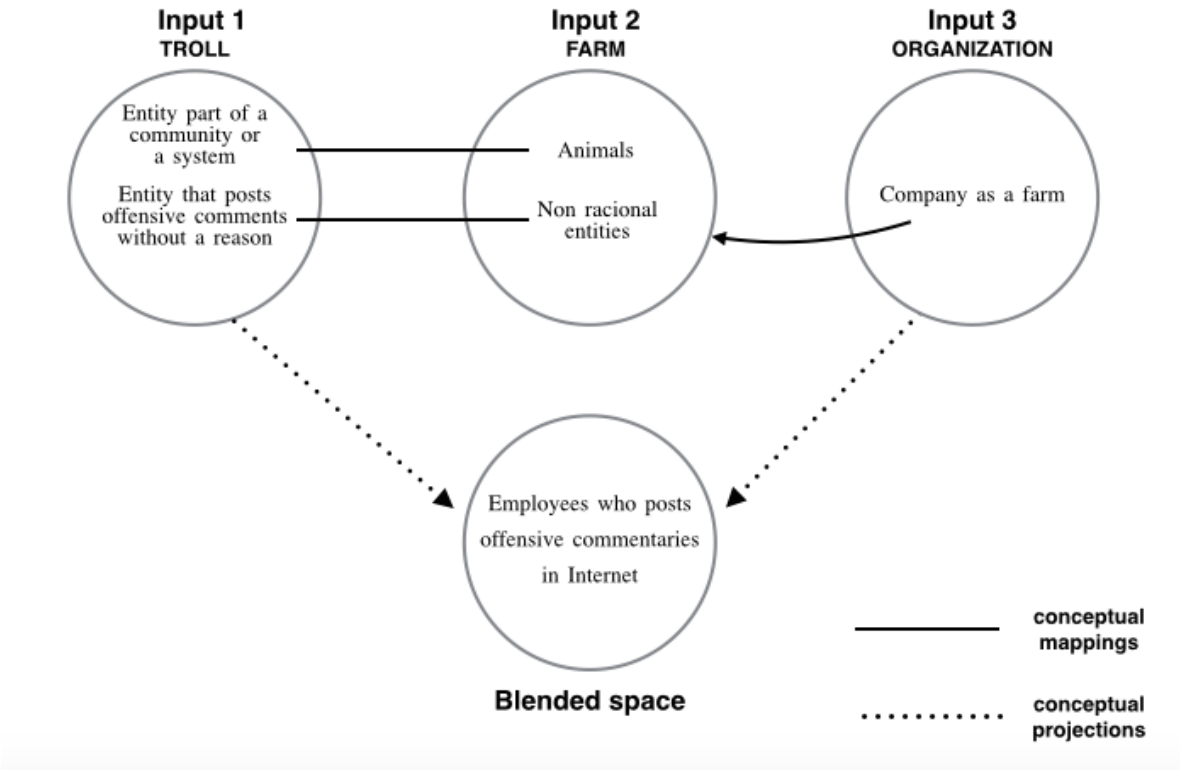

Figure 5.29. The multi-scope analysis of troll farm

The subordinate category of TROLL predominantly activates domains that have to do with ENTITIES (PERSON/ORGANISATION), hence within ORGANISATION the prototypical case activates the metaphor of COMPANY AS A FARM. Significantly, there exist a correlation between the frame of TROLL and the underlying metaphor present in the third input. The metaphor of COMPANY AS A FARM plays a fundamental role in the compounds due it provides a pre-conceptualization in which the composite lies. The emergent structure that underlies the metaphor is related to the resemblance between a large volume of workers within a company (usually the workers who do the dirty job in an organisation) and the animals within a farm. Hence, the blending is constructed upon the elements of humans as farm animals who are part of an established oppressing system. The aforementioned image has been masterly illustrated in George Orwell's Animal Farm.

Moreover, TROLL restricts the use of the metaphor in order to shape the composite structure in the domain of internet. The blend between TROLL and FARM contains inner features projected from the two inputs, in TROLL, an entity within a system who comments

offensive comments without a reason and in *farm* animals as non-rational creatures within an organisational system.

Conclusions

In this study, we attempted to provide a comprehensive account of the creation and interpretation of NOUN - NOUN compounds, from a cognitive-linguistic perspective. After quantitatively and qualitatively analysing a set of NOUN - NOUN compounds drawn from the seven super-ordinate categories that were selected –BODY PARTS, ANIMALS, FRUITS, EMOTIONS, INTERNET, CULTURE and NARRATIVE ENTITIES– we have observed some patterns and asymmetries by drawing comparisons at an intra-categorial as well as an inter-categorial level, taking into account factors such as prototypicality, blending processes, syntactic structure, semantic distance and schematicity of generic space.

Regarding the amount of highly creative compounds, we found that in general creativity is inversely proportional to entrenchment. By entrenchment, we are not referring to absolute frequency, but rather the narrowness of the spread of activated domains. Superordinate categories proved to display interesting and creative cases, but they tended to figure as isolated instances of activation of a certain domain. Take, for example, the analysed case of *dog whistle*. A compound such as this has high frequency, and is creative, but it activates the domain of POLITICS, which is activated only rarely. There are other creative cases that not only have a peripheral domain activation, but also a low absolute frequency, such as the case of *troll farm*. This demonstrates that creative usage of NOUN – NOUN seems to be the exception rather than the rule. That being said, there are some cases in which some entrenchment can be found. This can apply to some simple cases, such as *Bridezilla* and the creation and usage of *Groomzilla* (its counterpart in terms of gender), to more complex cases like *love nest*, that has started to show some degree of systematicity, as shown by its relationship to other compounds, such as *love birds.*

We are not denying the existence of entrenched creative usage of NOUN – NOUN compounds. There are some interesting and creative networks, like the analysed compounds that relate to the *orange order* and *grammar Nazi*. The first one is a metonymical relationship that stemmed from the name of a city in France and it became the official colour of a political organisation, whereas the second is a more complex construction that has been used to refer to all sorts of different people. In this case there is entrenchment, but this entrenchment starts to affect and limit creativity. The meaning of NOUN – NAZI compounds like *grammar Nazi* is

entrenched and is highly creative, but this entrenchment also means that a NOUN – NAZI compound has a more limited scope for domain activation, and the idea of NOUN – NAZI compound that activates a different domain creatively becomes more and more strange as compounds like *sandwich Nazi* and *Disney Nazi* start to surface. This is also shown by a detected pattern to the effect that abstract categories tend to have a more concentrated range of activated domains, which might be contrary to what one would intuitively think.

One of our main objectives was to determine the role that the schematicity of the generic space plays in the formation of non-literal compounds. Concretely, we hypothesized that those compounds that were metaphorical and difficult to analyse without prior knowledge of their meaning would have a more schematic generic space. We found that in general there are two types of non-literal compounds. First, those in which the metaphorical meaning corresponds to an extension that takes as its base the meaning of the literal interpretation, and those in which the only meaning of the compound is the metaphorical one. In the case of compounds of extended meaning, the generic space was less schematic that in the case of unique metaphorical meanings. This is probably because in the first type of non-literal compounds the process of frame integration is carried out taking the literal meaning as one input, and the target domain as the second input. One of these domains serves as structure for the second; therefore, integration consists solely on mapping one domain to the other. However, in the second case, the integration takes place between the domains evoked by the nouns that compose the compound, thus the mapping consists in the blending of two different domains that provide a common structure. In these cases, the generic space was more schematic, since there were no concrete participants to map from one domain to the other.

In our preliminary observations, we noticed that some sets of compounds, such as FRANKEN - NOUN compounds, were easily analysable in spite of A) FRANKEN being a modifier to a diverse range of domains and B) belonging to a complex ICM. We hypothesised that in sets of compounds formed with the same head or modifier there might be a common generic space that was always present, which made the blending process simpler. However, after carrying out a more exhaustive analysis, we came to the conclusion that although this does hold for some very prototypical relations (such as the compounds from the BODY PARTS category) it does not hold every time. In the first place, we observed that, although in some

cases sets of compounds that behave similarly were transparent, this was not always the case. In fact, most non-literal compounds in the different sets had different degrees of analysability, and thus we cannot draw generalisations.

Secondly, we observed that in most sets of compounds there was no common generic space that was shared between the compounds, but instead every individual compound selects very specific aspects that are in accordance with the emergent structure. What we did observe was that in the sets of compounds that were easy to analyse, such as the ones from the NARRATIVE ENTITIES, FRUITS or ANIMALS categories, the transparency was given by the prototypicality and entrenchment of the nouns. In other words, the common noun that acted as head or modifier in all the compounds of one set was in the vast majority of cases used to profile the same characteristics. Since there is no variation in what is being profiled, the emergent structure becomes predictable, a quasi-compositional result of the entrenched aspects of the common noun and the other component of the compound. From this observation, we can conclude that the level of entrenchment of the components of nouns has a greater impact on productivity and analysability of new compounds than the mapping themselves, since some prototypical nouns will tend to profile the same aspects, and therefore allow the same mapping on different NOUN - NOUN combinations.

In this research, we were able to analyse a significant amount of compounds for each of our sub-ordinate categories. However, to achieve this we were only able to select 3 sub-ordinal categories, and 7 super-ordinal categories. It would be interesting to observe if the same patterns and asymmetries that we identified are also present in other categories, or, on the contrary, if the asymmetries we found within our sample are in fact regular patterns of behaviour in a bigger sample. Given time constraints, we were only able to analyse in depth a short amount of compounds, and only the ones that would provide an example of common behaviours were selected for this process. It would be interesting to examine in depth, in addition to the representative cases from each set, the exceptional cases, since they would provide greater insights on the process of formation and interpretation of creative compounds. Nevertheless, this proved to be an encouraging enterprise that made us aware of the never-ending and ever-changing challenges that cognitive linguistic analysis as a relatively newly formed framework faces.

The idea of addressing quantitatively the patterning behind the degree of creativity in compounding may sound impossible, given the complex and fuzzy nature of language. But this, instead of being a discouraging limit, it is an invitation to look further into the bundle of factors that affect creativity and the intrinsic complexity of its inner workings. It is just another evidence of how fascinating language is.

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http://www.wordspy.com (wordspy)

http://www.etymonline.com/ (Online etymology dictionary)

12. Appendix A: Results for concrete categories

The following section gathers tables and pie charts that display the information obtained from our data collection process for our three concrete superordinate categories. This appendix will be sub-divided in a categorical fashion. First, the category of BODY PARTS. Secondly, the category of ANIMALS. And thirdly, the category of FRUITS. Each sub-section will consist of pie charts that will display information about literal and non-literal compounds, the amount of instances per domain that each component activates, and the absolute frequency based on the word frequency from the *NOW corpus.* The tables function as a breakdown of the information presented by the graphs. The information for each basic level component is also divided and presented separately for each one of the two possible syntactic roles of the component. Please note that the compounds that display no frequency were gathered from *WordSpy*.

12.1. Body Parts

12.1.1. Head.

12.1.1.1. *Pie charts for HEAD – NOUN.*

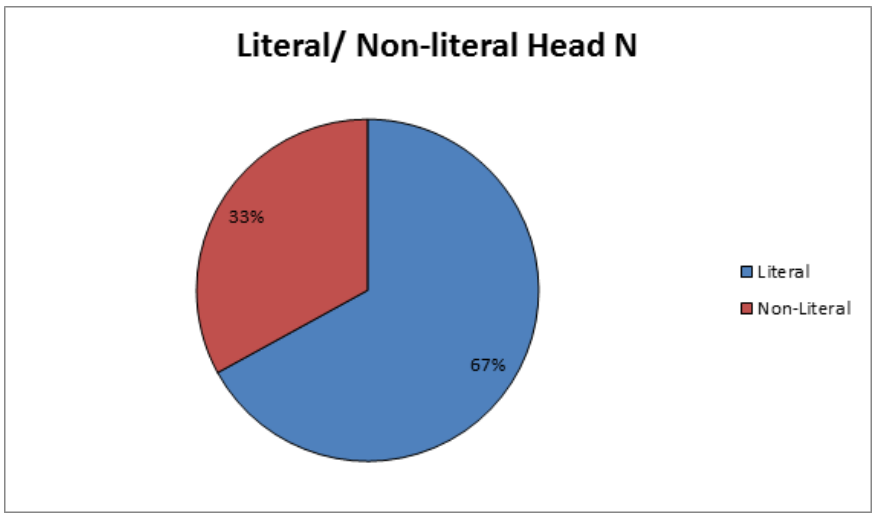

Chart 12.1. Literal and non-literal compounds of HEAD – NOUN.

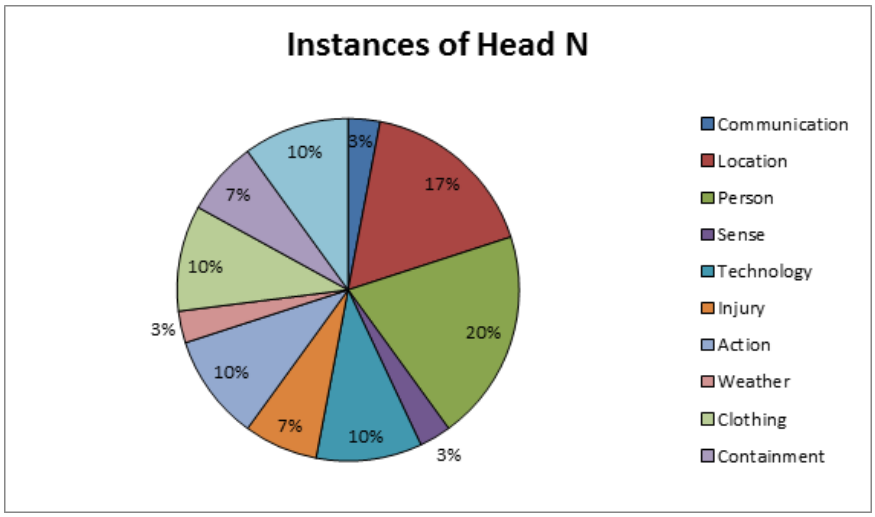

Chart 12.2. Amount of instances of compounds that activate a particular domain in HEAD – NOUN.

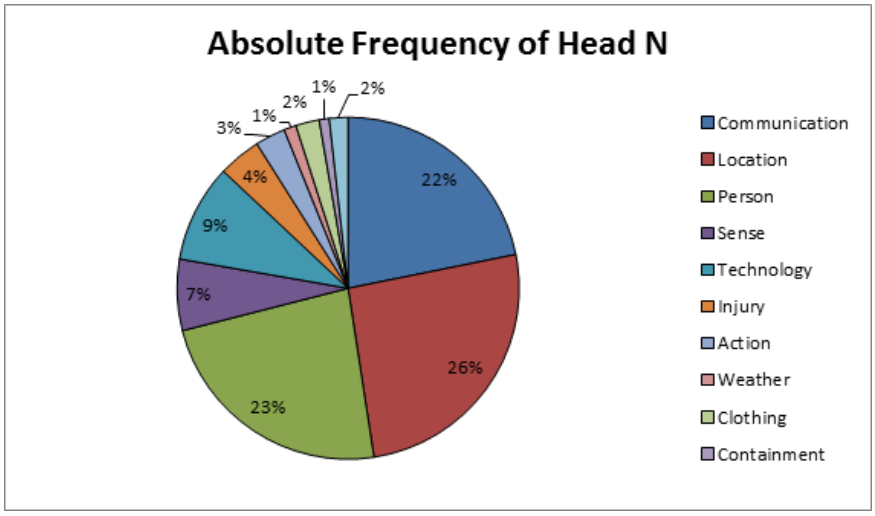

Chart 12.3. The frequency from *NOW Corpus* of the compounds that activate different domains in HEAD – NOUN.

12.1.1.2. *Table for HEAD – NOUN.*

DOMAIN	INSTANCE	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
COMMUNICATION	Headline (37396) Headlines (53664)	2	91,060
LOCATION	Head quarter (158) Head quarters (507) Headquarter (1196) Headquarters (82971) Head office (14126)	14	107,399

	Head offices (1303) Head-office (137) Head way (106) Head ways (4) Headway (4289) Headways (106) Headwater (145) Headwaters (1148) Headland (1203)		
PERSON	Head coach (71753) Head coaches (1870) Headcoach (12) Headcoaches (1) Head teacher (3108) Head teachers (2064) Headteacher (2887) Headteachers (837) Headmaster (5209) Headmasters (684) Head chef (3196) Head hunter (114) Head hunters (362) Headhunter (638) Headhunters (878) Head constable (1328)	16	94,941
SENSE	Headache (14562) Headaches (13546)	2	28,108
TECHNOLOGY	Headphone (3567) Headphones (15012) Headset (8881) Headsets (3169) Head light (69) Head lights (113) Headlight (1393) Headlights (6418)	8	38,622
INJURY	Head injury (6031) Head injuries (8657) Head trauma (2146)	3	16,834
ACTION	Head start (5820) Headstart (485)	6	11,921

	Head count (1164) Headcount (3181) Headshot (685) Head shots (586)		
WEATHER	Head wind (167) Head winds (155) Headwind (1003) Headwinds (3548)	4	4,873
CLOTHING	Head scarf (698) Head scarves (356) Headscarf (2140) Headscarves (1163) Head gear (466) Headgear (2019) Headband (1683) Headbands (617) Head band (99) Head bands (67)	10	9,308
BUILDING	Headstone (1718) headstones (1350) Head stone (27) Head-stone (2)	4	3,097
HOUSEHOLD EQUIPMENT	Head lamp (62) Head lamps (103) Headlamp (898) Headlamps (2010)	4	3,073
CONTAINMENT	Head room (296) Headroom (1986) Head-room (30)	3	2,312
CONTAINMENT	Head space (464) Headspace (1150)	2	1,614
ANIMAL	Head lice (1153) Headlice (21)	2	1,174

12.1.1.3. *Pie charts for NOUN – HEAD.*

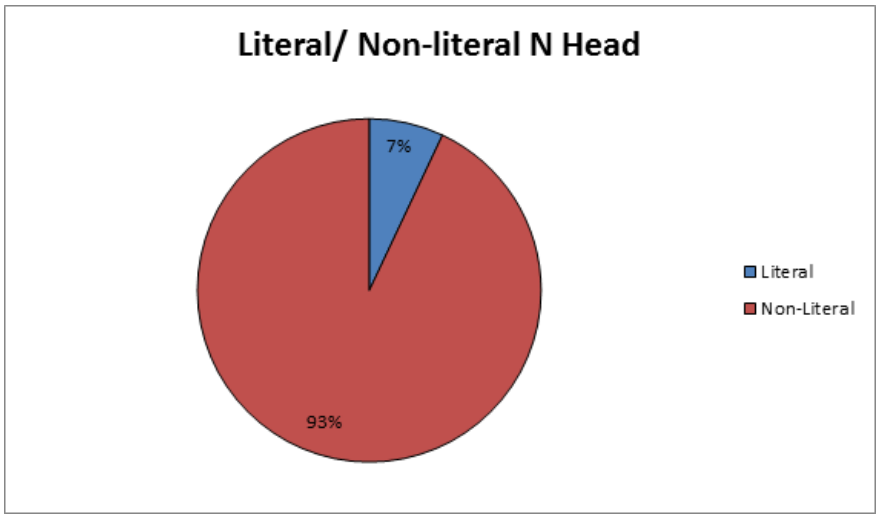

Chart 12.4. Literal and non-literal compounds of NOUN - HEAD.

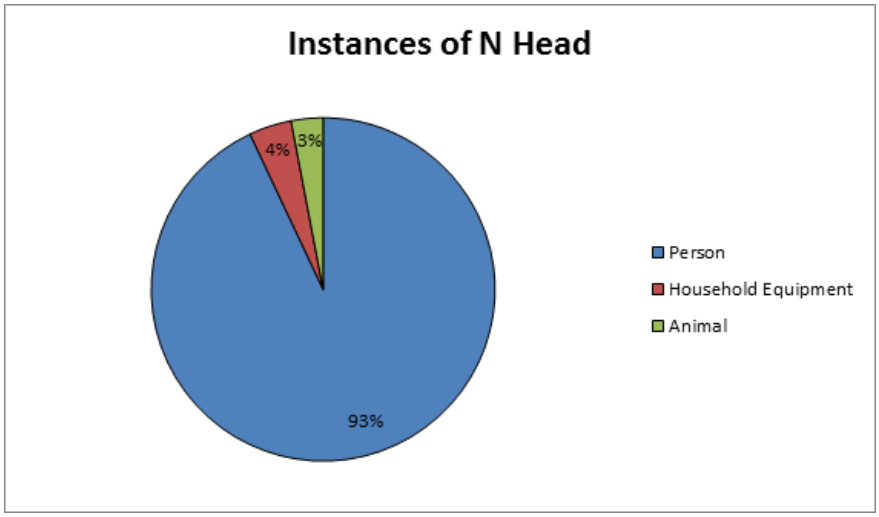

Chart 12.5. Amount of instances of compounds that activate a particular domain in NOUN – HEAD.

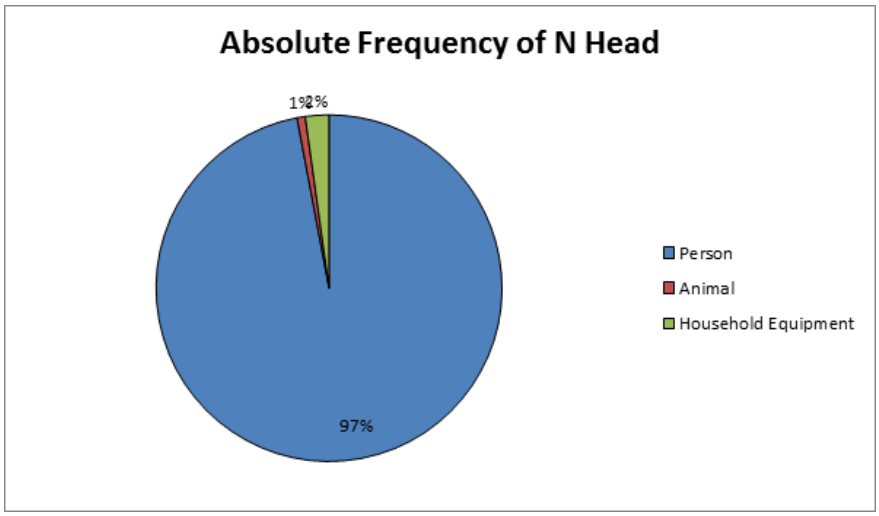

Chart 12.6. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – HEAD.

12.1.1.4. *Table for NOUN – HEAD.*

SEMANTIC DOMAIN	INSTANCE	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
PERSON	Deputy head (3717) Department head (1739) Department heads (1291) It head (1530) It heads (881) Group head (1856) Group heads (116) Country head (1517) Country heads (237) Business head (1537) Business heads (188) School head (787) School heads (933) Village head (905) Village heads (333) Team head (881) Bank head (830) District head (589) District heads (190) Marketing head (776) Agency head (321) Agency heads (454) Executive head (702) Executive heads (51) Studio head (516) Studio heads (203)	43	28,142

	Research head (513) Division head (492) State head (449) Union head (262) Union heads (133) Committee head (354) Police head (302) Council head (289) Office head (288) Communications head (271) Project head (242) Development head (241) Family head (221) Family heads (152) Intelligence head (218)		
HOUSEHOLD EQUIPMENT	Shower head (356) Shower heads (270)	2	626
ANIMAL	Fish head (216)	1	216

12.1.2. Brain.

12.1.2.1. *Pie charts for BRAIN – NOUN.*

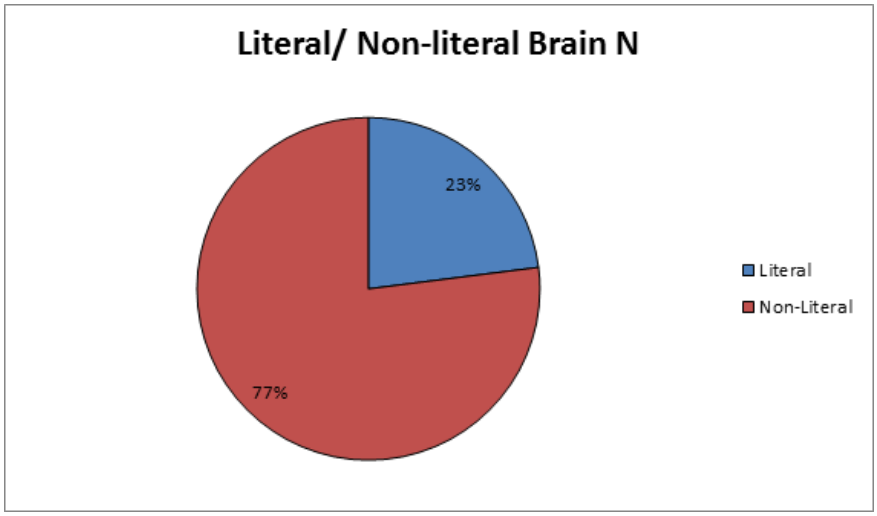

Chart 12.7. Literal and non-literal compounds of BRAIN - NOUN.

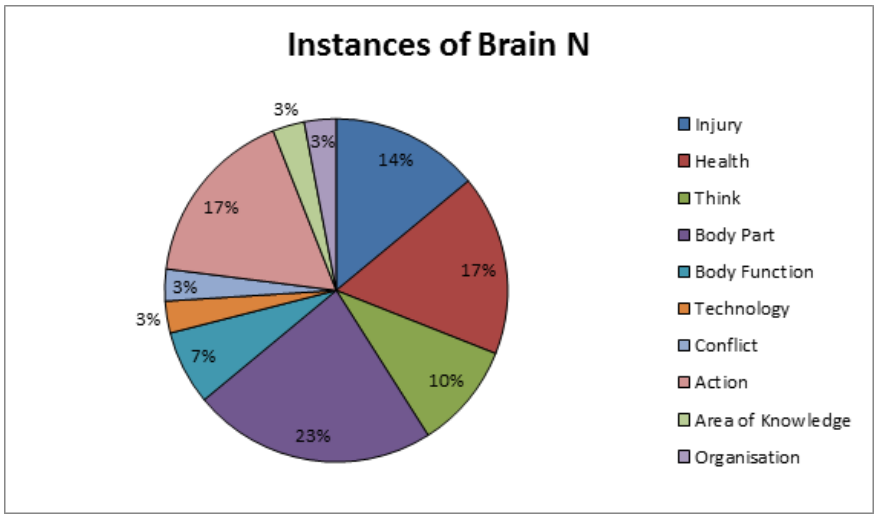

Chart 12.8. Amount of instances of compounds that activate a particular domain in BRAIN – NOUN.

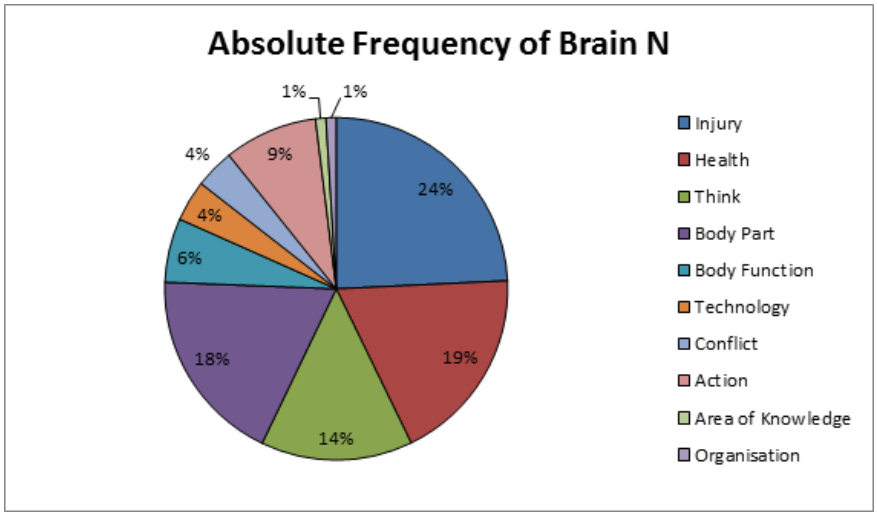

Chart 12.9. The frequency from *NOW Corpus* of the compounds that activate different domains in BRAIN – NOUN.

12.1.2.2. *Table for BRAIN – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
INJURY	Brain injury (8128) Brain injuries (3425) Brain-injury (72) Brain damage (6595) Brain haemorrhage (868) Brain trauma (786) Brain traumas (17)	7	19,891
HEALTH	Brain tumour (4019)	10	15,074

	Brain tumor (1974) Brain tumours (1094) Brain tumors (693) Brain cancer (3549) Brain disease (1065) Brain diseases (448) Brain health (1284) Brain imaging (907) Brain-imaging (131)		
THINK	Brain child (616) Brainchild (6930) Brainchildren (42) Brain power (1227) Brainpower (773) Brainstorm (2111)	6	11,699
BODY PART	Brain cell (635) Brain cells (4191) Brain activity (3803) Brain activities (62) Brain region (722) Brain regions (1518) Brain tissue (1579) Brain tissues (122) Brain area (280) Brain areas (780) Brain stem (733) Brain structure (693)	12	15,118
BODY FUNCTION	Brain function (2557) Brain functions (621) Brain waves (593) Brainwave (624) Brain waves (553)	5	4,948
TECHNOLOGY	Brain scan (1340) Brain scans (1824)	2	3,164
CONFLICT	Brain drain (2876) Brain-drain (151)	2	3,027
ACTION	Brain development (2825) Brain surgery (1635) Brain surgeries (141) Brain research (951) Brain stimulation (877) Brain training (597) Brain-training (180)	7	7,206
AREA OF	Brain science (802)	1	802

KNOWLEDGE			
ORGANISATION	Brain trust (782)	1	782

12.1.2.3. *Pie charts for NOUN – BRAIN.*

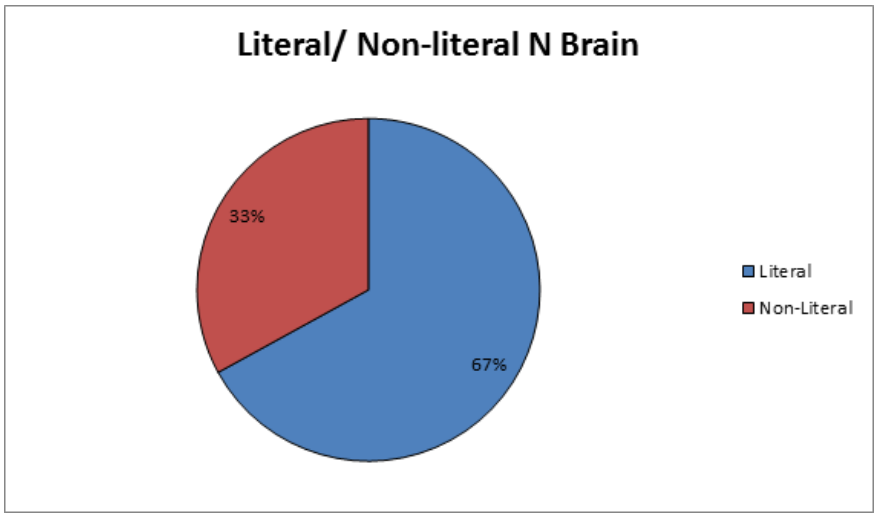

Chart 12.10. Literal and non-literal compounds of NOUN - BRAIN.

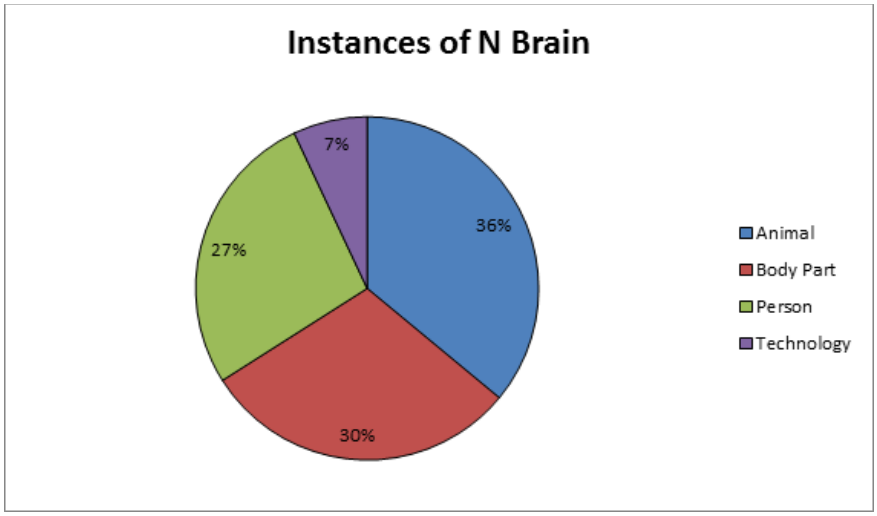

Chart 12.11. Amount of instances of compounds that activate a particular domain in NOUN – BRAIN.

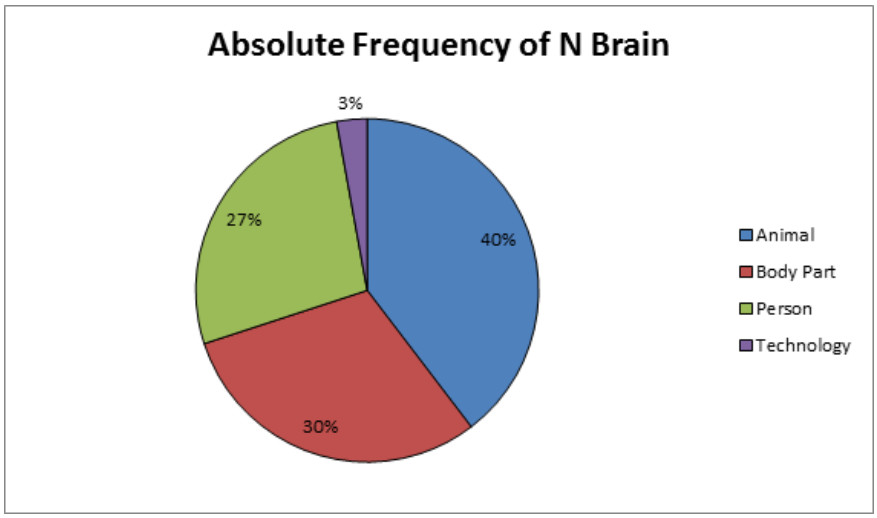

Chart 12.12. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – BRAIN.

12.1.2.4. *Table for NOUN – BRAIN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
ANIMAL	Mouse brain (231) Mouse brains (78) Mice brains (22) Rat brain (73) Rat brains (44) Animal brain (51) Animal brains (63) Lizard brain (84) Lizard brains (29) Monkey brain (49) Monkey brains (49) Bird brain (56) Bird brains (40) Fish brain (78) Primate brain (50) Primate brains (23) Dog brain (8) Dog brains (28) Mammal brain (19) Rodent brain (19)	20	1,094
BODY PART	Adult brain (271) Adult brains (51) Childhood brain (109) Baby brain (99) Teen brain (67)	11	838

	Teen brains (29) Infant brain (77) Human brain (61) Child brain (44) Zombie brain (16) Reptile brain (14)		
PERSON	Football brain (215) Football brain (52) Business brain (90) Business brains (79) Rugby brain (115) Rugby brains (34) Cricket brain (105) Cricket brains (18) Master brain (19) Soccer brain (16) Math brain (14) Republican brain (14)	12	771
TECHNOLOGY	Computer brain (58) Robot brain (21)	2	79

12.1.3. Eye.

12.1.3.1. *Pie charts for EYE – NOUN.*

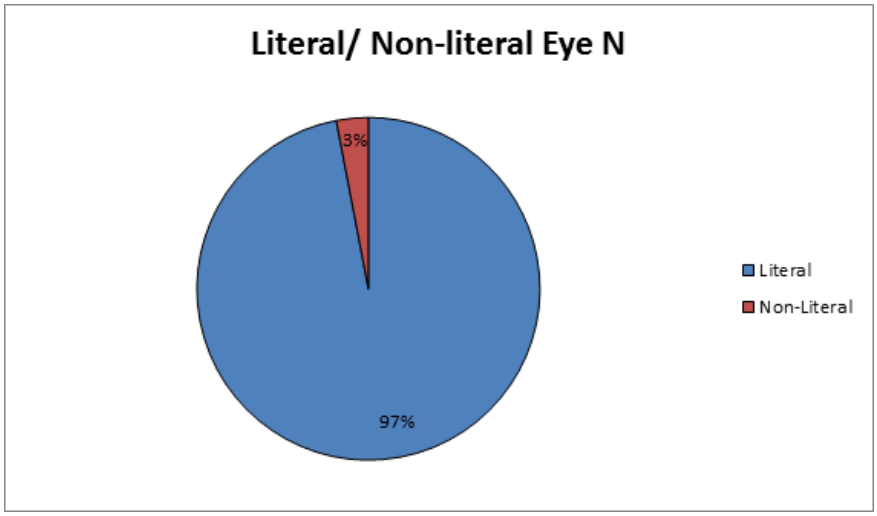

Chart 12.13. Literal and non-literal compounds of EYE - NOUN.

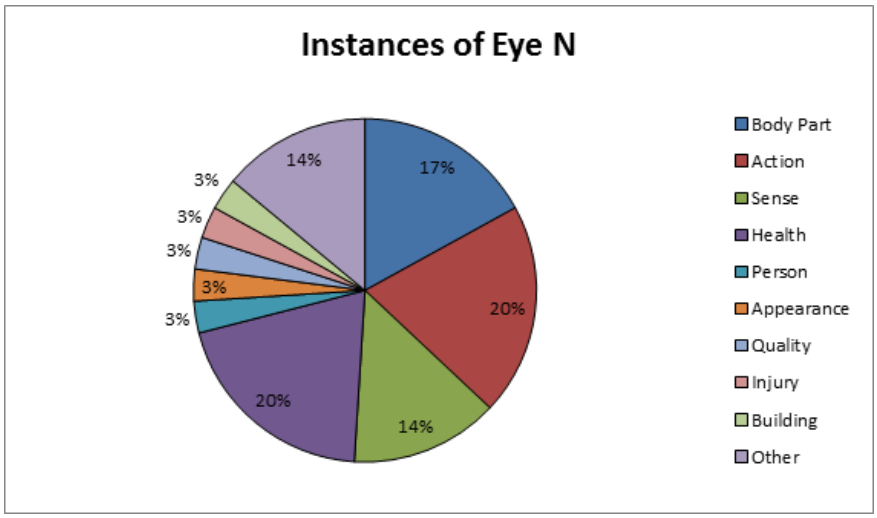

Chart 12.14. Amount of instances of compounds that activate a particular domain in EYE – NOUN.

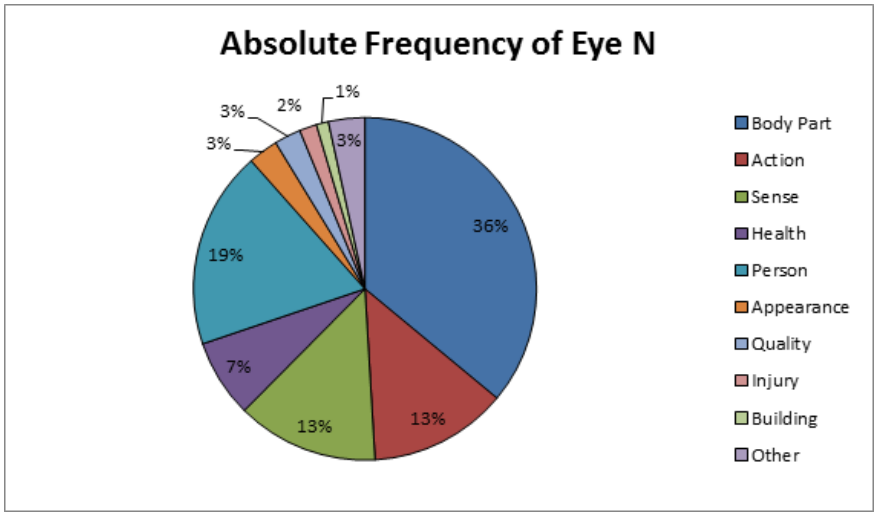

Chart 12.15. The frequency from *NOW Corpus* of the compounds that activate different domains in EYE – NOUN.

12.1.3.2. *Table for EYE – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
BODY PART	Eyebrow (3508) Eyebrows (12717) Eyeball (1841) Eyeballs (4565) Eyelid (2074) Eyelids (1907) Eyelash (886) Eyelashes (2219) Eye socket (1050)	10	31,128

	Eye sockets (366)		
PERSON	Eye witness (1354) Eye witnesses (938) Eyewitness (9387) Eyewitnesses (3468) Eye-witness (595) Eye-witnesses (379)	6	16,121
ACTION	Eye contact (5510) Eyecare (1668) Eye movement (774) Eye movements (732) Eye surgery (1056) Eye test (606) Eye tests (254) Eye exam (369) Eye exams (310)	9	11,279
SENSE	Eye sight (357) Eye-sight (52) Eyesight (3963) Eyesore (2443) Eyesores (484) Eye-sore (86) Eyewear (2463) Eyeview (1700)	8	11,548
APPEARANCE	Eye shadow (952) Eye shadows (189) Eye-shadow (101) Eyeshadow (1019) Eyeshadows (188)	5	2,449
QUALITY	Eye candy (1803) Eye-candy (372)	2	2,175
HEALTH	Eyeglass (280) Eyeglasses (1245) Eye disease (890) Eye diseases (570) Eye drop (102) Eye drops (886) Eye problem (204) Eye problems (728) Eye health (778) Eye infection (337) Eye infections (347)	11	6,367
INJURY	Eye injury (742) Eye injuries (663)	2	1,405

BUILDING	Eye hospital (997)	1	997
SPACE	Eye level (890)	1	890
COLOUR	Eye colour (484) Eye colour (324)	2	808
OCCUPATION	Eye doctor (442) Eye doctors (246)	2	688
CLOTHING	Eye patch (381) Eye patches (196)	2	577

12.1.3.3. *Pie charts for NOUN – EYE.*

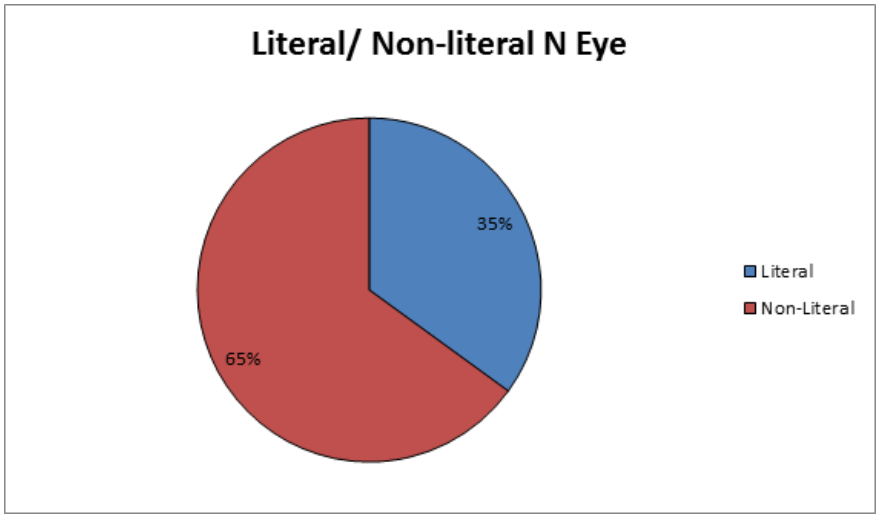

Chart 12.16. Literal and non-literal compounds of NOUN - EYE.

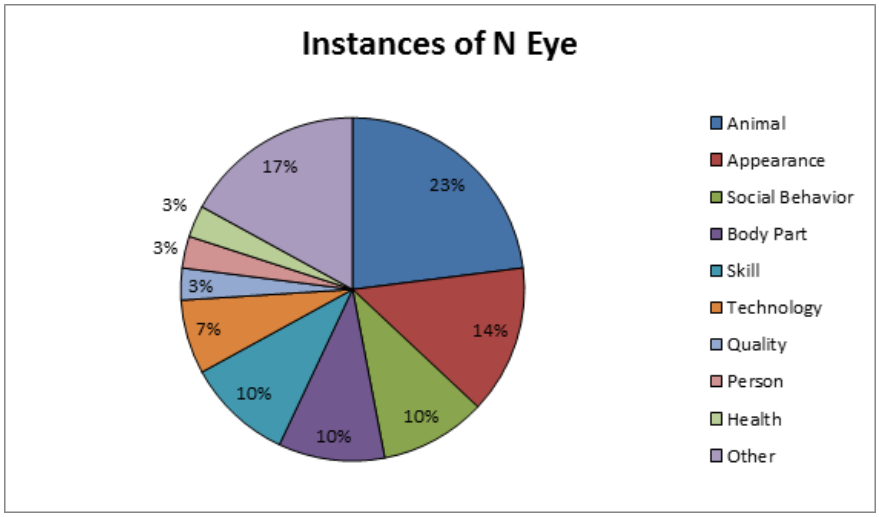

Chart 12.17. Amount of instances of compounds that activate a particular domain in NOUN – EYE.

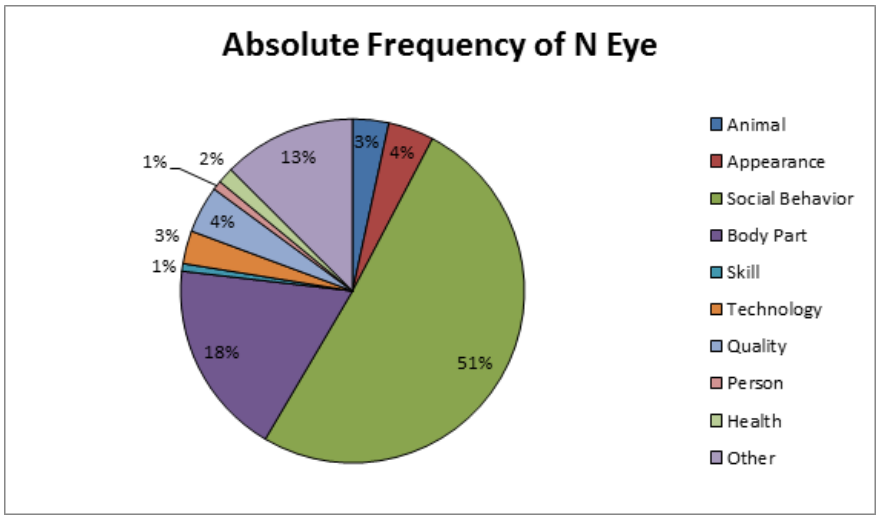

Chart 12.18. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – EYE.

12.1.3.4. *Table for NOUN – EYE.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
SOCIAL BEHAVIOUR	Public Eye (8784) Press Eye (393) Media eye (36) Media eyes (29)	4	9,242
BODY PART	Hawk Eye (403) Hawk-Eye (796) Hawkeye (2046) Adult eye (52) Raccoon eyes (38)	5	3,335
BUILDING	London Eye (1676)	1	1,676
QUALITY	Eagle Eye (568) Eagle Eyes (158) Eagle-Eye (82)	3	808
APPEARANCE	Cat Eye (189) Cat Eyes (258) Cat-Eye (126) Bedroom eyes (96) Stink eye (78) Puppy eyes (37)	6	784
TECHNOLOGY	Fish Eye (109) Fisheye (396) Camera eye (59)	3	564

SUPERNATURAL	Laser Eye (394)	1	394
HEALTH	Glass Eye (151) Glass Eyes (123)	2	274
ANIMAL	Tiger Eye (213) Snake Eyes (139) Compound eyes (89) Dog eyes (76) Fish eyes (60) Owl eye (64) Bird eye (31)	7	672
EMOTION	Desire Eye (160)	1	160
PERSON	Expert eye (134) Expert eyes (24)	2	158
SKILL	Weather eye (93) Fashion eye (24) Design eye (15)	3	132
PLAY / FUN	Button eyes (35)	1	35
FRUIT	Dragon eye (15)	1	15

12.2. Animals

12.2.1. Dog.

12.2.1.1. *Pie charts for DOG – NOUN.*

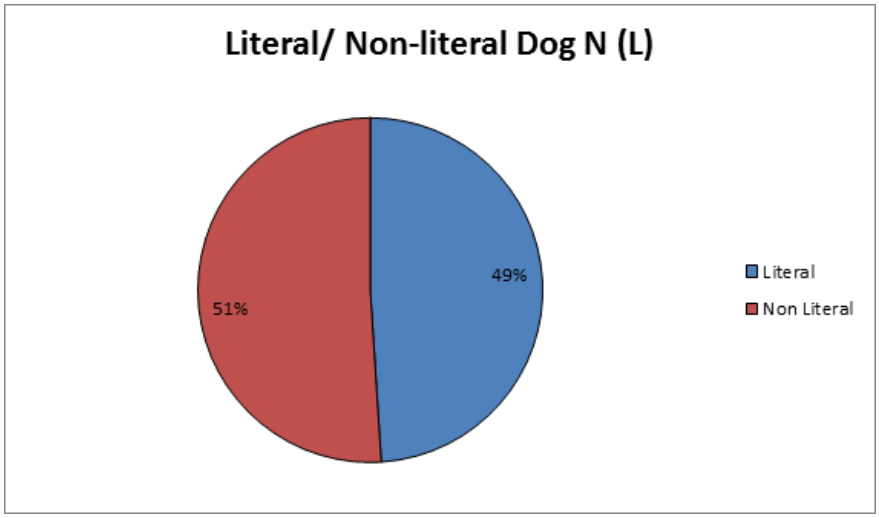

Chart 12.19. Literal and non-literal compounds of DOG - NOUN.

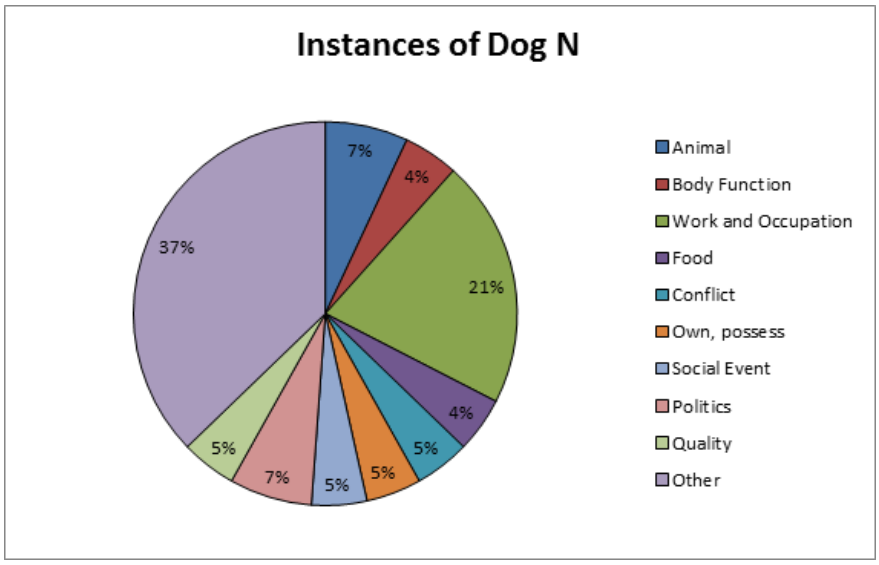

Chart 12.20. Amount of instances of compounds that activate a particular domain in DOG – NOUN.

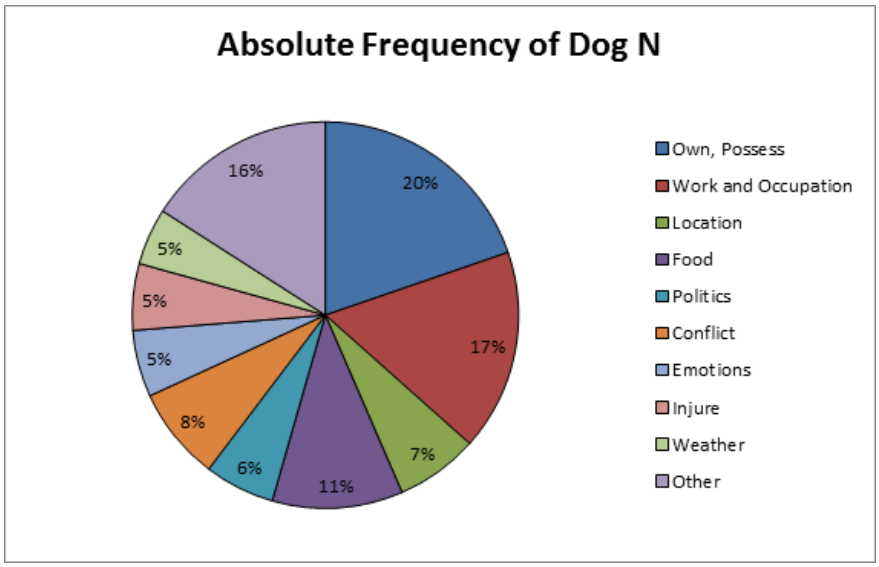

Chart 12.21. The frequency from *NOW Corpus* of the compounds that activate different domains in DOG – NOUN.

12.2.1.2. *Table for DOG – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
ANIMAL	Dog breeds (442) Dog population (372) Dogfish (518)	3	992
BUILDING	Dog house (584)	1	584

BODY PART	Dogtooth (25)	1	25
BODY FUNCTION	Dog poop (344) Dogshit (13)	2	357
OWN / POSSESS	Dog owner (5033) Dog ownership (375)	2	5,408
WORK AND OCCUPATION	Dog handler (489) Dog walker (1813) Dog trainer (485) Dogsbody (93) Dogcatcher (26) Dog squad (476) Dog team (701) Dog unit (531) Dog whisperer	9	4,614
ADORNMENT	Dogtooth (3)	1	3
LOCATION	Dog park (1897)	1	1,897
FOOD	Dog food (1831) Dog meat (1166)	2	2,997
PLANT	Dogwood (638)	1	638
TRAVEL	Dogsled (188)	1	188
TECHNOLOGY	Dogpile (28)	1	28
SOCIAL EVENT	Dog show (1202) Dogpile (32)	2	1,234
SPORTS	Dogleg (155)	1	155
POLITICS	Dog fight (1006) Dog whistle (572) Dogcatcher (35)	3	1,613
CONFLICT	Dog fight (603) Dog attack (1184) Dog house (355)	3	2,142
INJURE	Dog bite (1525)	1	1,525
ACTION	Dogleg (5)	1	5
EMOTIONS	Dog Lover (1532)	1	1,532
WEATHER	Dog Day (1302)	1	1,302

QUALITY	Dogshit (35) Dog food	2	35
CLOTHING	Dogtooth (16)	1	16
SHAPE	Dogleg (84)	1	84
HEALTH	Dogochondriac	1	--
SENSE / PERCEIVE	Dog whistle (30)	1	30

12.2.1.3. *Pie charts for NOUN – DOG.*

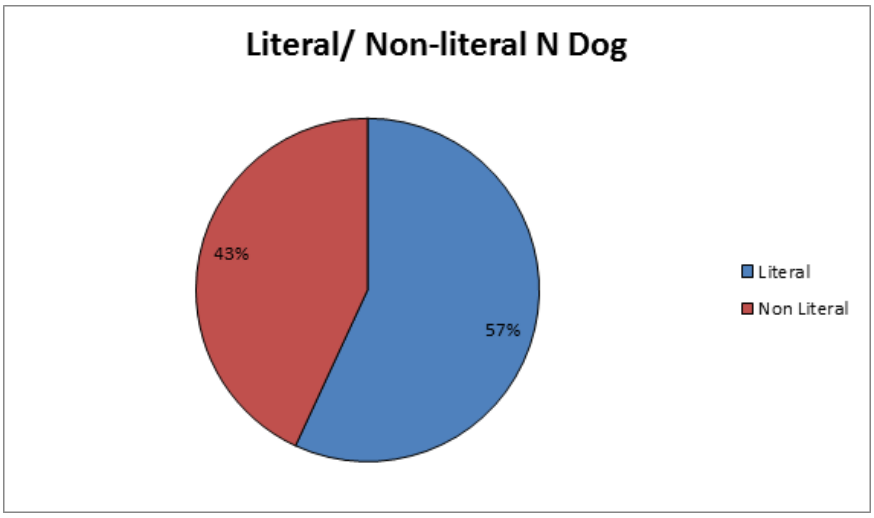

Chart 12.22. Literal and non-literal compounds of NOUN - DOG.

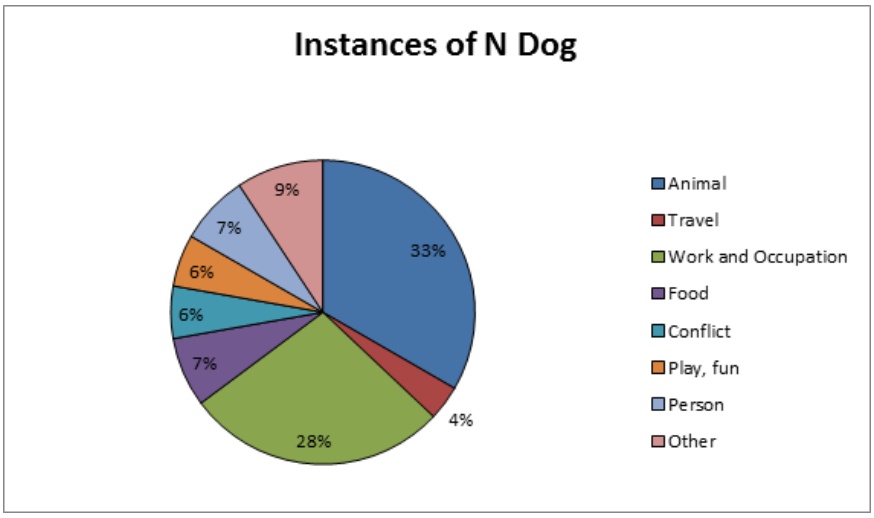

Chart 12.23. Amount of instances of compounds that activate a particular domain in NOUN – DOG.

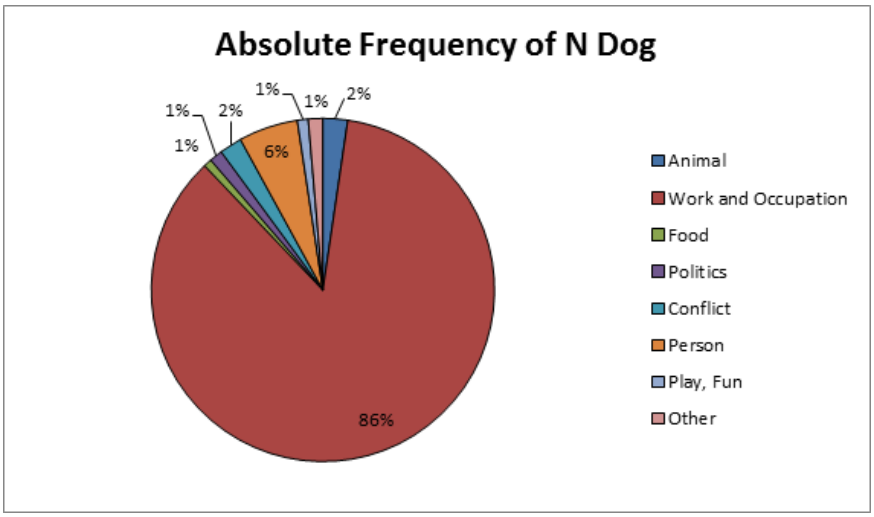

Chart 12.24. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – DOG.

12.2.1.4. *Table for NOUN – DOG.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
ANIMAL	Bulldog (1883) Pet dog (1385) Family dog (1285) Lapdog (114) Puppy dog (73) Prairie dog (219) Street dog (152) Junkyard dog (18) Wolf-dog (53) Bird-dog (3) Velcro dog Sheepdog (847) Shepherd Dog (151) Cattle Dog (122) Water Dog (120) Gundog (19) Beardog (16) Hound dog (15)	18	6,475
WORK AND OCCUPATION	Watchdog (17652) Guard Dog (93) Seadog (64) Bird-dog (8) Police Dog (2133) Guide Dog (1023) Service Dog (1011)	15	23,874

	Rescue Dog (463) Therapy Dog (367) Assistance Dog (331) Guard Dog (208) Search Dog (163) Detector Dog (158) Cadaver Dog (100) Drug dog (100)		
FOOD	Corn dog (171) Japadog (38) Hamdog (8) Bird dog	4	217
TRAVEL	Bird-dog (17) Sled-dog (71)	2	88
MOVIE	Catdog (14)	1	14
SPORTS	Bird-dog (7)	1	7
POLITICS	Lapdog (345)	1	345
CONFLICT	Attack dog (502) junkyard dog (89)	2	591
QUALITY	Hero dog (107)	1	107
PERSON	Bulldog (1216) Puppy dog (291) Street dog (11) Hound dog (42)	4	1,560
PLAY / FUN	Lapdog (30) Toy dog (130) Balloon dog (125)	3	285
TECHNOLOGY	Robo-dog (11)	1	11

12.2.2. Horse.

12.2.2.1. *Pie charts for HORSE – NOUN.*

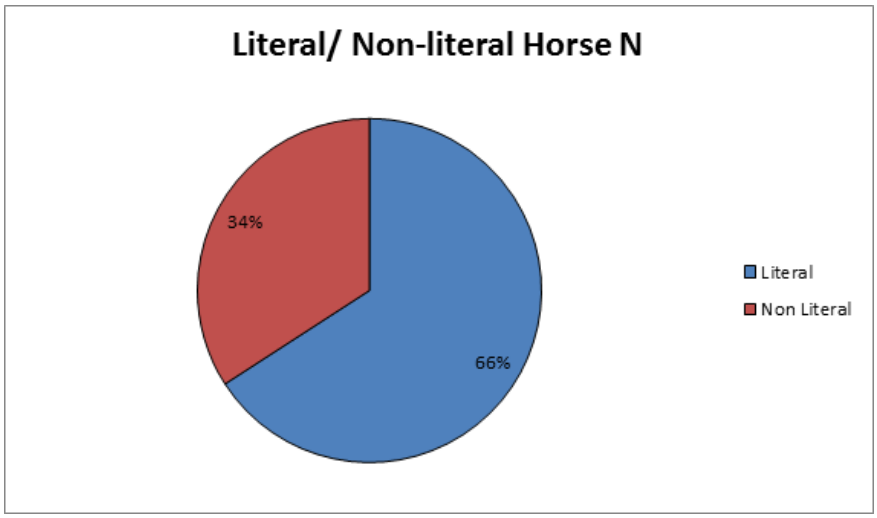

Chart 12.25. Literal and non-literal compounds of HORSE - NOUN.

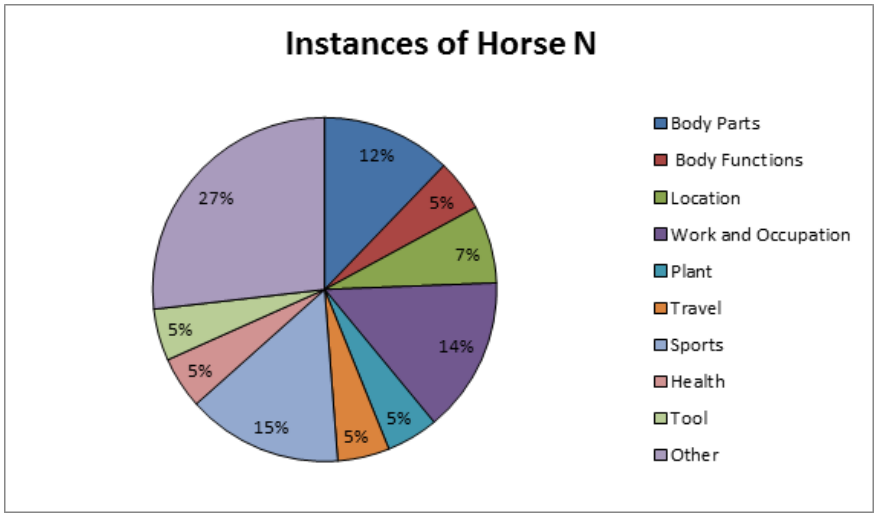

Chart 12.26. Amount of instances of compounds that activate a particular domain in HORSE – NOUN.

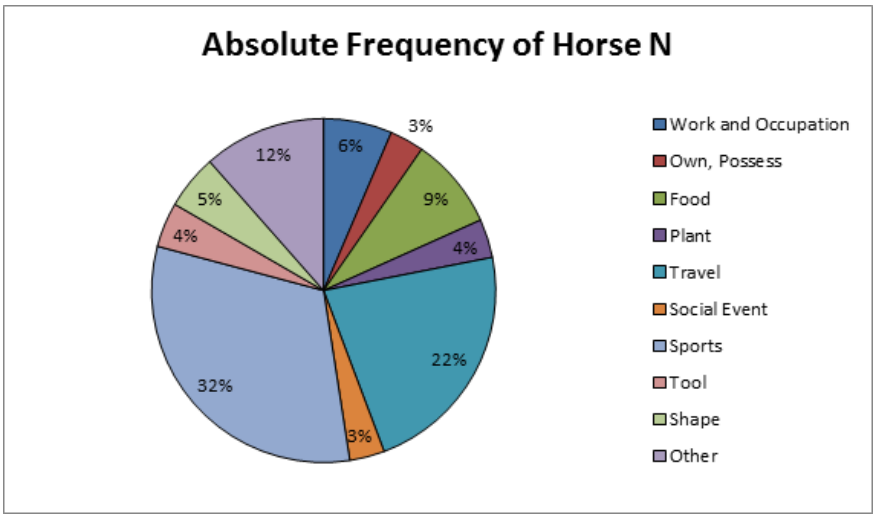

Chart 12.27. The frequency from *NOW Corpus* of the compounds that activate different domains in HORSE – NOUN.

12.2.2.2. *Table for HORSE – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
ANIMAL	Horseflesh (29)	1	29
BODY PART	Horsehair (325) Horseflesh (26) Horseflies (55) Horsehide (27) Horsetail (119)	5	552
BODY FUNCTIONS	Horse manure (336) Horseshit (209)	2	545
BUILDING	Horse stables (144)	1	144
LOCATION	Horse ranch (138) Horse farm (289) Horse slaughter (188)	3	615
WORK AND OCCUPATION	Horse guards (650) Horse whisperer (202) Horse industry (325) Horse breeder (309) Horse people (230) Horse trainer (492)	6	2208
OWN / POSSESS	Horse owners (1103)	1	1103
REGION	Horse park (208)	1	208

CONTAINMENT	Horsebox (103)	1	103
FOOD	Horse meat (2959)	1	2959
PLANT	Horseradish (881) Horse chestnut (362)	2	1243
TRAVEL	Horse power (7532) Horse carriage (143)	2	7675
SOCIAL EVENT	Horse show (1126)	1	1126
SPORTS	Horseback (3983) Horse race (2330) Horse trials(528) Horsewoman (212) Horsemen (3193) Horse riders(589)	6	10835
CONFLICT	Horseplay (298)	1	298
EMOTION	Horse lover (166)	1	166
SHAPE	Horseshoe (1758)	1	1758
HEALTH	Horse welfare (496) Horse rescue (148)	2	644
PLAY / FUN	Horseshoe (645)	1	645
TOOL	Horseshoe (1418) Horsewhip (27)	2	1445

12.2.2.3. *Pie charts for NOUN – HORSE.*

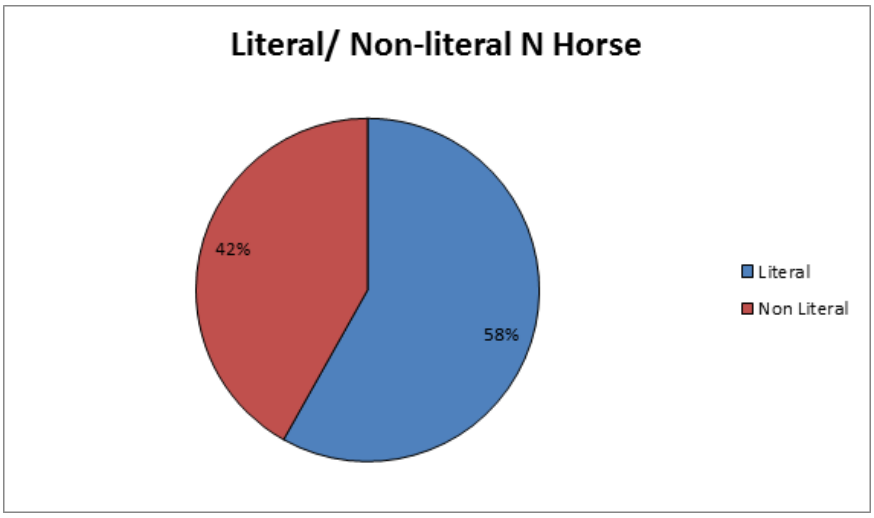

Chart 12.28. Literal and non-literal compounds of NOUN - HORSE.

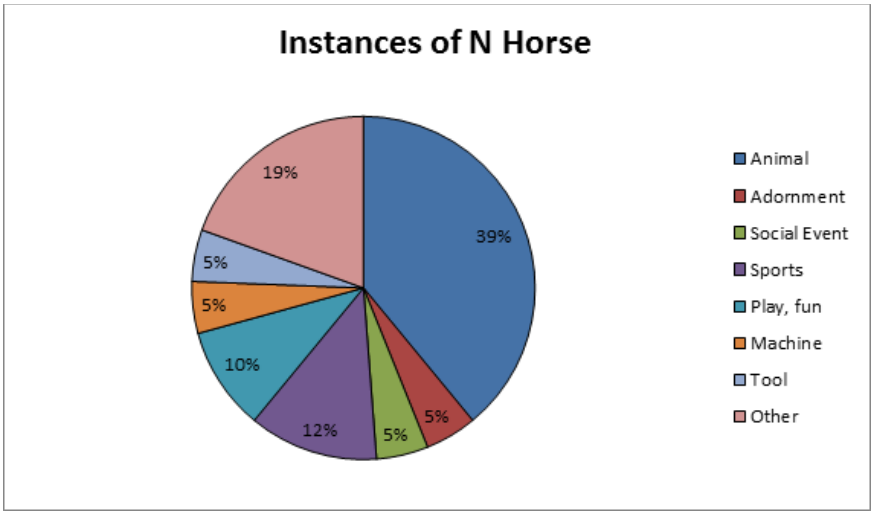

Chart 12.29. Amount of instances of compounds that activate a particular domain in NOUN – HORSE.

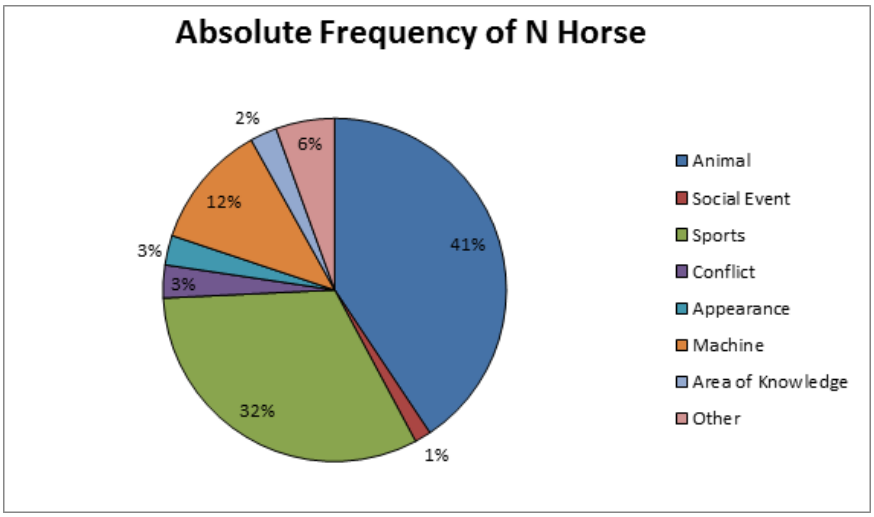

Chart 12.30. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – HORSE.

12.2.2.4. *Table for NOUN – HORSE.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
ANIMAL	Seahorse (967) Police horse (702) Gift horse (291) Derby horse (79) Shire horse (50) Paint horse (37) Pet horse (28) family horse (22) workhorse (126) carthorse (54) stock horse (45) pack horse (42) draft-horse (3) farm horse (31) workhorse (1119) warhorse (35)	16	3,631
ADORNMENT	Bronze Horse (31) Model Horse (22)	2	53
TRAVEL	Carriage Horse (98)	1	98
SOCIAL EVENT	Show Horse (96) Event Horse (42)	2	138
SPORTS	Racehorse (2326)	5	2,864

	Pommel Horse (362) Lead Horse (46) Champion Horse (73) Dressage Horse (57)		
CONFLICT	Warhorse (277)	1	277
TIME	Warhorse (106)	1	106
QUALITY	Wonder Horse (69)	1	69
APPEARANCE	Clothes Horse (249)	1	249
HOUSEHOLD EQUIPMENT	Clothes Horse (31)	1	31
PLAY / FUN	Hobby horse (35) Toy horse (31) Carousel horse (26) Stick-horse (2)	4	94
MACHINE	Workhorse (1041) Powerhorse (11)	2	1,052
AREA OF KNOWLEDGE	Hobby horse (227)	1	227
WRITTEN MATERIAL	Pantomime horse (77)	1	77
TOOL	Sawhorse (34) Mud-horse (5)	2	39

12.2.3. Bear.

12.2.3.1. *Pie charts for BEAR – NOUN.*

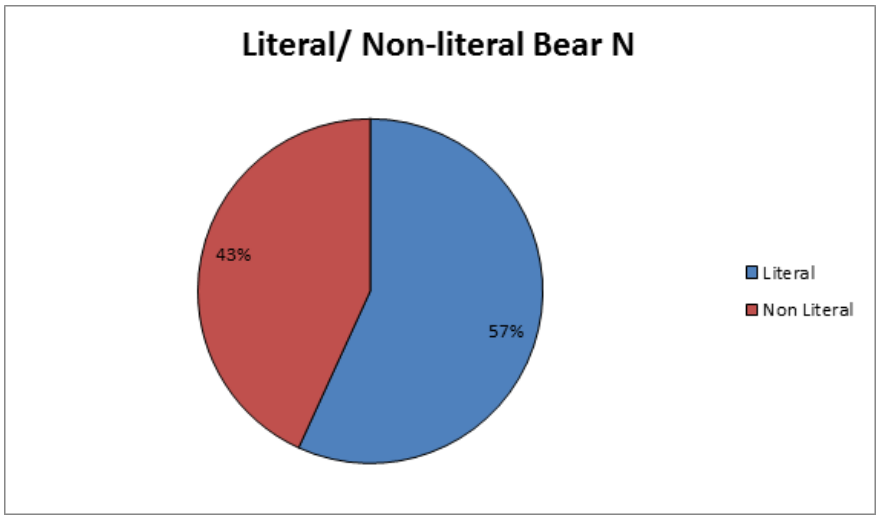

Chart 12.31. Literal and non-literal compounds of BEAR - NOUN.

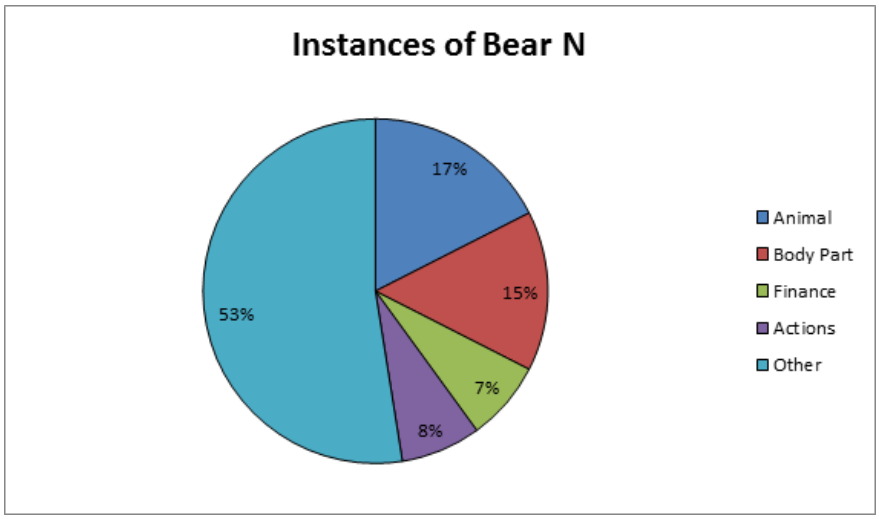

Chart 12.32. Amount of instances of compounds that activate a particular domain in BEAR – NOUN.

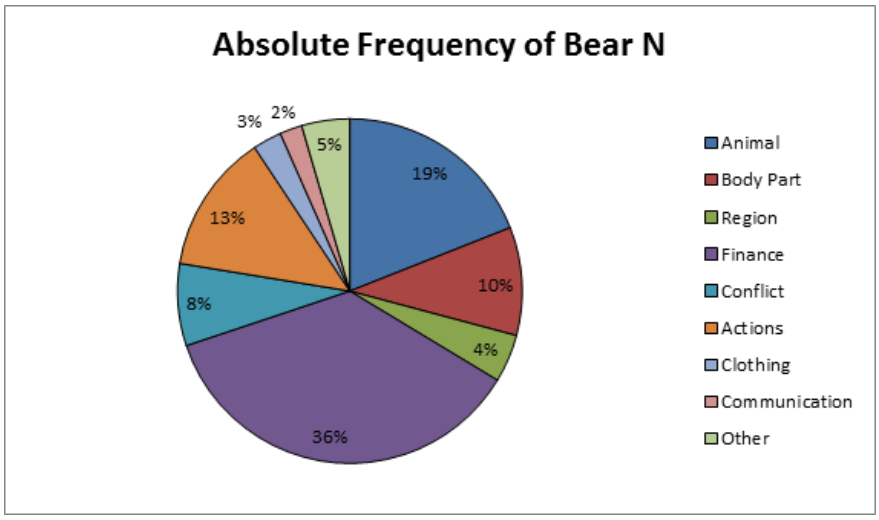

Chart 12.33. The frequency from *NOW Corpus* of the compounds that activate different domains in BEAR – NOUN.

12.2.3.2. *Table for BEAR – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
ANIMAL	Bear cub (727) Bear population (618) Bearcat (216) Bear family (85) Bear numbers (70) Bear-man (4) Beardogs (71)	7	1,791

LOCATION	Bear pit (10)	1	10
BODY PART	Bear-fur (4) Bear claw (36) Bear meat (68) Bear parts (72) Bear skin (548) Bear bile (229)	6	957
PERSON	Bear hunters (58)	1	58
REGION	Bear country (151) Bear territory (110) Bear habitat (105) Bear sanctuary (58)	4	424
FOOD	Bear claw (7) Bear-bait (3)	2	10
PLANT	Bearberry (27) Bearpoppy (3)	2	30
SPORTS	Bear trap (24)	1	24
POLITICS	Bear trap (24)	1	24
FINANCE	Bear market (3365) Bear trap (48) Bear tack	3	3,413
CONFLICT	Bear attack (449) Bear pit (277)	2	726
ACTIONS	Bear hug (821) bear claw (7) bear hunt (407)	3	1,235
CLOTHING	Bear suit (136) bear costume (120)	2	256
SENSE, PERCEIVE	Bear sightings (182)	1	182
APPEARANCE	Bear-man (2) bear-person (2)	2	4
TRAVEL	Bear jam	1	-
TIME	Bear season (73)	1	73
COMMUNICATION	Bear-person (1)	1	1
TOOL	Bear-proof (54) Bear trap (144)	2	198

WEAPON	Bear-spray (8)	1	8

12.2.3.3. *Pie charts for NOUN – BEAR.*

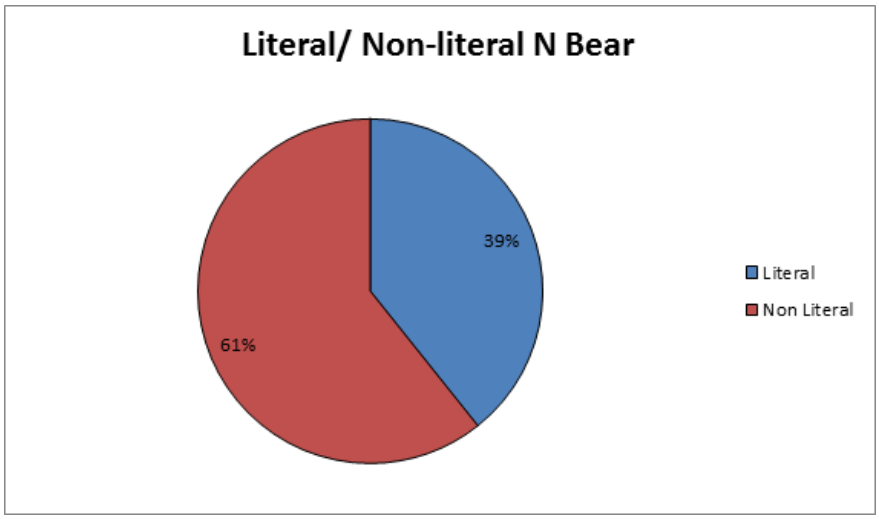

Chart 12.34. Literal and non-literal compounds of NOUN - BEAR.

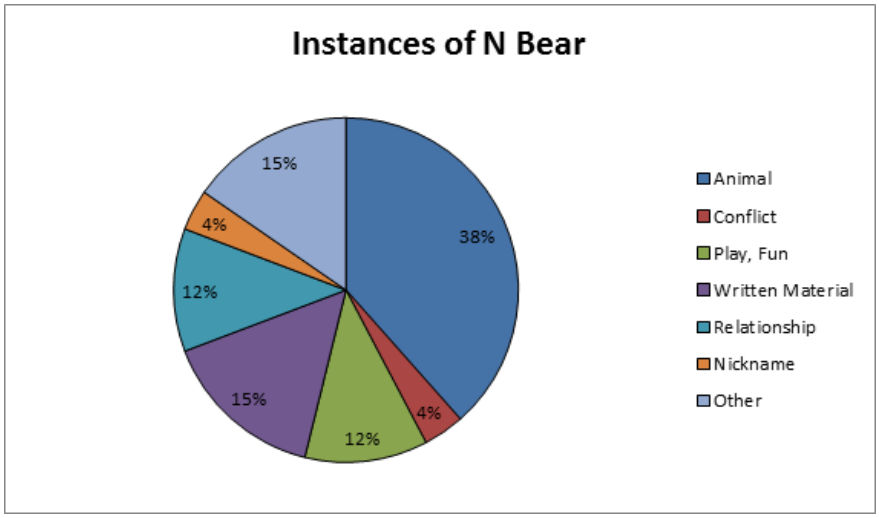

Chart 12.35. Amount of instances of compounds that activate a particular domain in NOUN – BEAR.

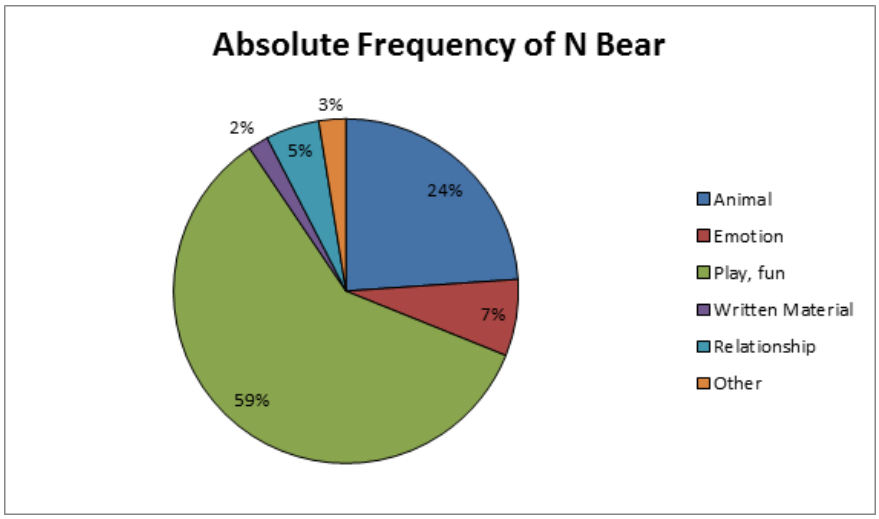

Chart 12.36. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – BEAR.

12.2.3.4. *Table for NOUN – BEAR.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
ANIMAL	Mama bear (213) Panda bear (274) Sun bear (238) Sloth bear (235) Baby bear (97) Cave bear (118) Grizzly bear (94) Koala bear (87) Polar-bear (80) Honey bear (8) Moon bear (27) Pet bear (22) Circus bear (21) Father bear (12) Cinnamon bear (13) Ghost bear (10) Cat-bear (8) Antbear (6) Waterbear (2) Skunk-bear (2)	20	1,567
ADORNMENT	Trophy bear (15)	1	15
FOOD	Honey bear (12)	1	12
CONFLICT	Nuisance bear (35)	2	49

	Problem bear (14)		
EMOTION	Bug bear (471)	1	471
SOCIAL BEHAVIOUR	Care bear (5)	1	5
PLAY / FUN	Teddy bear (3794) Care bear (47) Toy bear (39) Daddy bear (5) Polo bear (10) Space-bear (1)	6	3,896
TECHNOLOGY	Robo-bear (1)	1	1
APPEARANCE	Papa bear (43)	1	43
COMMUNICATION	Spokesbear (2)	1	2
MOVIE	Cartoon bear (25)	1	25
WRITTEN MATERIAL	Daddy bear (8) Dropbear (18) Owlbear (3) Molarbear (3) Stripper-bear (2) Ice-bear (2) Pedobear (76) Cocaine bear (11)	8	123
RELATIONSHIP	Mama bear (244) Baby bear (29) Papa bear (43) Honey bear (3) Daddy bear (8) Father bear (3)	6	330
NICKNAME	Care bear (11) Honey bear (3)	2	14

12.3. Fruits

12.3.1. Apple.

12.3.1.1. *Pie charts for APPLE – NOUN.*

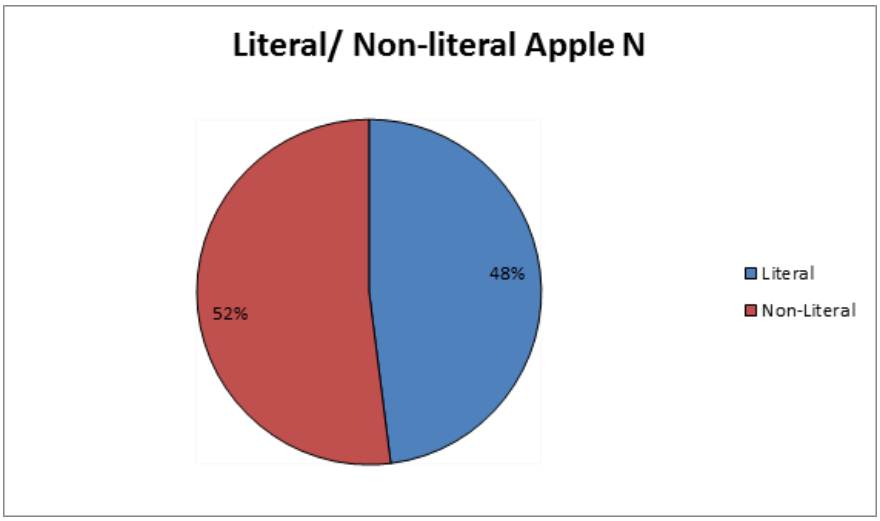

Chart 12.37. Literal and non-literal compounds of APPLE - NOUN.

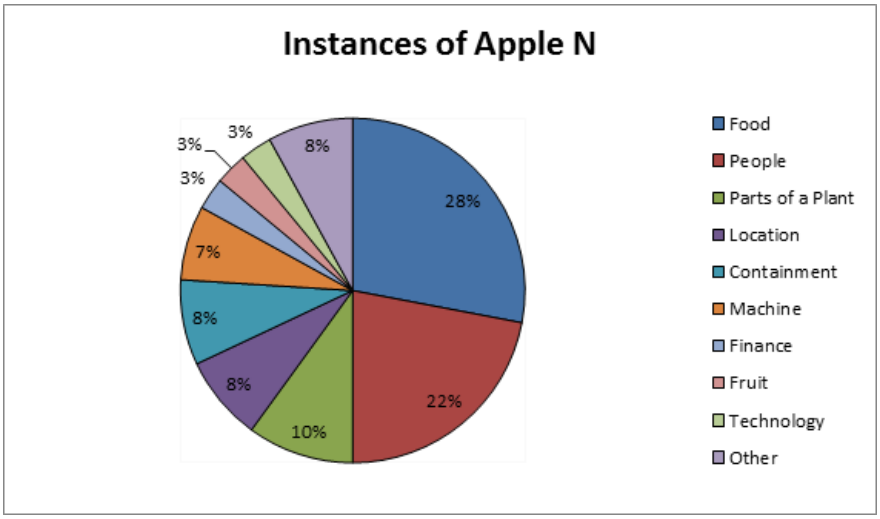

Chart 12.38. Amount of instances of compounds that activate a particular domain in APPLE – NOUN.

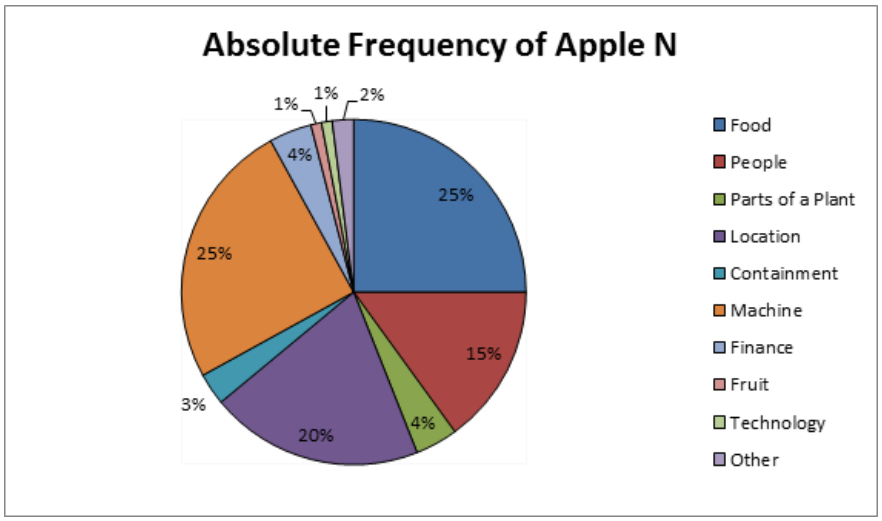

Chart 12.39. The frequency from *NOW Corpus* of the compounds that activate different domains in APPLE – NOUN.

12.3.1.2. *Table for APPLE – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
LOCATION	Apple Store (3594) Apple Stores (1130) Apple-store (3) Applefields (5) Applemarket (3)	5	4,735
MACHINE	Apple products (2573) Apple product (774) Apple devices (1764) Apple device (689)	17	5,942

FOOD	Apple pie (1659) Apple pies (183) Apple-Pie (50) Apple cider (1677) Apple-cider (22) Apple juice (1292) Apple-juice (7) Applejuice (5) Applesauce (372) Apple Sauce (270) Apple Tart (154) Apple Strudel (107) Appletiser (88) Appletizer (4) Appletini (30) Appletinis (19) Apple-butter (3)	10	5932
PEOPLE	Apple co-founder (738) Apple founder (390) Apple fans (563) Apple fan (186) Apple users (548) Apple user (112) Appleinsider (327) Apple insider (162) Apple customers (241) Apple fanboys (100) Applehead (9) Apple-haters (4) Apple Tourist	13	3,380
FINANCE	Apple shares (615) Apple tax (340)	2	955
CONTAINMENT	Apple cart (433) Applecart (250) Apple-cart (20) Applecarts (5) Apple-cart (3)	5	711
FRUIT	Apple Slices (311) Appleseeds (11)	2	322

COLOUR	Apple-Green (36) Apple-red (7)	2	33
PARTS OF A PLANT	Apple trees (770) Apple-tree (7) Appletrees (4) Apple Blossom (213) Apple-blossom (4) Appleblossom (3)	6	1,001
TRAVEL	Apple car	1	228
TECHNOLOGY	Applecare (153) Applecare+ (61)	2	214
TIME	Apple season	1	120
SOCIAL GATHERING	Applefest	1	60

12.3.1.3. *Pie charts for NOUN – APPLE.*

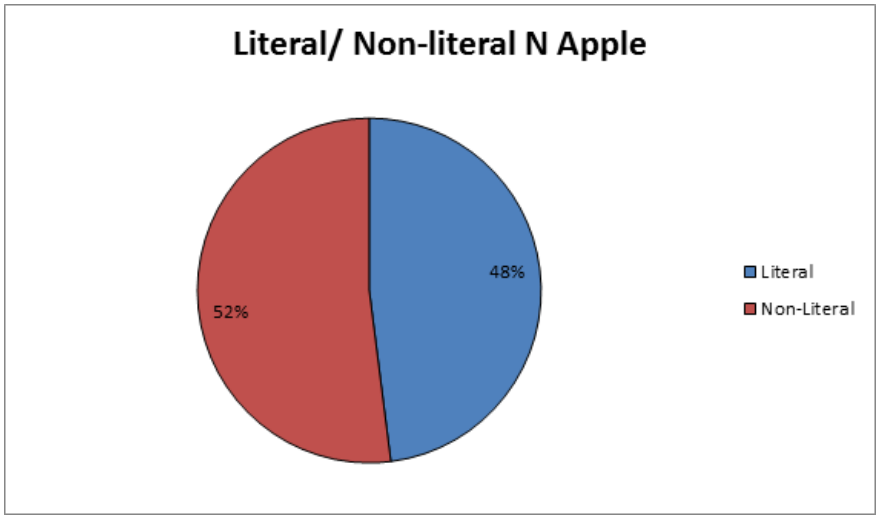

Chart 12.40. Literal and non-literal compounds of NOUN - APPLE.

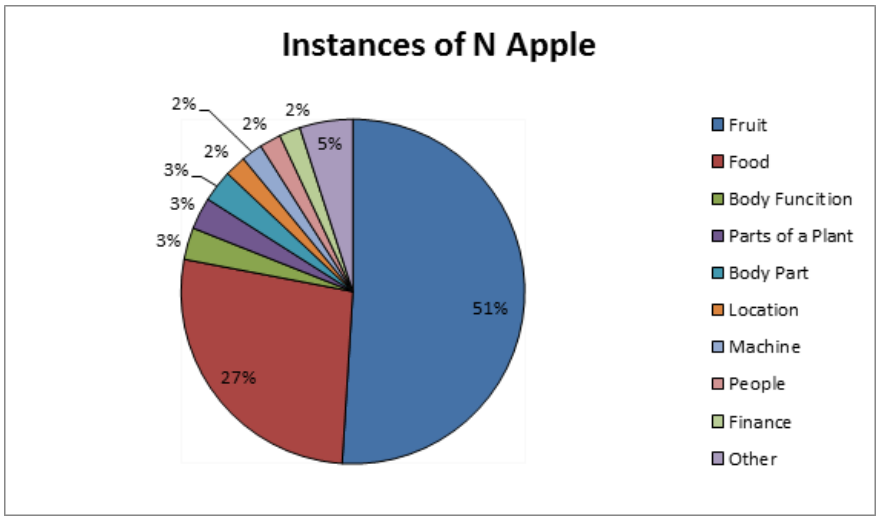

Chart 12.41. Amount of instances of compounds that activate a particular domain in NOUN – APPLE.

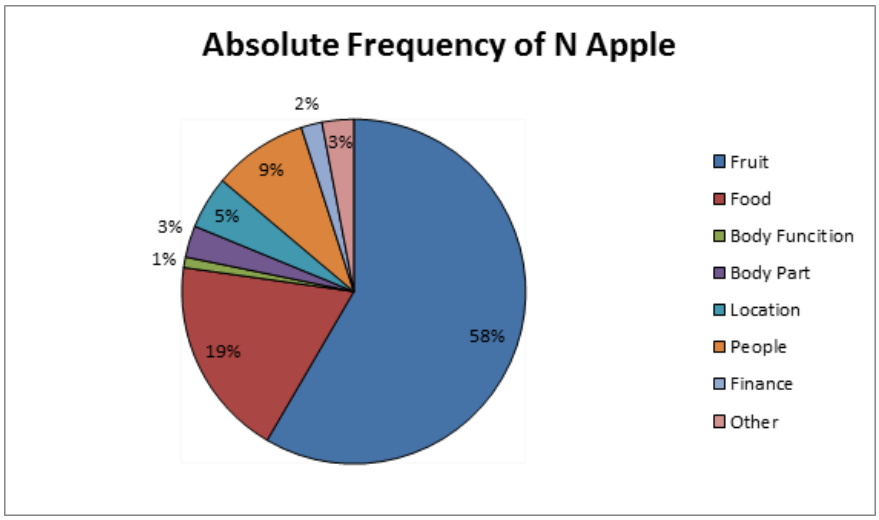

Chart 12.42. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – APPLE.

12.3.1.4. *Table for NOUN – APPLE.*

N - APPLE

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
FRUIT	Custard Apple (198) Custard-Apple (2) Crab Apple (142) Crab-Apple (14) Bramley Apple (50)	31	773

	Fuji Apple (46) Fuji-Apple (2) Jazz Apple (40) Cider Apple (34) Cider-Apple (4) Wood Apple (32) Woodapple (4) Star-Apple (31) Starapple (4) Star-apple (1) Gala Apple (28) Rose Apple (20) Roseapple (2) Honeycrisp (21) Sugar Apple (19) Sugar-apple (1) Sugarapple (1) Water Apple (12) Waterapple (1) Elephant Apple (12) Elephantapple (1) Cox Apple (11) Wax Apple (11) Heirloom Apple (10) Kashmir Apple (10) Ambrosia Apple (9)		
FOOD	Candy Apple (69) Candy-Apple (25) Candyapple (1) Kandy-apple (1) Caramel Apple (52) Caramel-Apple (2) Toffee Apple (49) Toffee-Apple (2) Poison Apple (32) Poison-Apple (2) Poisonapple (1) Honey Apple (8) Honey-apple (1) Spice-apple (1) Chocolateapple (1) Vodka apple (1)	16	248
BODY FUNCTION	Road Apple (9) Roadapple (1)	2	10
PARTS OF A PLANT	Thorn-apple (3) Cedar-apple (2)	2	5

BODY PART	Adam's Apple (37) Adamsapple (1)	2	38
LOCATION	World Apple	1	72
MACHINE	krApple	1	4
PEOPLE	Mr. Apple	1	121
FINANCE	Peak Apple	1	21
COLOUR	Fire-Apple	1	2
NICNKAME	Crapple	1	20
COMMUNICATION	Rainbow Apple	1	8

12.3.2. Orange.

12.3.2.1. *Pie charts for ORANGE – NOUN.*

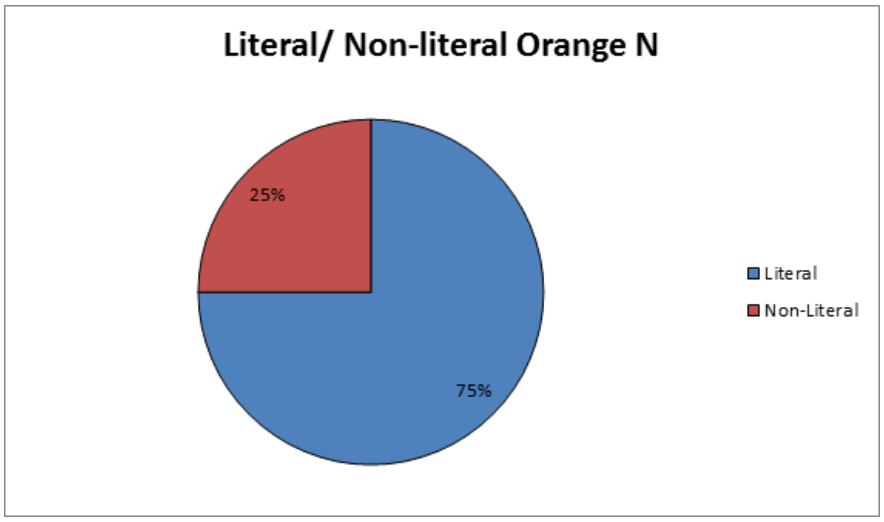

Chart 12.43. Literal and non-literal compounds of ORANGE - NOUN.

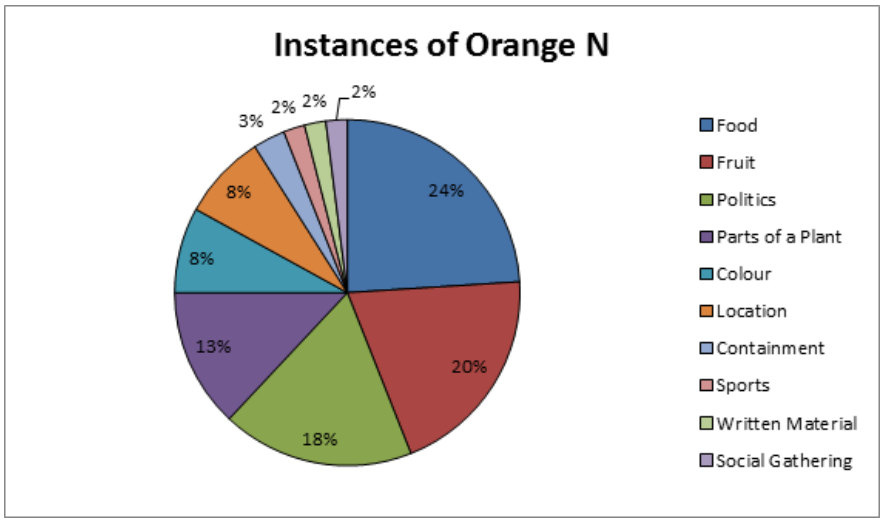

Chart 12.44. Amount of instances of compounds that activate a particular domain in ORANGE – NOUN.

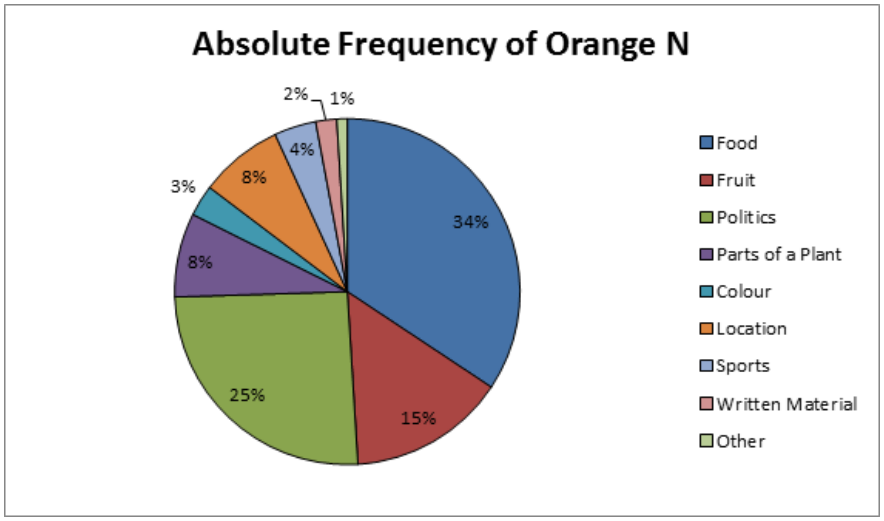

Chart 12.45. The frequency from *NOW Corpus* of the compounds that activate different domains in ORANGE – NOUN.

12.3.2.2. *Table for ORANGE – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
FOOD	Orange Juice (3879) Orange-Juice (18) Orange Wine (106) Orange-Wine (1) Orange Marmalade (92)	15	4,455

	Orange-Marmalade (2) Orange Oil (92) Orange Soda (81) Orangesoda (5) Orange-soda (1) Orange Liqueur (86) Orange Sauce (84) Orange-cream (3) Orangetini (3) Orange-flavour (2)		
FRUIT	Orange Peel (780) Orange Peels (135) Orange-Peel (21) Orange Zest (377) Orange Rind (131) Orange-rind (4) Orange Slices (116) Orange-Slice (1) Orange Segments (81) Orange Flehs (79) Orange-Tip (8) Orange-tips (1)	12	1,734
POLITICS	Orange Order (1380) Orange Revolution (550) Orangemen (541) Orangeman (122) Orangewomen (5) Orange-man (3) Orange Wave (244) Orange Lodge (243) Orange Party (222) Orange Parade (134) Orange Institution (66)	11	3,385
PARTS OF A PLANT	Orange Trees (276) Orange Tree (201) Orangetree (2) Orange-tree (1) Orange Blossom (402) Orange Blossoms (80) Orange-Blossom (25) Orange-thyme (2)	8	989
COLOUR	Orange-Red (202) Orangered (3)	5	316

	Orange-Yellow (73) Orange-Pink (26) Orange-Gold (12)		
LOCATION	Orange Farm (535) Orange Grove (350) Orange Groves (176) Orange-grove (2) Orangefield	5	1,063
CONTAINMENT	Orange-crate (4) Orange-box (2)	2	6
SPORTS	Orange Bowl	1	511
WRITTEN MATERIAL	Orange Prize	1	314
SOCIAL GATHERING	Orangefest	1	38

12.3.2.3. *Pie charts for NOUN – ORANGE.*

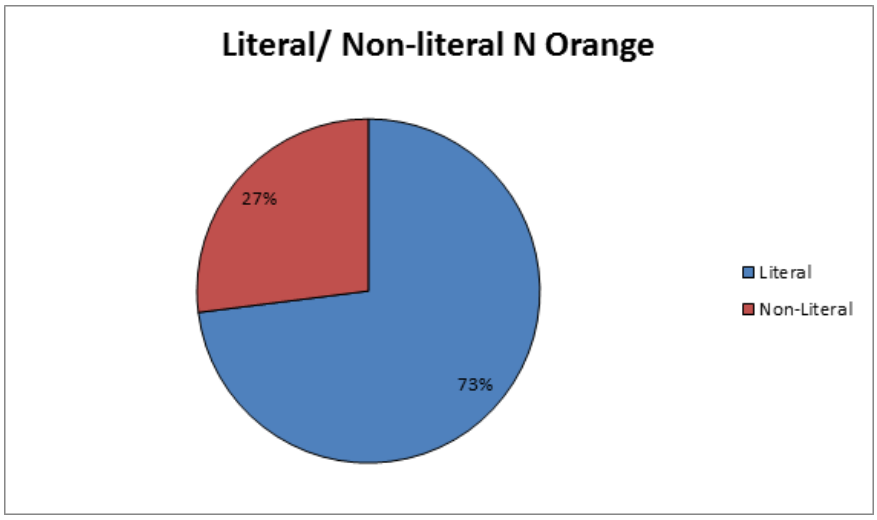

Chart 12.46. Literal and non-literal compounds of NOUN - ORANGE.

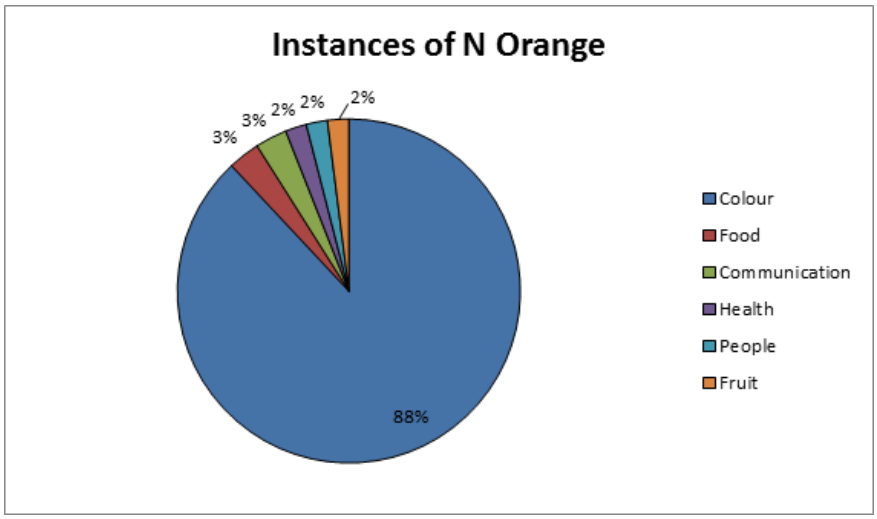

Chart 12.47. Amount of instances of compounds that activate a particular domain in NOUN – ORANGE.

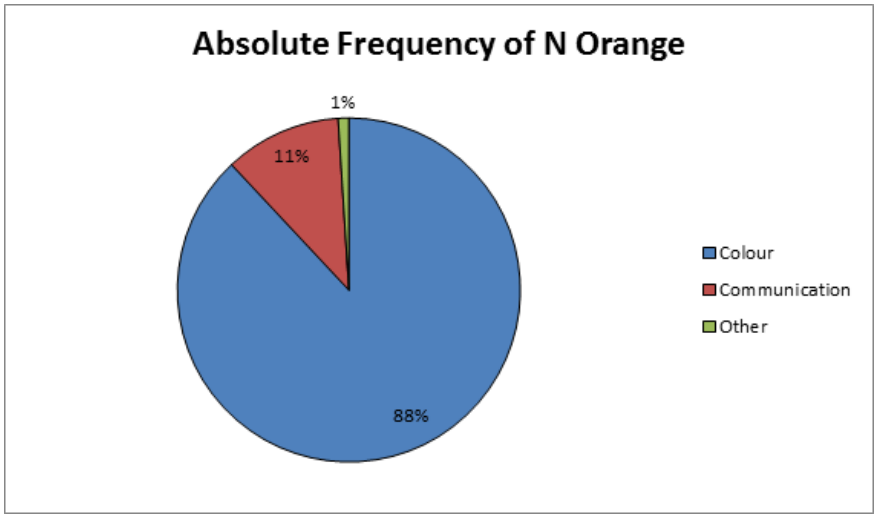

Chart 12.48. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – ORANGE.

12.3.2.4. *Table for NOUN – ORANGE.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
COLOUR	Blood Orange (575) Blood-Orange (45) Bloodorange (2) Neon Orange (131) Neon-Orange (21) Mandarin Orange (135)	53	1,385

	Mandarin-Orange (1) Chocolate-Orange (113) Chocolate-Orange (6) Garnet Orange (65) Blaze Orange (33) Blaze-Orange (5) Hunter Orange (37) Sunset Orange (30) Sunset-Orange (1) Pumpkin-Orange (14) Pumpkin Orange (9) Flame Orange (12) Flame-Orange (9) Prison Orange (12) Prison-Orange (3) Rust Orange (8) Rust-Orange (7) Day-Glo Orange (8) Dayglo-Orange (2) Dayglo Orange (4) Carrot-Orange (5) Carrot Orange (4) Inferno Orange (8) Clementine Orange (8) Sunrise Orange (8) Fire Orange (5) Fire-Orange (2) Copper Orange (6) Copper-Orange (1) Apricot-Orange (7) Cadmium Orange (5) Caffeine Orange (5) Marigold Orange (4) Lava Orange (4) Mustard-Orange (3) Safety-Orange (2) SafetyOrange (1) Peach-Orange (2) Saffron-Orange (2) Salmon-Orange (2) Dusk-Orange (2) Chipotle-Orange (2) Bronze-Orange (2) Brick-Orange (2) Amber-Orange (2) Coral-Orange (2) Caution-Orange (1)		

FOOD	Mango Orange (6) Mango-Orange (5)	2	11
COMMUNICATION	Status Orange (89) Code Orange (79)	2	168
HEALTH	Agent Orange	1	1569
PEOPLE	Mr Orange	1	113
FRUIT	Navel Orange	1	72

12.3.3. Lemon.

12.3.3.1. *Pie charts for LEMON – NOUN.*

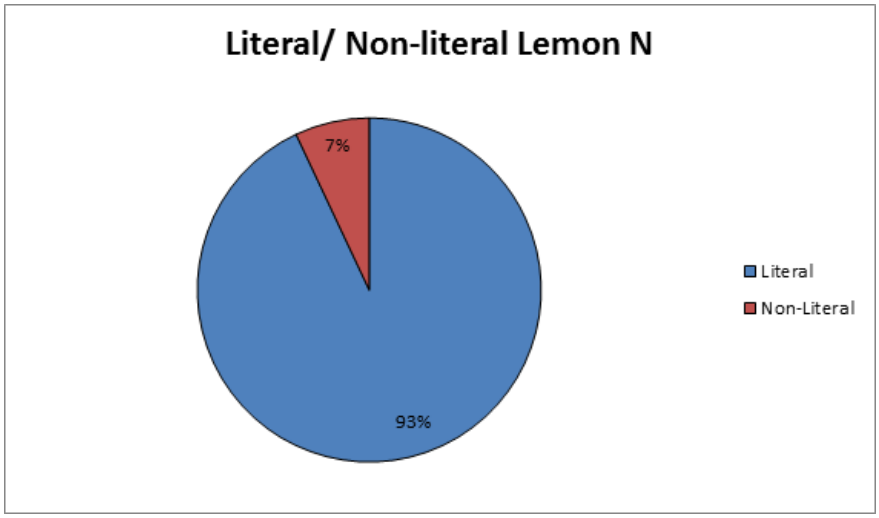

Chart 12.49. Literal and non-literal compounds of LEMON - NOUN.

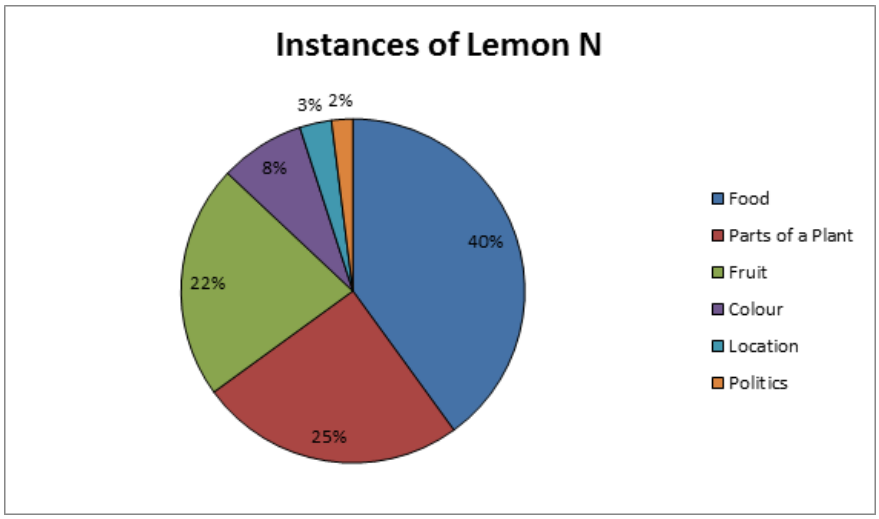

Chart 12.50. Amount of instances of compounds that activate a particular domain in LEMON – NOUN.

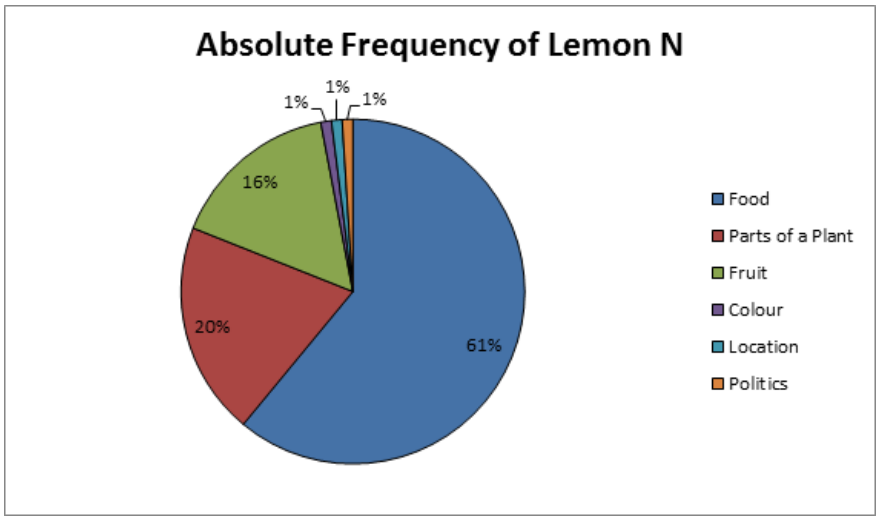

Chart 12.51. The frequency from *NOW Corpus* of the compounds that activate different domains in LEMON – NOUN.

12.3.3.2. *Table for LEMON – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
FOOD	Lemon Juice (5516) Lemon-Juice (8) Lemon Curd (354) Lemon-Curd (5) Lemon Water (344) Lemon-Water (2) Lemon Meringue (305) Lemon-Meringue (7) Lemon Tart (169) Lemonheads (132) Lemonhead (13) Lemon Tea (116) Lemon Butter (97) Lemon-Butter (4) Lemon Oil (96) Lemon Drop (73) Lemondrop (12) Lemon-drop (10) Lemon Cake (81) Lemon Cream (72) Lemon Pepper (68) Lemon-Pepper (4) Lemon Sorbet (69) Lemon-plum (2)	24	7,579

PART OF A PLANT	Lemongrass (1008) Lemon Grass (435) Lemon-Grass (15) Lemongrass- (7) Lemon Tree (475) Lemon Trees (166) Lemontree (10) Lemontrees (4) Lemon Balm (146) Lemonbalm (3) Lemon Verbena (110) Lemon Thyme (80) Lemon-Thyme (8) Lemonthyme (4) Lemon-herb (3)	15	2,474
FRUIT	Lemon Zest (818) Lemon-Zest (5) Lemon Peel (290) Lemon-Peel (13) Lemon Rind (229) Lemon-rind (2) Lemon Wedges (149) Lemon Wedge (76) Lemon-Wedge (2) Lemon Slices (128) Lemon Drizzle (110) Lemon-Drizzle (4) Lemon Twist (89)	13	1,915
COLOUR	Lemon Yellow (92) Lemon-Yellow (54) Lemon-Yellows (3) Lemoncloak (5) Lemon-Green (4)	5	158
LOCATION	Lemon Grove (102) Lemongrove (8)	2	110
POLITICS	Lemon Law	1	107

12.3.3.3. *Pie charts for NOUN – LEMON.*

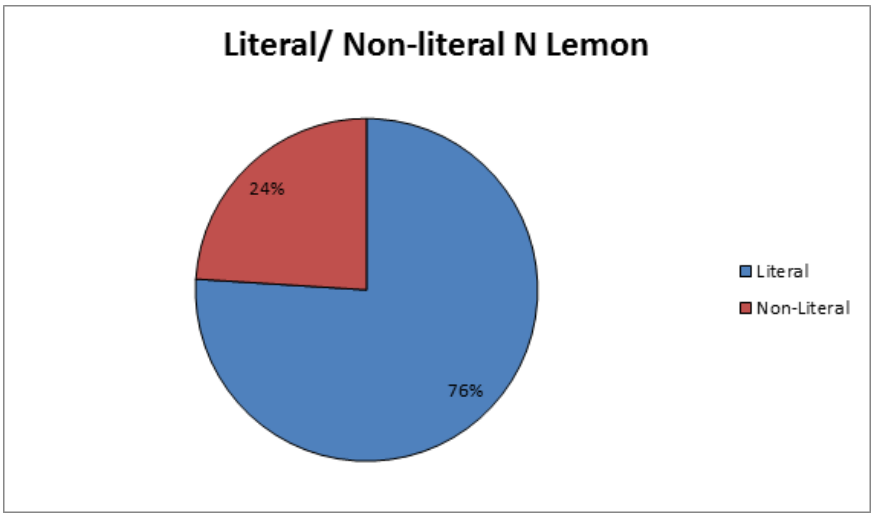

Chart 12.52. Literal and non-literal compounds of NOUN - LEMON.

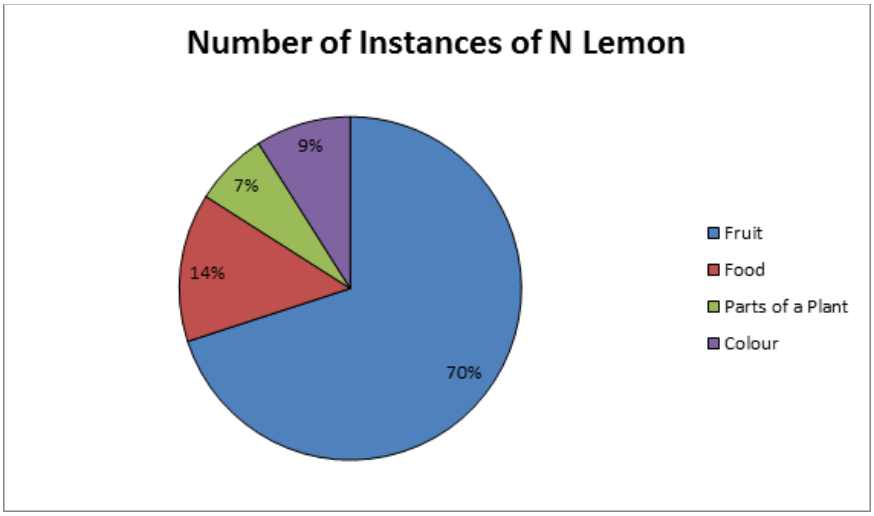

Chart 12.53. Amount of instances of compounds that activate a particular domain in NOUN – LEMON.

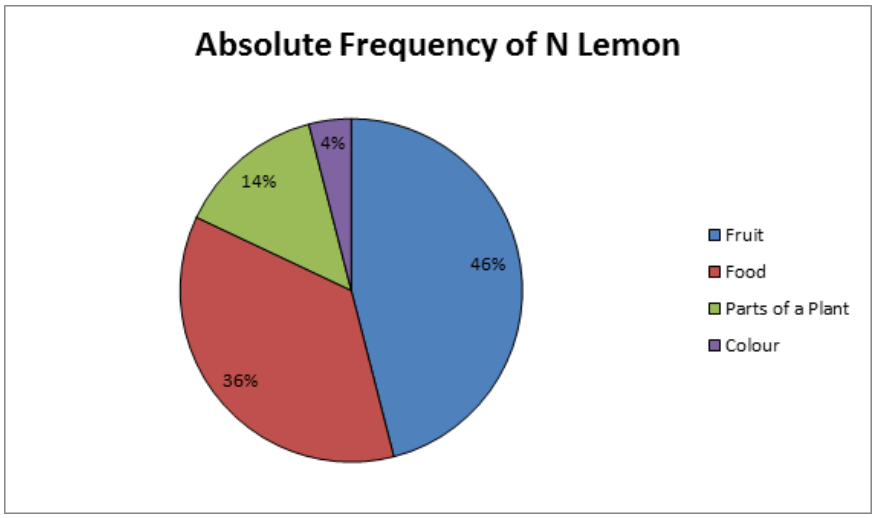

Chart 12.54. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – LEMON.

12.3.3.4. *Table for NOUN – LEMON.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
FRUIT	Bush Lemon (3) Mountain Lemon (2) Dinner Lemon (1) Cartoon Lemon (1) Recovery Lemon (1) Lullaby Lemon (1) Sunshine Lemon (1) Superfood Lemon (1) Backyard Lemon (1) Diet Lemon (1)	10	13
FOOD	Sherbet Lemon (9) Sherbet-Lemon (1)	2	10
PARTS OF A PLANT	Basil Lemon	1	4
COLOUR	Butter Lemon	1	1

13. Appendix B: Results for abstract categories

The following section gathers tables and pie charts that display the information obtained from our data collection process for our four abstract superordinate categories. This appendix will be sub-divided in a categorical fashion. First, the category of EMOTIONS. Secondly, the category of CULTURE. Thirdly, the category of NARRATIVE ENTITIES, and finally the category of INTERNET. Each sub-section will consist of pie charts that will display information about literal and non-literal compounds, the amount of instances per domain that each component activates, and the absolute frequency based on the word frequency from the *NOW corpus*. The tables function as a breakdown of the information presented by the graphs. The information for each basic level component is also divided and presented separately for each one of the two possible syntactic roles of the component. Please note that the compounds that display no frequency were gathered from *WordSpy*. There is no data for the sets belonging to NOUN – CHRISTIAN and NOUN – FRANKEN, as no compounds were found for them.

13.1. Emotions

13.1.1. Love.

13.1.1.1. *Pie charts for LOVE – NOUN.*

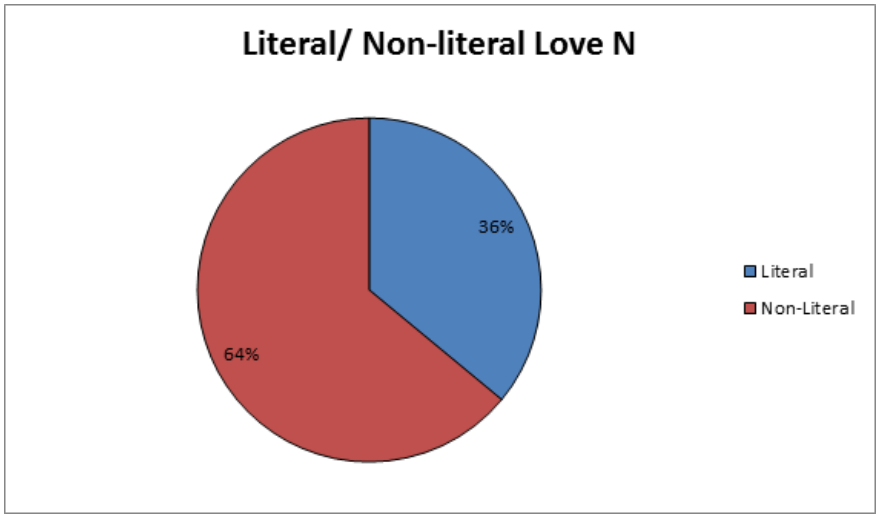

Chart 13.1. Literal and non-literal compounds of LOVE - NOUN.

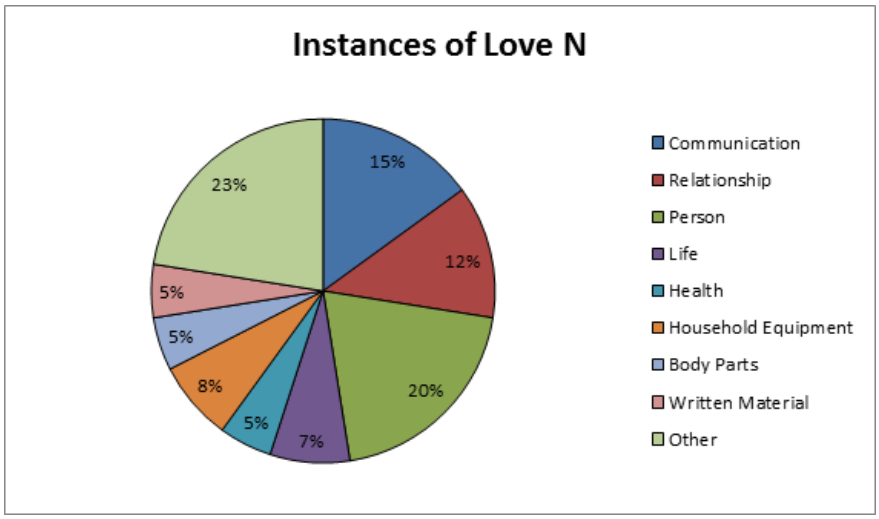

Chart 13.2. Amount of instances of compounds that activate a particular domain in LOVE – NOUN.

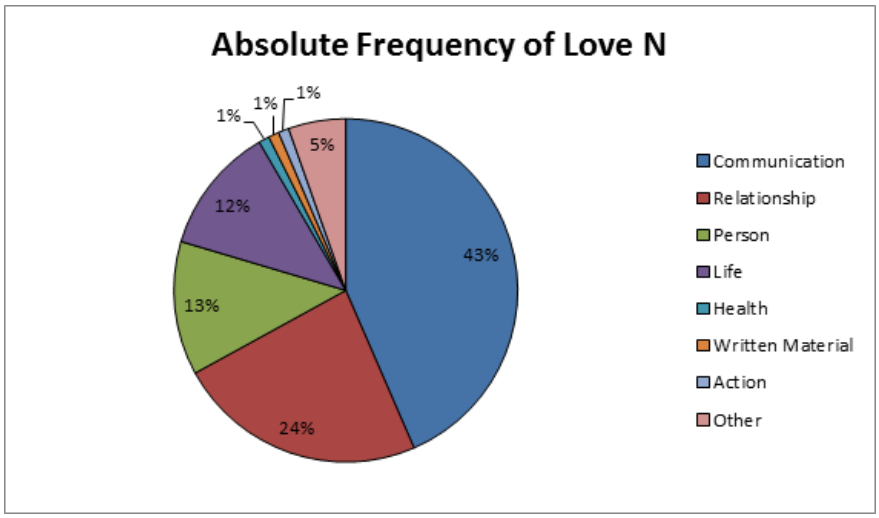

Chart 13.3. The frequency from *NOW Corpus* of the compounds that activate different domains in LOVE – NOUN.

13.1.1.2. *Table for LOVE – NOUN.*

DOMAIN	INSTANCE	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
COMMUNICATION	Love story (15343) Love stories (2348) Love letter (2759) Love letters (1790) Love song (2739) Love songs (2155) Love scenes (562) Love scene (556) Love magazine (284) Love beeper	10	28,536

RELATIONSHIP	Love affair (9249) Love affairs (1028) Love triangle (2872) Love triangles (350) Love birds (513) Lovebirds (1084) Lovebird (79) Love relationship (213) Love game (204)	9	15,592
PERSON	Love interest (5451) Love interests (569) Love guru (758) Love rival (342) Love rat (213) Love heart (214) Loveheart (18) Love match (183) Loverman (23) Lovermen (1)	10	7,772
LIFE	Love life (4956) Love child (1435) Love children (311) Lovechild (1) Love marriage (469) Love marriages (204)	6	7,376
ACTION	Lovemaking (874)	1	874
ORGANISATION	Love team (723)	1	723
LOCATION	Love island (448)	1	448
WRITTEN MATERIAL	Love books (353) Love poems (349) Love poem (210)	3	912
HEALTH	Lovesick (411) Love potion (220)	2	631
TRAVEL	Love boat (336)	1	336
HOUSEHOLD EQUIPMENT	Love nest (318) Loveseat (121) Lovespoon (3)	3	442
SOCIAL EVENT	Love fest (205)	1	205
SUPERNATURAL	Love spell (204)	1	204
TOOL	Love locks (198)	1	198

BODY PART	Love hormone (195) Loveskin (1)	2	196
INJURY	Lovebite (11)	1	1
RELIGION	Lovepakistan (2)	1	2

13.1.1.3. *Pie charts for NOUN – LOVE.*

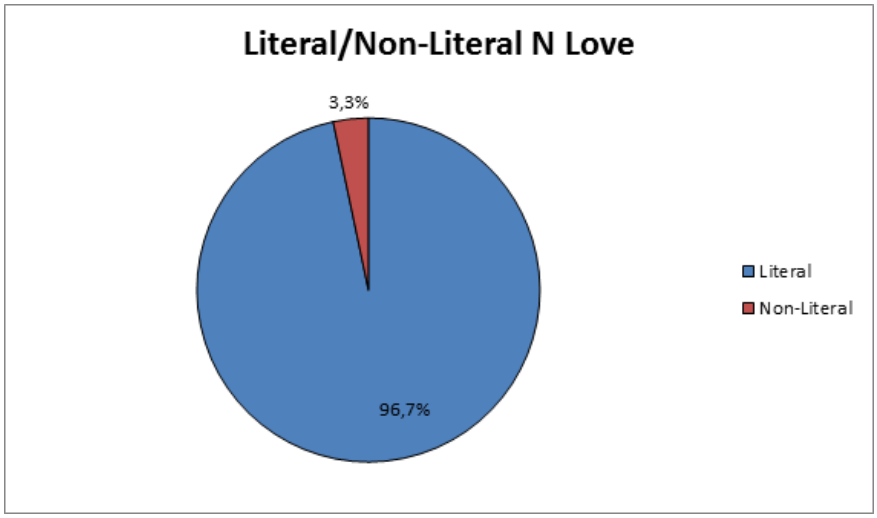

Chart 13.4. Literal and non-literal compounds of NOUN - LOVE.

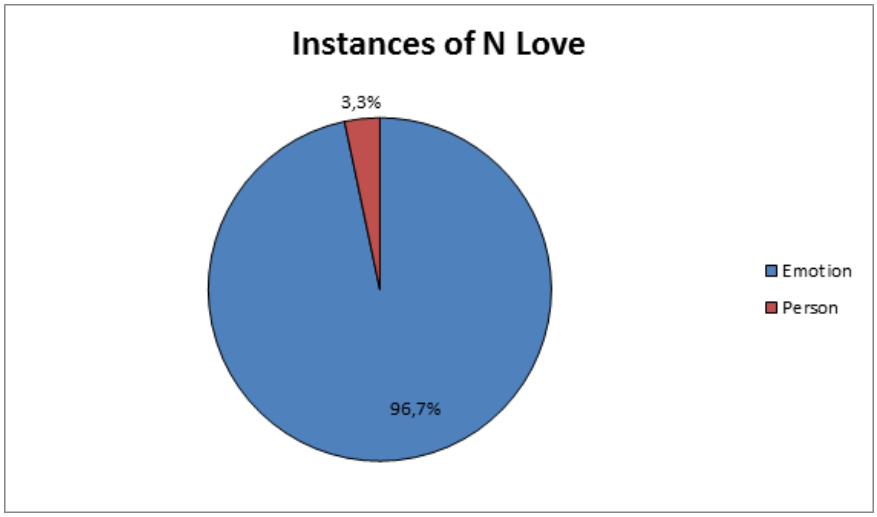

Chart 13.5. Amount of instances of compounds that activate a particular domain in NOUN – LOVE.

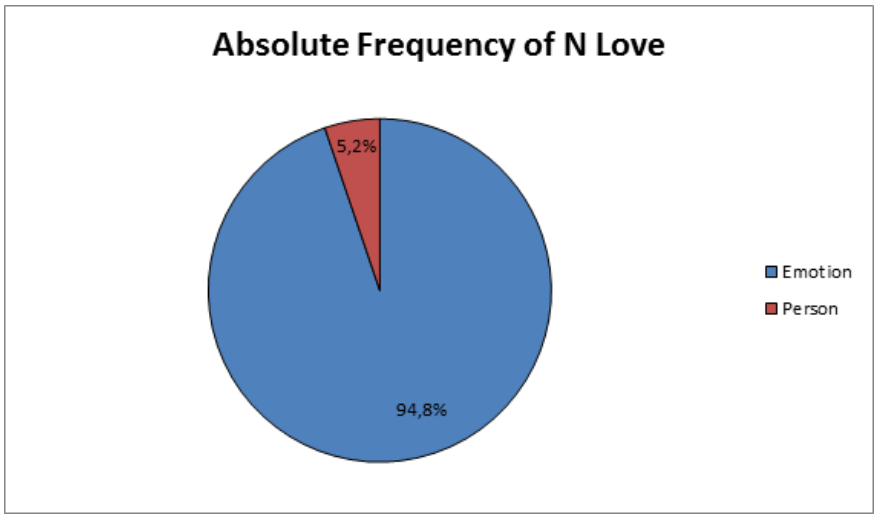

Chart 13.6. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – LOVE.

13.1.1.4. *Table for NOUN – LOVE.*

DOMAIN	INSTANCE	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
EMOTION	Lady love (711) Childhood love (204 Patriot love (191) Self love (179) Jesus love (2) Summer love (98) Celebrity love (47) Bollywood love (2) Body love (43) Hollywood love (4) School love (42) Brother love (41) Adult love (38) Lifetime love (38) Community love (37) Vampire love (12) Screen love (13) Comedy love (2) College love (12) Fan love (32) Child love (29) Sister love (28) Distance love (20) Vanilla love (3) Boy love (15) Routine love (2) Wartime love (8)	29	1,880

	Farytale love (7) Robot love (20)		
PERSON	Baby love (104)	1	104

13.1.2. Phobia.

13.1.2.1. *Pie charts for PHOBIA – NOUN.*

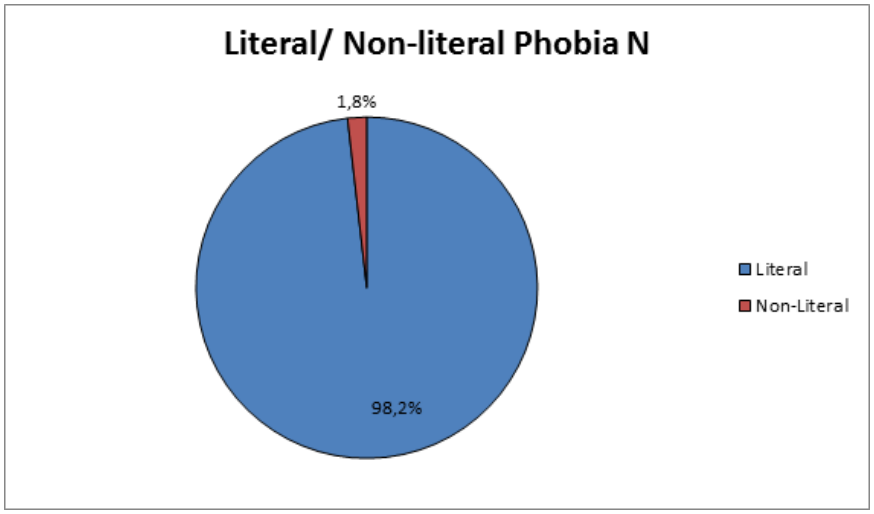

Chart 13.7. Literal and non-literal compounds of PHOBIA - NOUN.

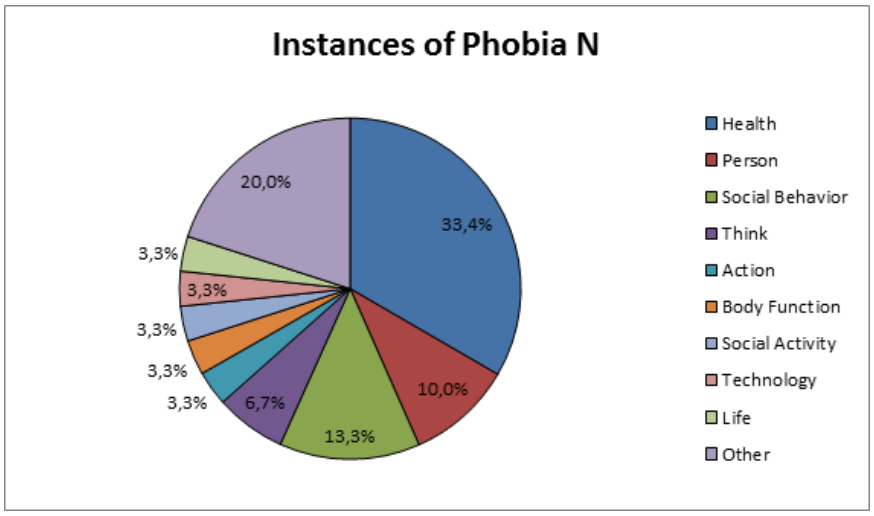

Chart 13.8. Amount of instances of compounds that activate a particular domain in PHOBIA – NOUN.

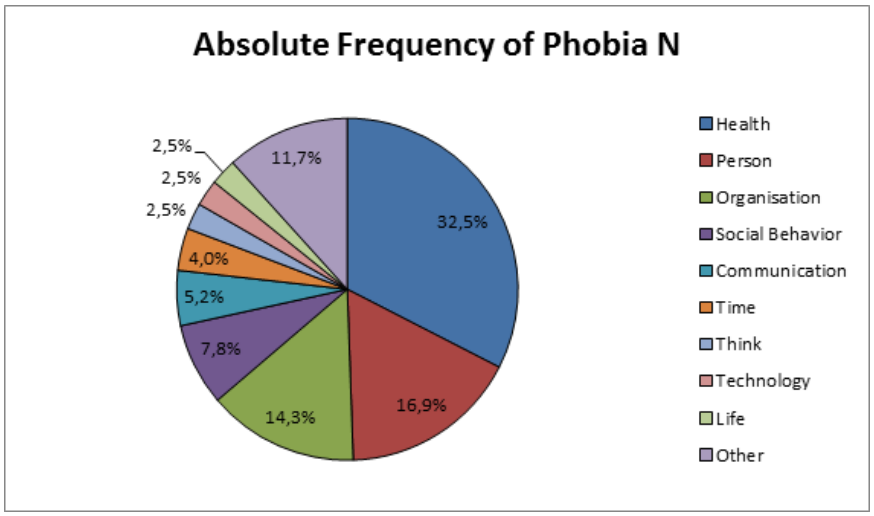

Chart 13.9. The frequency from *NOW Corpus* of the compounds that activate different domains in PHOBIA – NOUN.

13.1.2.2. *Table for PHOBIA – NOUN.*

DOMAIN	INSTANCE	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
ORGANISATION	Phobia institute (11)	1	11
HEALTH	Phobia treatment (10) Phobia remedies (4) Phobia relief (2) Phobia therapy (2) Phobia disorders (2) Phobia condition (1) Phobia bouts (1) Phobia breakdown (1) Phobia cases (1)	9	24
PERSON	Phobia expert (5) Phobia sufferers (4) Phobia patients (4)	3	13
COMMUNICATION	Phobia wiki (4)	1	4
TIME	Phobia week (3)	1	3
BUILDING	Phobia skyscraper (2)	1	2
TOOL	Phobia scale (2)	1	2
LIFE	Phobia experience (2)	1	2
RELATIONSHIP	Phobia family (2)	1	2

TECHNOLOGY	Phobia app (2)	1	2
SOCIAL BEHAVIOUR	Phobia charity (2) Phobia class (2) Phobia culture (1) Phobia group (1)	4	6
SOCIAL ACTIVITY	Phobia course (1)	1	1
THINK	Phobia criteria (1) Phobia dilemma (1)	2	2
ACTION	Phobia busters (1)	1	1
BODY FUNCTION	Phobia fodder (1)	1	1

13.1.2.3. *Pie charts for NOUN – PHOBIA.*

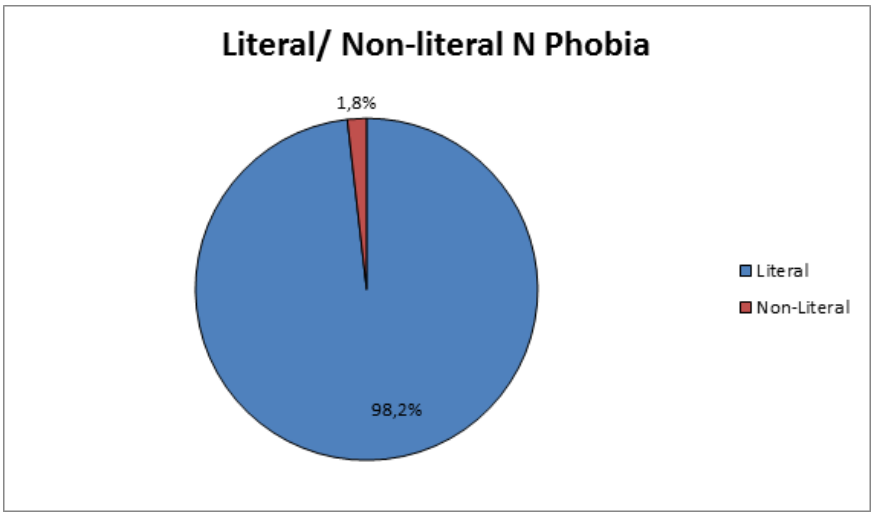

Chart 13.10. Literal and non-literal compounds of NOUN - PHOBIA.

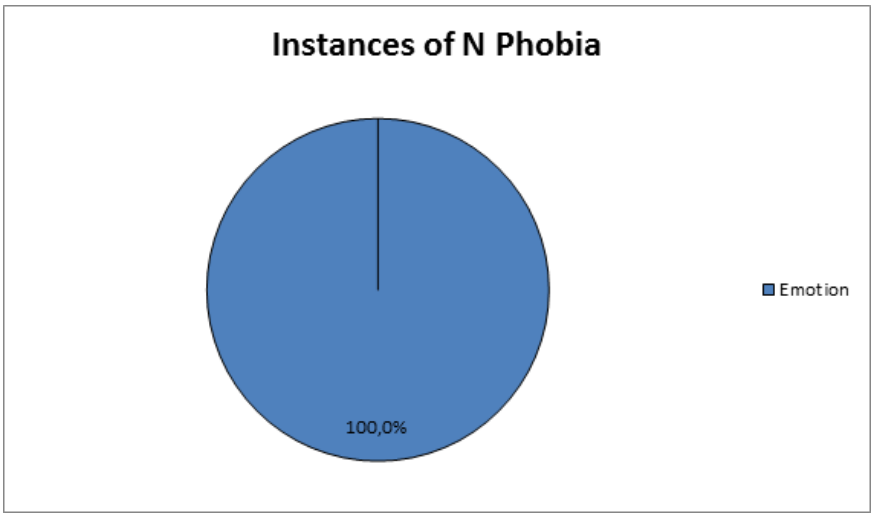

Chart 13.11. Amount of instances of compounds that activate a particular domain in NOUN – PHOBIA.

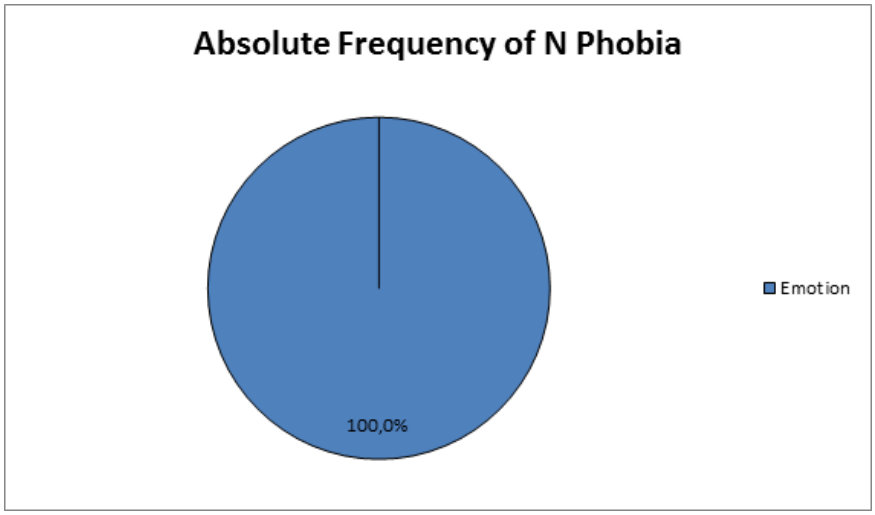

Chart 13.12. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – PHOBIA.

13.1.2.4. *Table for NOUN – PHOBIA.*

DOMAIN	INSTANCE	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
EMOTION	Homophobia (6769) Islamophobia (3156) Islamaphobia (118) Islamphobia (9) Islam phobia (8) Claustrophobia (906) Agoraphobia (285)	60	12,368

	Arachnophobia (209) Putinophobia (75) Technophobia (57) Afrophobia (54) Photophobia (45) Math phobia (28) Maths phobia (18) Mathematics phobia (8) Exam phobia (39) Anglophobia (38) Commitment phobia (37) Needle phobia (36) Chemophobia (33) Christianophobia (29) Melophobia (24) Fatphobia (20) Glossophobia (19) Judeophobia (19) Europhobia (17) Francophobia (17) Spider phobia (17) Modi phobia (16) Negrophobia (14) Christophobia (13) Clown phobia (13) Snake phobia (13) Food phobia (13) Germophobia (12) Germ phobia (9) Informerphobia (12) Hinduphobia (12) Flight phobia (11) Noise phobia (11) School phobia (11) Pakistan phobia (11) Phone phobia (10) Computerphobia (10) Germanophobia (10) Heterophobia (9) Pedophobia (9) Phonophobia (9) Height phobia (9) Water phobia (9) Fever phobia (9) Film phobia (9) Animal phobia (9) Cancer phobia (8) Environment phobia (8) Blood phobia (7) India phobia (5)		

	HIV phobia (4) Death phobia (4) Childhood phobia (4)		

13.1.3. Rage.

13.1.3.1. *Pie charts for RAGE – NOUN.*

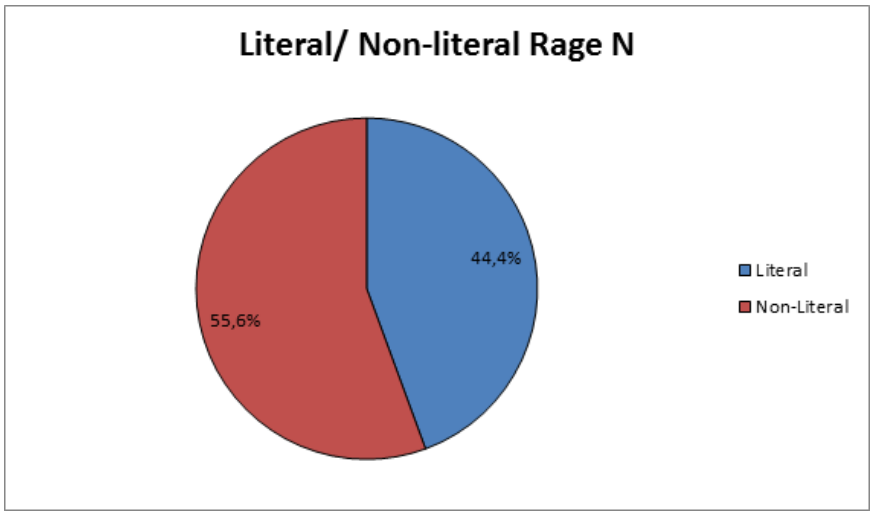

Chart 13.13. Literal and non-literal compounds of RAGE - NOUN.

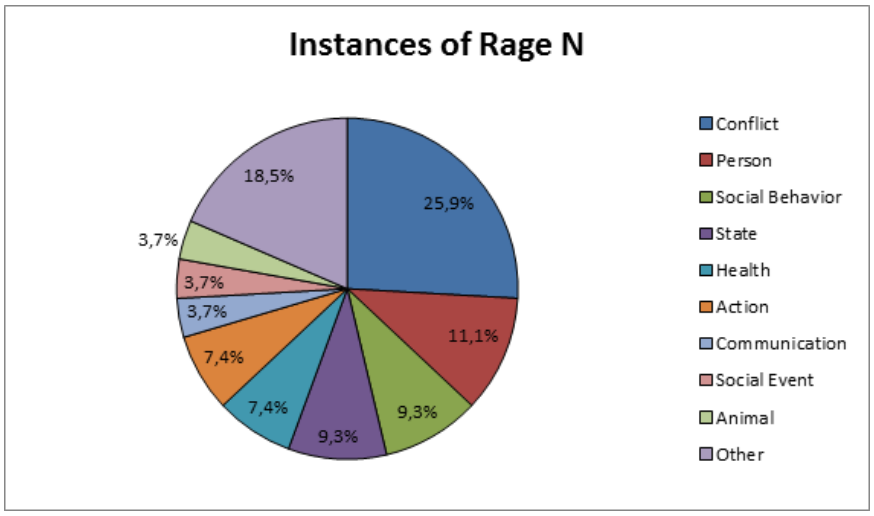

Chart 13.14. Amount of instances of compounds that activate a particular domain in RAGE – NOUN.

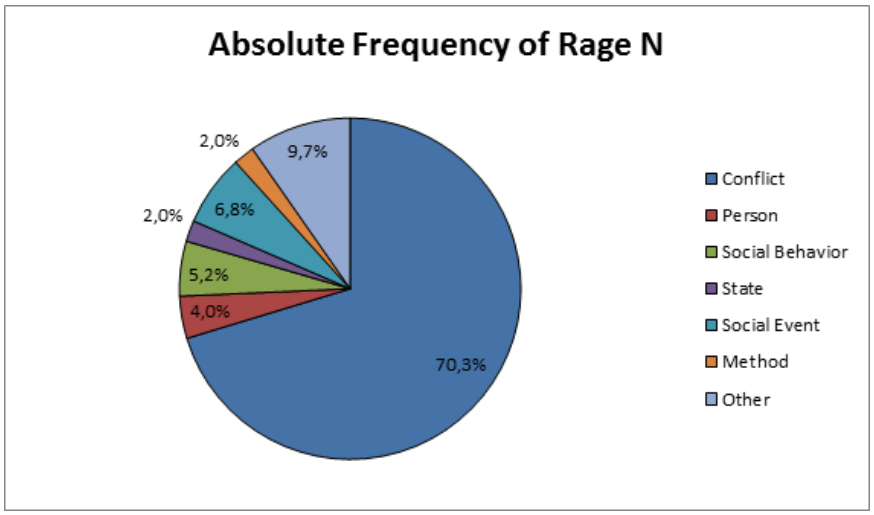

Chart 13.15. The frequency from *NOW Corpus* of the compounds that activate different domains in RAGE – NOUN.

13.1.3.2. *Table for RAGE – NOUN.*

DOMAIN	INSTANCE	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
CONFLICT	Rage incident (628) Rage incidents (126) Rage attack (89) Rage attacks (11) Rage case (79) Rage cases (24) Rage issues (47) Rage killing (34) Rage murder (21) Rage shooting (18) Rage wars (17) Rage assault (12) Rage contfrontation (9) Rage altercation (9) Rage dispute (8) Rage problem (8)	16	1,140
SOCIAL EVENT	Rage-fest (71) Rage festival (40) Rage-revenge (1)	3	112
METHOD	Rage mode (38)	1	38
SOCIAL BEHAVIOUR	Rage yoga (33) Rage-quitting (21) Ragequitting (3)	4	59

	Rage-train (2)		
STATE	Rage-meter (1) Rage meter (28) Rage-spiral (1) Rage-rocket (1) Rage-blackout (1) Rage-ball (1)	6	33
PERSON	Rage killer (27) Rage quitters (18) Rage-quitters (8) Rage victim (17) Rage suspect (15) Rage driver (14) Rage-tourist (1) Rage-boys (1)	8	101
COMMUNICATION	Rage comics (20) Rage-tweeting (2)	2	22
ACTION	Rage burst (19) Rage-hitting (3) Rage-target (1) Rage-blitz (1)	4	24
MACHINE	Rage machine (18)	1	18
BUILDING	Rage room (17)	1	17
SUPERNATRAL	Rage monster (17)	1	17
HEALTH	Rage virus (14) Rage-vomit (1) Rage-stroke (1) Rage-blind (1)	4	17
APPEARANCE	Rage faces (10)	1	10
FINANCE	Rare charges (8)	1	8
ANIMAL	Ragesquid (3) Rage-beasts (1)	2	4
NARRATIVE	Rage-zombies (2)	1	2
BODY FUNCTION	Rage-tears (1)	1	1
RESULT	Rage-response (1)	1	1
CONTAINMENT	Rage-bag (1)	1	1

13.1.3.3. *Pie charts for NOUN – RAGE.*

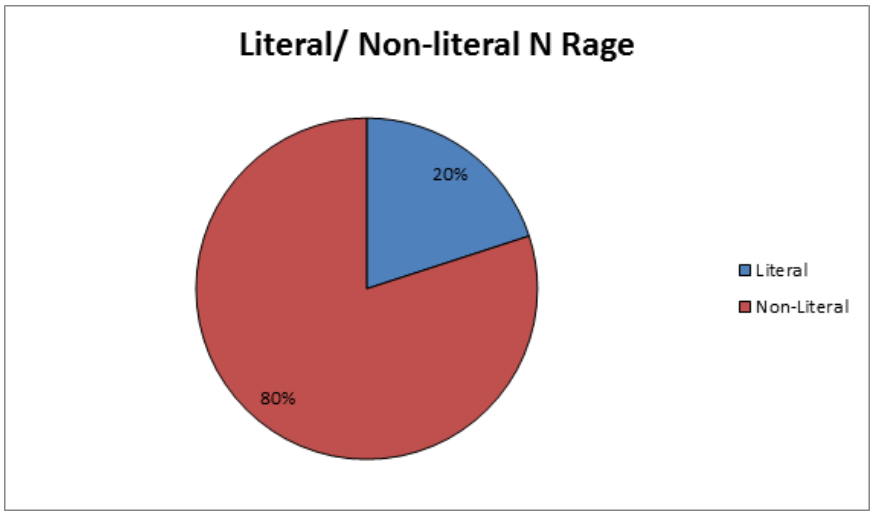

Chart 13.16. Literal and non-literal compounds of NOUN - RAGE.

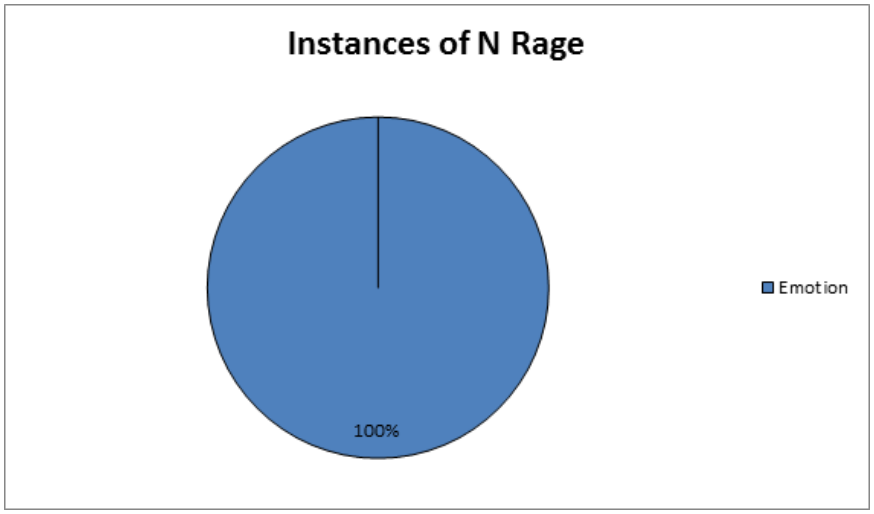

Chart 13.17. Amount of instances of compounds that activate a particular domain in NOUN – RAGE.

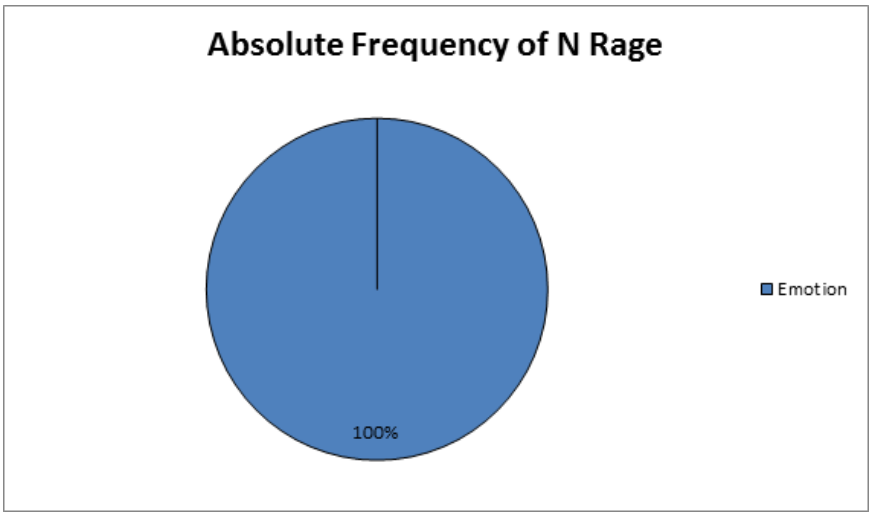

Chart 13.18. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – RAGE.

13.1.3.4. *Table for NOUN – RAGE.*

DOMAIN	INSTANCE	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
EMOTION	Road rage (3145) Road-rage (238) Roadrage (7) Air rage (376) Air-rage (22) Nut rage (83) Nerd rage (37) Nerdrage (8) Nerd-rage (7) Artrage (33) Surf rage (28) Internet rage (27) Sidewalk rage (20) Twitter rage (18) Class rage (17) Blood rage (16) Bloodrage (14) Berserker rage (14) Media rage (12) Voter rage (12) Man rage (11) Parking rage (9)	38	4,241

	Queue rage (9) Teacherage (9) Buffer rage (8) Fan rage (8) Gallery rage (8) Faux rage (7) Phone rage (7) Trolley rage (7) Wrap rage (7) Animal rage (6) Customer rage (6) Fashion rage (6) Password rage (6) Plane rage (6) Punk rage (6) Street rage (6)		

13.2. Culture

13.2.1. Christian.

13.2.1.1. *Pie charts for CHRISTIAN – NOUN.*

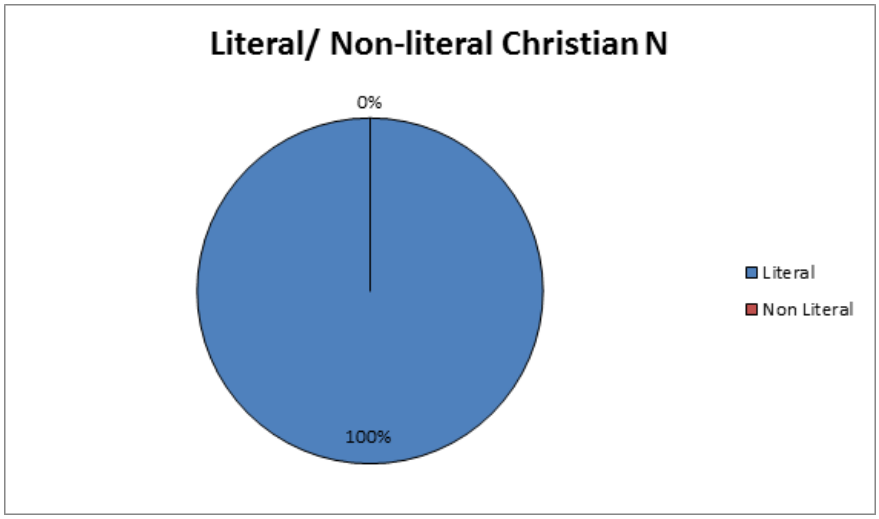

Chart 13.19. Literal and non-literal compounds of CHRISTIAN - NOUN.

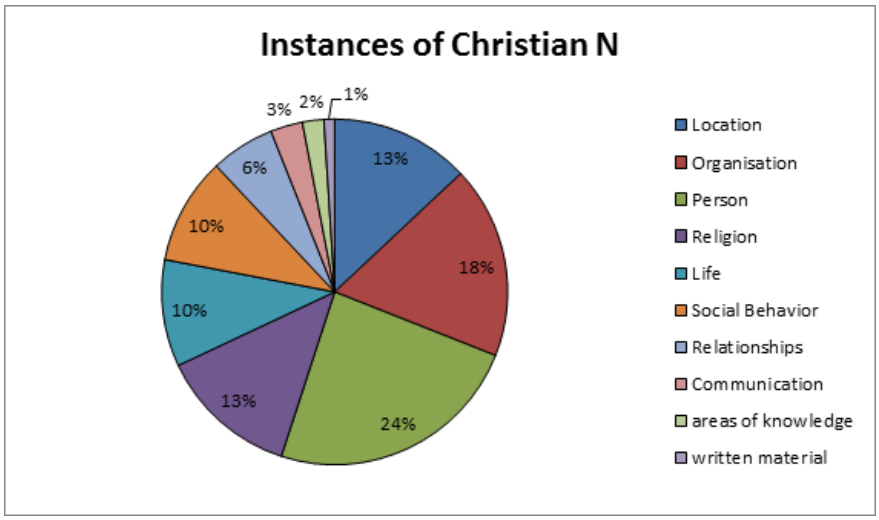

Chart 13.20. Amount of instances of compounds that activate a particular domain in CHRISTIAN – NOUN.

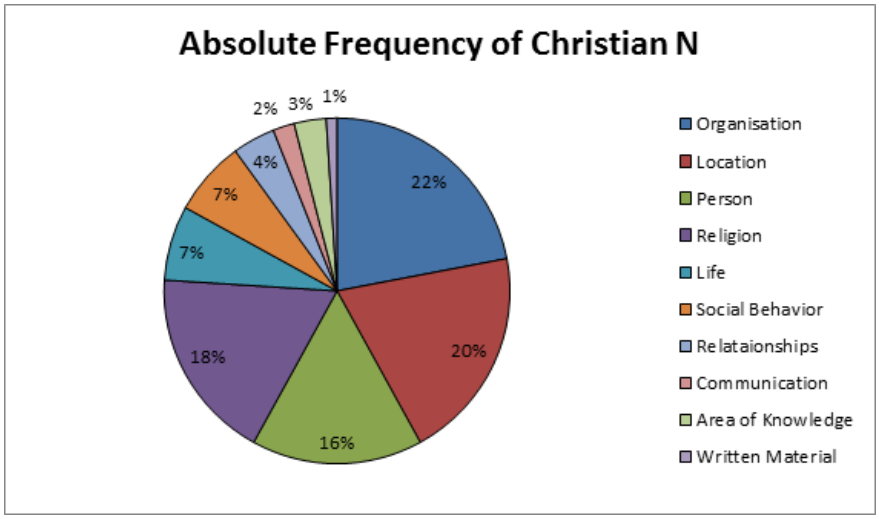

Chart 13.21. The frequency from *NOW Corpus* of the compounds that activate different domains in CHRISTIAN – NOUN.

13.2.1.2. *Table for CHRISTIAN – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUT FREQUENCY
LOCATION	Christian church (3350) Christian churches (1400) Christian school (1588) Christian college (1214) Christian university (726) Christian nation (687) Christian centre (438) Christian south (336)	8	9,739

ORGANISATION	Christian community (3774) Christian communities (1100) Christian association (1637) Christian aid (1084) Christian groups (822) Christian council (746) Christian academy (520) Christian unity (432) Christian ministry (323) Christian pilgrims (310)	10	10,748
PERSON	Christian leaders (1321) Christian leader (340) Christian democrats (1019) Christian democrat (352) Christian missionaries (742) Christian missionary (348) Christian woman (704) Christian women (539) Christian man (733) Christian girl (396) Christian pastor (347) Christian refugees (325) Christian children (320) Christian students (309)	14	7,795
RELIGION	Christian faith (4327) Christian values (1310) Christian religion (737) Christian beliefs (717) Christian belief (423) Christian theology (376) Christian god (372) Christian principles (340) Christian doctrine (319)	9	8,921
LIFE	Christian life (1031) Christian tradition (684) Christian world (431) Christian heritage (412) Christian education (327)	5	2,885
SOCIAL BEHAVIOUR	Christian population (783) Christian fellowship (681) Christian right (538) Christian charity (478) Christian name (359) Christian leadership (327)	6	3,166
RELATIONSHIPS	Christian family (776) Christian families (506)	4	1,999

	Christian couple (399) Christian parents (318)		
WRITTEN MATERIAL	Christian post (647)	1	647
COMMUNICATION	Christian music (632) Christian message (357)	2	989
AREA OF KNOWLEDGE	Christian science (1696)	1	1,696

13.2.2. Nazi.

13.2.2.1. *Pie charts for NAZI – NOUN.*

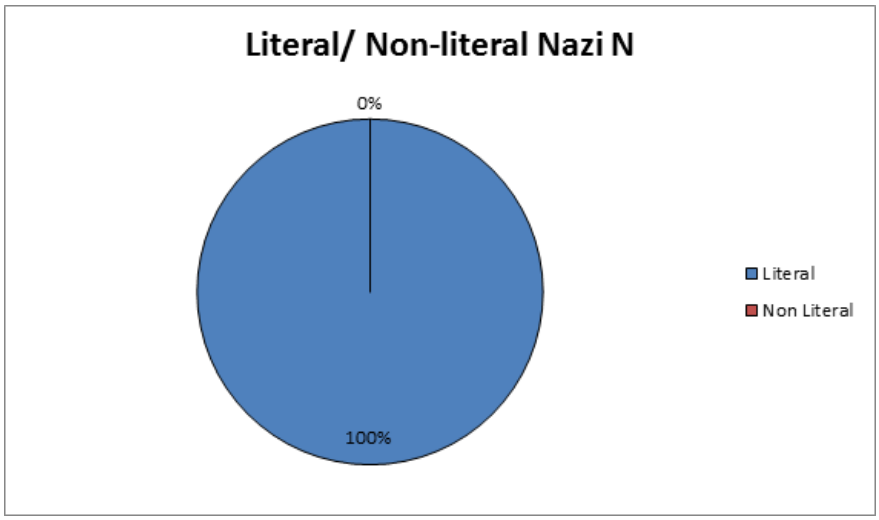

Chart 13.25. Literal and non-literal compounds of NAZI - NOUN.

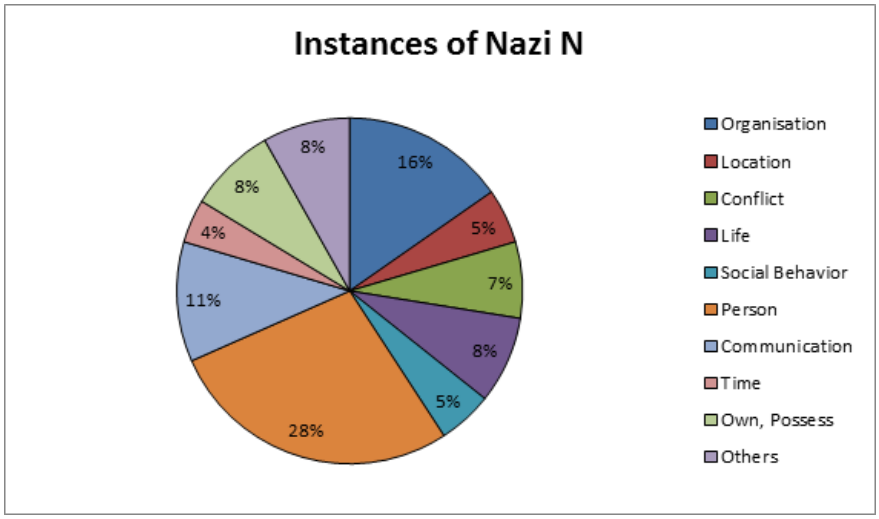

Chart 13.26. Amount of instances of compounds that activate a particular domain in NAZI – NOUN.

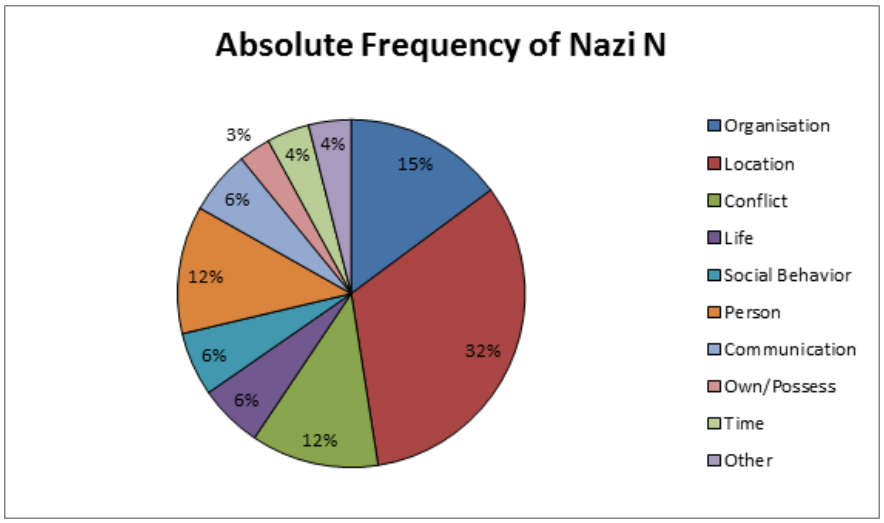

Chart 13.27. The frequency from *NOW Corpus* of the compounds that activate different domains in NAZI – NOUN.

13.2.2.2. *Table for NAZI – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
LOCATION	Nazi Germany (4849) Nazi camps (1852) Nazi camp (92)	3	6,793
ORGANISATION	Nazi party (1293) Nazi regime (960) Nazi forces (176) Nazi troops (128) Nazi spies (127) Nazi spy (72) Nazi hunter (119) Nazi hunters (67) Nazi government (99) Nazi state (95)	10	3,136
CONFLICT	Nazi war (881) Nazi occupation (852) Nazi persecution (299) Nazi invasion (263) Nazi holocaust (259)	5	2,554
LIFE	Nazi death (711) Nazi atrocities (162) Nazi crimes (161) Nazi genocide (158) Nazi extermination (75)	5	1,267
SOCIAL BEHAVIOUR	Nazi salute (650) Nazi salutes (237) Nazi rule (197)	3	1,084
PERSON	Nazi leader (584)	15	2,147

	Nazi leaders (155) Nazi soldiers (186) Nazi dictator (157) Nazi officer (125) Nazi officers (101) Nazi officials (125) Nazi collaborator (119) Nazi collaborators (91) Nazi sympathiser (92) Nazi sympathizer (78) Nazi sympathizers (75) Nazi occupiers (96) Nazi scientists (90) Nazi propagandist (68)		
COMMUNICATION	Nazi propaganda (535) Nazi flag (164) Nazi symbols (159) Nazi swastika (131) Nazi imagery (92)	5	1,081
TIME	Nazi era (356) Nazi past (274) Nazi period (93)	3	723
OWN / POSSESS	Nazi memorabilia (165) Nazi uniform (146) Nazi uniforms (96) Nazi gold (128)	4	487
WRITTEN MATERIAL	Nazi zombies (107)	1	107
HEALTH	Nazi gas (94)	1	94
TRAVEL	Nazi train (77)	1	77
POLITICS	Nazi ideology (191) Nazi movement (91) Nazi tyranny (68)	3	350

13.2.2.3. *Pie charts for NOUN – NAZI.*

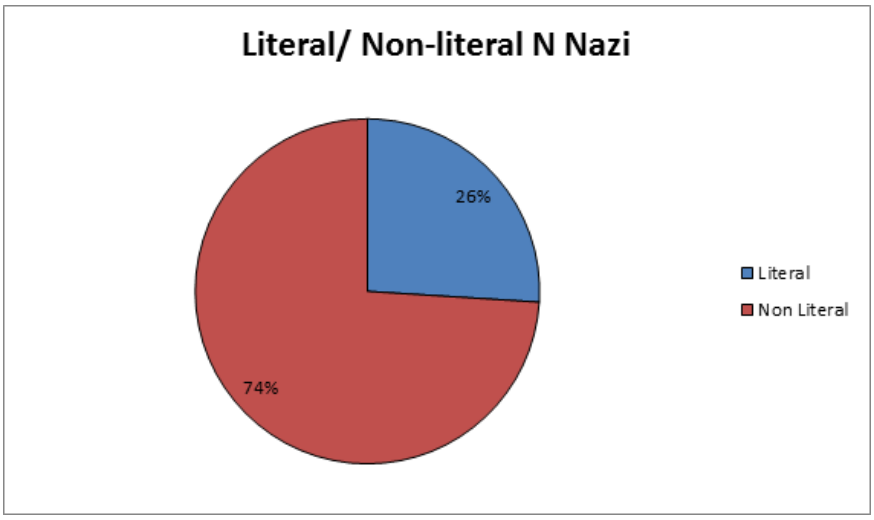

Chart 13.28. Literal and non-literal compounds of NOUN - NAZI.

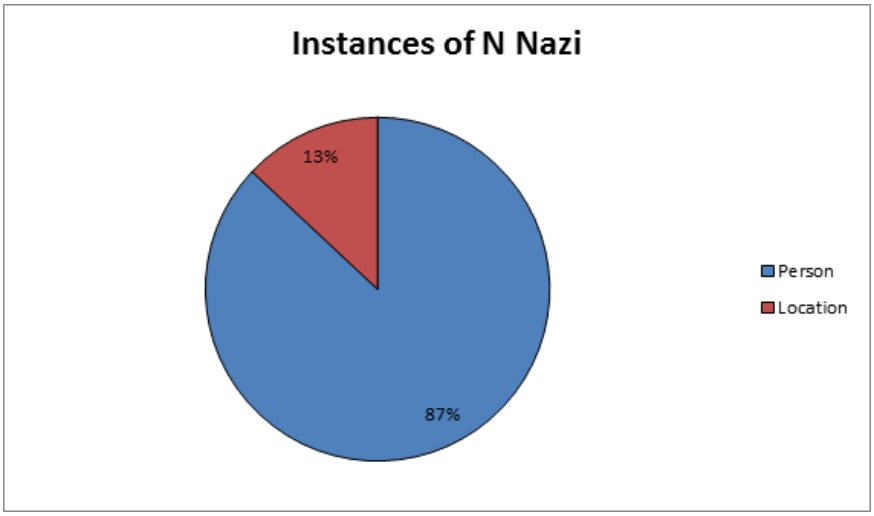

Chart 13.29. Amount of instances of compounds that activate a particular domain in NOUN – NAZI.

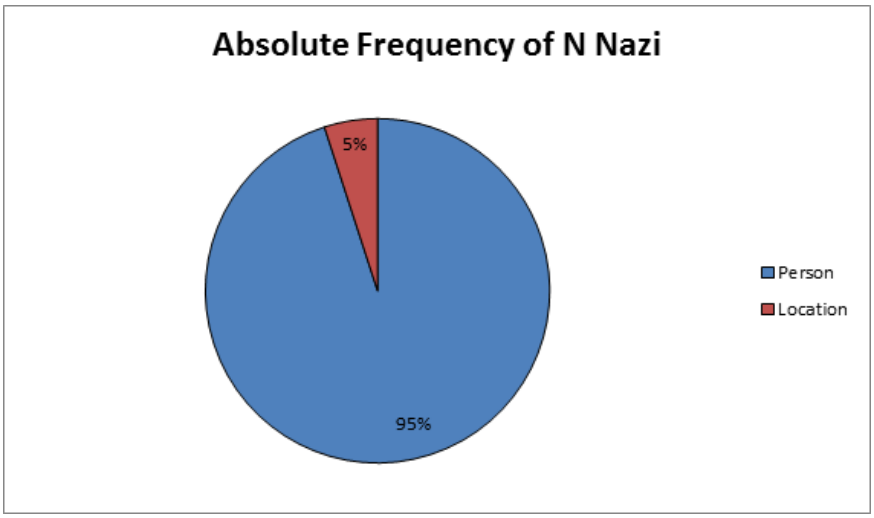

Chart 13.30. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – NAZI.

13.2.2.4. *Table for NOUN – NAZI.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUT FREQUENCY
PERSON	Grammar Nazi (1088) Wartime Nazi (28) Word Nazi (18) Sandwich Nazi (8) Health Nazi (7) WWII Nazi (6) Food Nazi (6) Bag Nazi (5) Surf Nazi (5) Nipple Nazi (4) Fugitive Nazi (3) Safety Nazi (3) Book Nazi (3) Spelling Nazi (3) Hair Nazi (2) Music Nazi (2) Outdoors Nazi (2) Recycling Nazi (2) Rule Nazi (3) Disney Nazi (1)	20	1,199
LOCATIONS	Auschwitz Nazi (41) Bergen Belsen Nazi (15) Birkenau Nazi (3)	3	59

13.2.3. Culture.

13.2.3.1. *Pie charts for CULTURE – NOUN.*

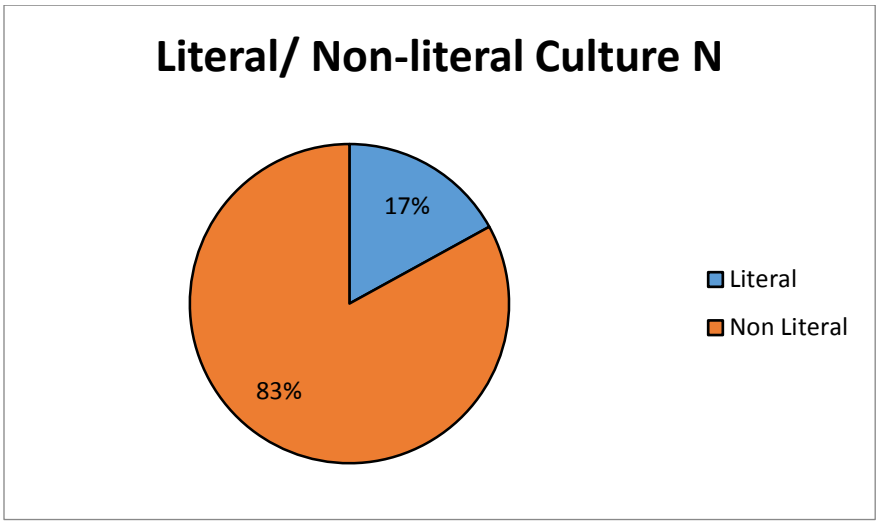

Chart 13.31. Literal and non-literal compounds of CULTURE - NOUN.

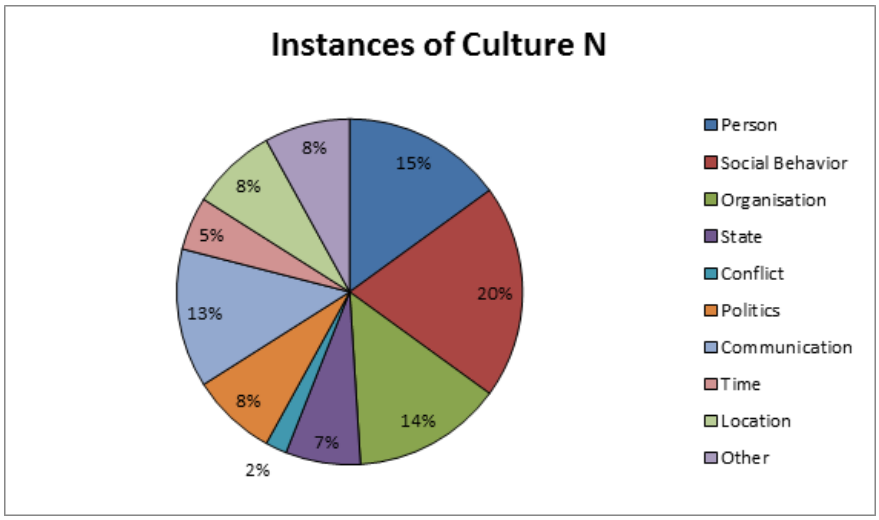

Chart 13.32. Amount of instances of compounds that activate a particular domain in CULTURE – NOUN.

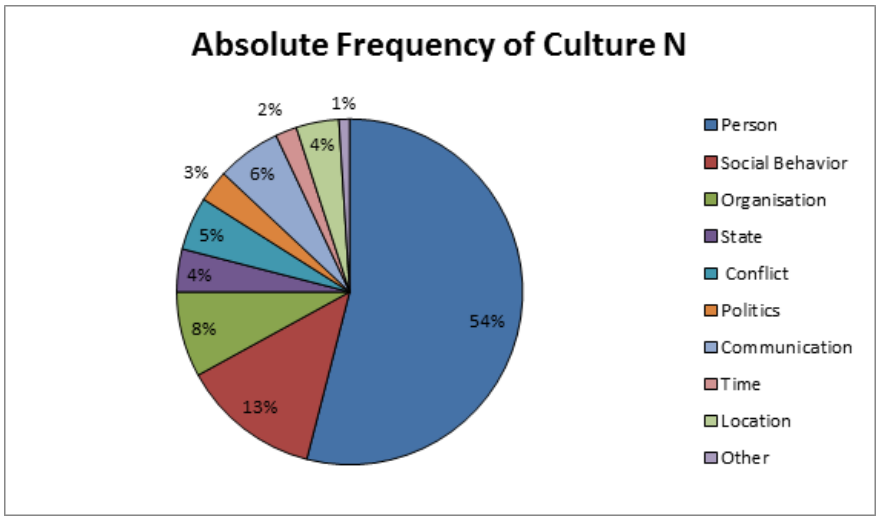

Chart 13.33. The frequency from *NOW Corpus* of the compounds that activate different domains in CULTURE – NOUN.

13.2.3.2. *Table for CULTURE – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
PERSON	Culture minister (17573) Culture secretary (1964) Culture editor (311) Culture critic (234) Culture writer (128) Culture warriors (211) Culture commentator (99) Culture director (86) Culture expert (85)	9	20,691
SOCIAL BEHAVIOUR	Culture shock (1889) Culture festival (1071) Culture night (611) Culture clash (510) Culture clashes (130) Culture phenomenon (235) Culture shift (165) Culture show (138) Culture trust (104) Culture meta (103) Culture celebrations (99) Culture crash (95)	12	5,150
ORGANISATION	Culture ministry (1153) Culture department (759) Culture commitee (274) Culture industry (230) Culture vulture (380)	8	3,115

	Culture company (154) Culture team (83) Culture community (82)		
STATE	Culture change (1265) Culture updates (104) Culture status (100) Culture problem (83)	4	1,552
CONFLICT	Culture war (1903)	1	1,903
POLITICS	Culture movements (735) Culture scene (252) Culture right (114) Culture project (92) Culture matters (84)	5	1,277
COMMUNICATION	Culture references (667) Culture news (469) Culture media (290) Culture magazine (221) Culture website (147) Culture blog (135) Culture programme (202) Culture medium (103)	8	2,234
TIME	Culture days (368) Culture day (157) Culture year (165)	3	690
LOCATION	Culture centre (638) Culture sector (245) Culture center (238) Culture section (148) Culture lab (97)	5	1,366
EVENTS	Culture history (142) Culture events (135) Culture event (99)	3	376
AREA OF KNOWLEDGE	Culture studies (118) Culture content (87)	2	205

13.2.3.3. *Pie charts for NOUN – CULTURE.*

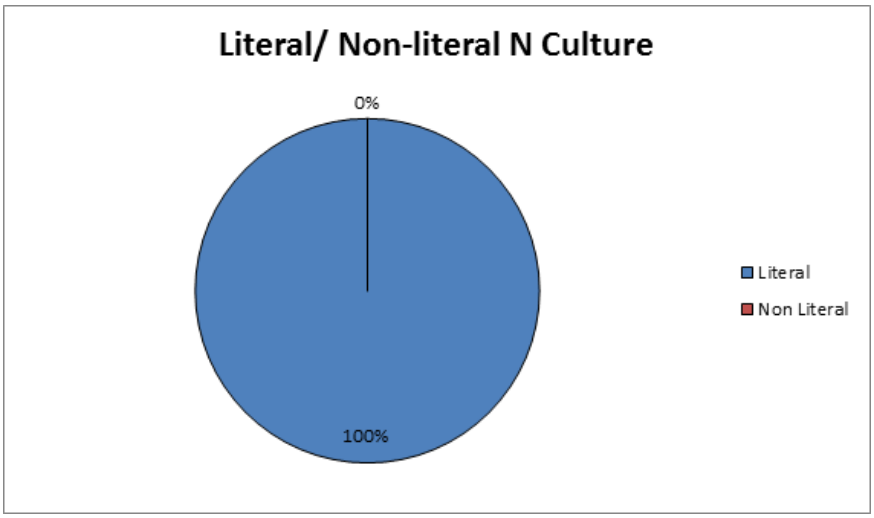

Chart 13.34. Literal and non-literal compounds of NOUN - CULTURE.

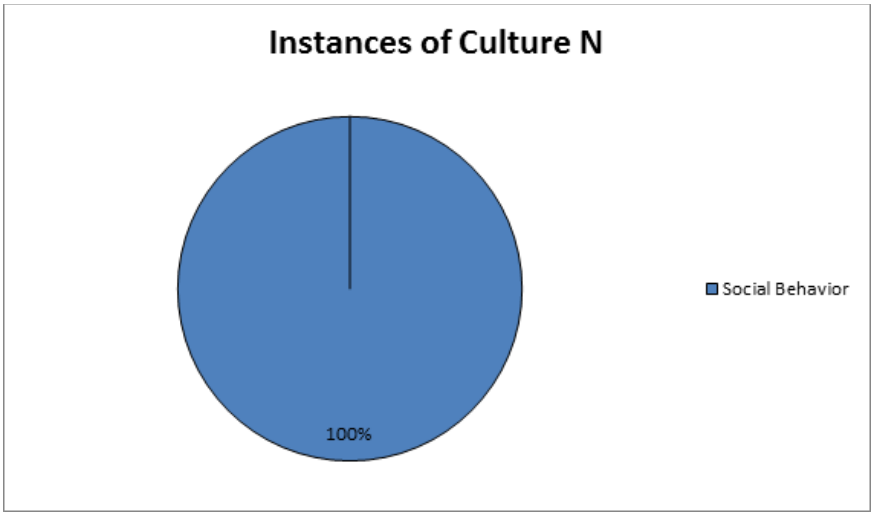

Chart 13.35. Amount of instances of compounds that activate a particular domain in NOUN – CULTURE.

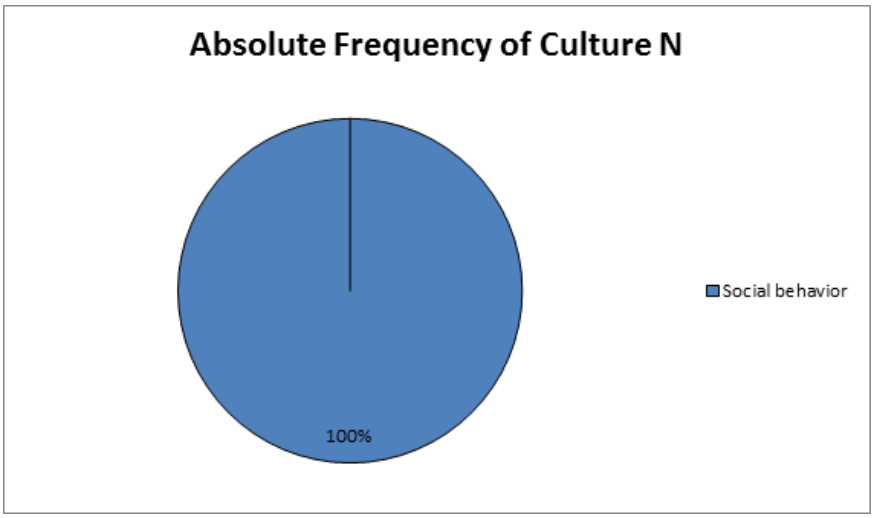

Chart 13.36. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – CULTURE.

13.2.3.4. *Table for NOUN – CULTURE.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
SOCIAL BEHAVIOUR	Pop culture (12247) Rape culture (2687) Maker culture (2196) Company culture (1706) Internet culture (1429) Work culture (1371) Food culture (1316) Youth culture (1291) Celebrity culture (1253) World culture (1089) Workplace culture (969) Safety culture (886) Consumer culture (854) Gun culture (813) Drinking culture (806) Gang culture (605) Team culture (566) Car culture (517) Coffee culture (517) Music culture (516) Drug culture (505) Reading culture (502) Cannabis culture (486) Football culture (484) Material culture (441) Sports culture (428) Street culture (420) Club culture (402) Geek culture (361)	60	46,069

	Media culture (437) School culture (354) Film culture (301) Lifestyle culture (301) Savings culture (284) Cafe culture (282) Folk culture (282) Research culture (281) Campus culture (280) Service culture (275) Management culture (264) Lad culture (263) Counter culture (252) Police culture (251) Office culture Hip hop culture (235) Tech culture (232) Cocktail culture (227) Fan culture (225) Nations culture (220) Nerd culture (219) Family culture (211) Game culture (210) Performance culture (210) Union culture (209) Hookup culture (205) Compensation culture (200) Innovation culture (189) Wine culture (187) Risk culture (182)		

13.3. Narrative Entities

13.3.1. Franken.

13.3.1.1. *Pie charts for FRANKEN – NOUN.*

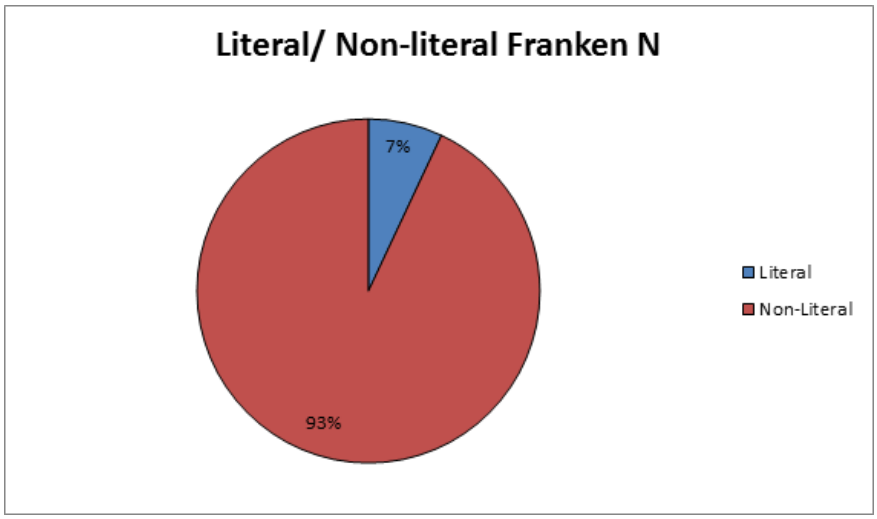

Chart 13.37. Literal and non-literal compounds of FRANKEN - NOUN.

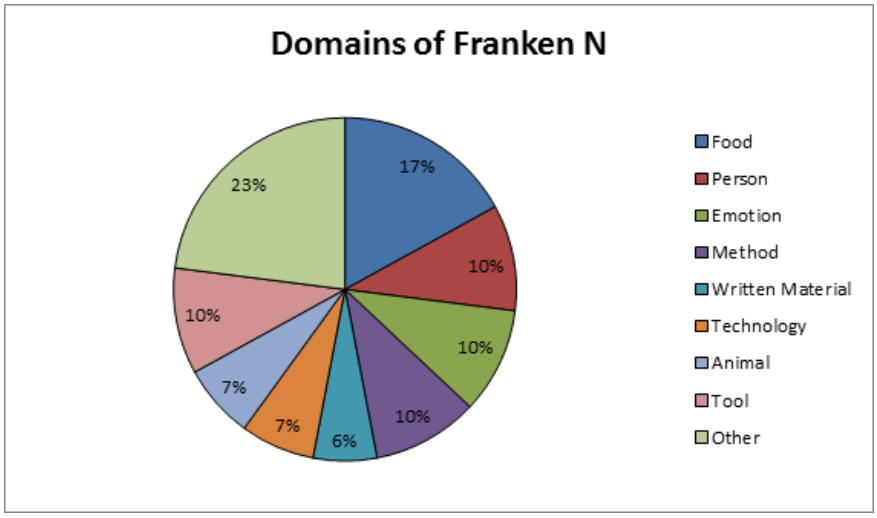

Chart 13.38. Amount of instances of compounds that activate a particular domain in FRANKEN – NOUN.

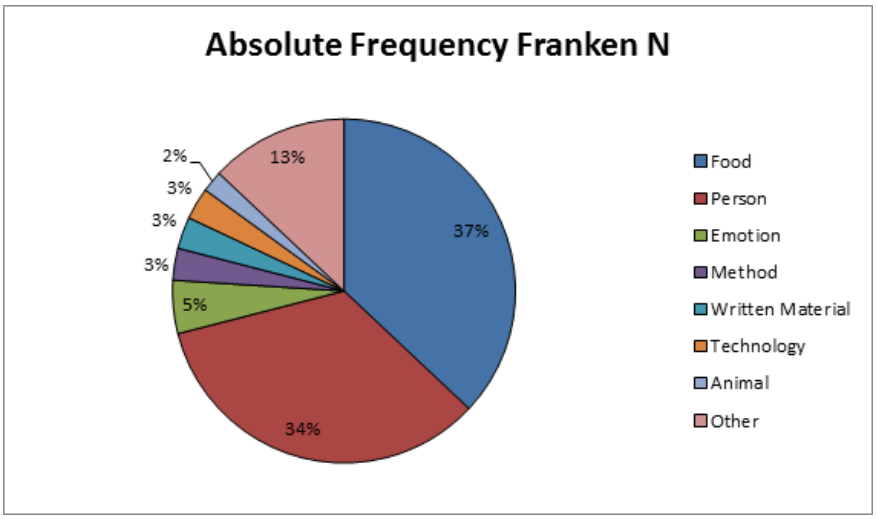

Chart 13.39. The frequency from *NOW Corpus* of the compounds that activate different domains in FRANKEN – NOUN.

13.3.1.2. *Table for FRANKEN – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
FOOD	Frankenfood (168) Frankenburger (18) Frankenwheat (11) Frankenpepper (2) Frankenfats (1)	5	200
PERSON	Frankenstein-monster (157) Frankenstein-creation (25) Frankensteen (3)	3	185
MOVIE	Frankenstein-movie (36)	1	36
WRITTEN MATERIAL	Frankenstein-myth (15) Frankenbooks (1)	2	16
TECHNOLOGY	Frankenbot (12) Frankenstein-virus (5)	2	17
EMOTION	Frankenstein-syndrome (11)	3	25

	Frankenstein-complex (8) Frankenstein fear (6)		
METHOD	Frankenbite (11) Frankenstein-approach (4) Frankenstein system (4)	3	19
RESULT	Frankenstein effect (5)	1	5
ANIMAL	Frankenfish (9) Frankenwhale (2)	2	11
MACHINE	Frakenmower (8)	1	8
SCIENCE	Frankenstein-science (5)	1	5
TIME	Frankenstein-future (4)	1	4
TOOL	Frankenstein concoction (2) Frankenstein contraption (3) Frankenbroom (7)	3	12
WEATHER	Frankenstorms (2)	1	2
HEALTHY	Frankenstein medicine (3)	1	3

13.3.2. Zombie.

13.3.2.1. *Pie charts for ZOMBIE – NOUN.*

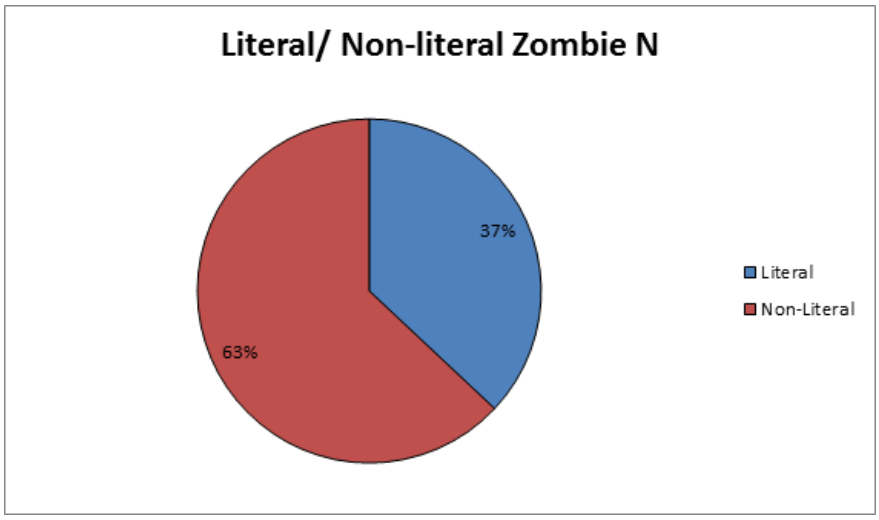

Chart 13.43. Literal and non-literal compounds of ZOMBIE - NOUN.

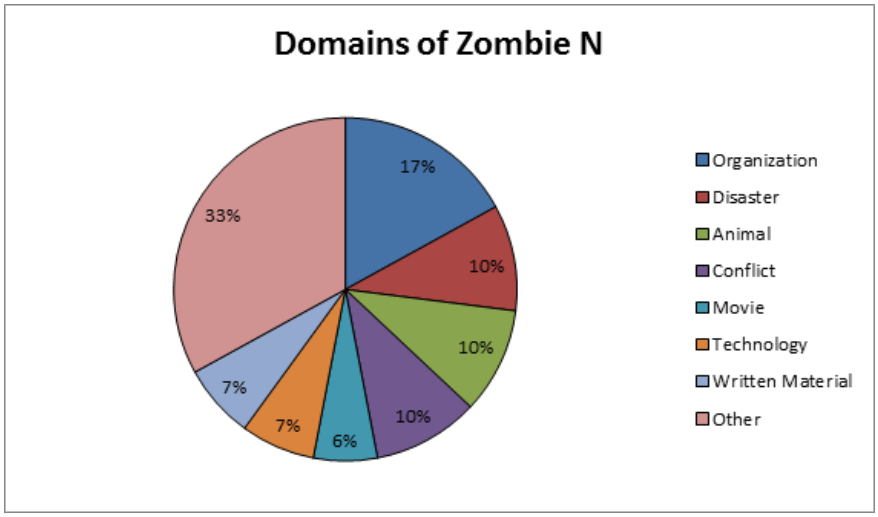

Chart 13.44. Amount of instances of compounds that activate a particular domain in ZOMBIE – NOUN.

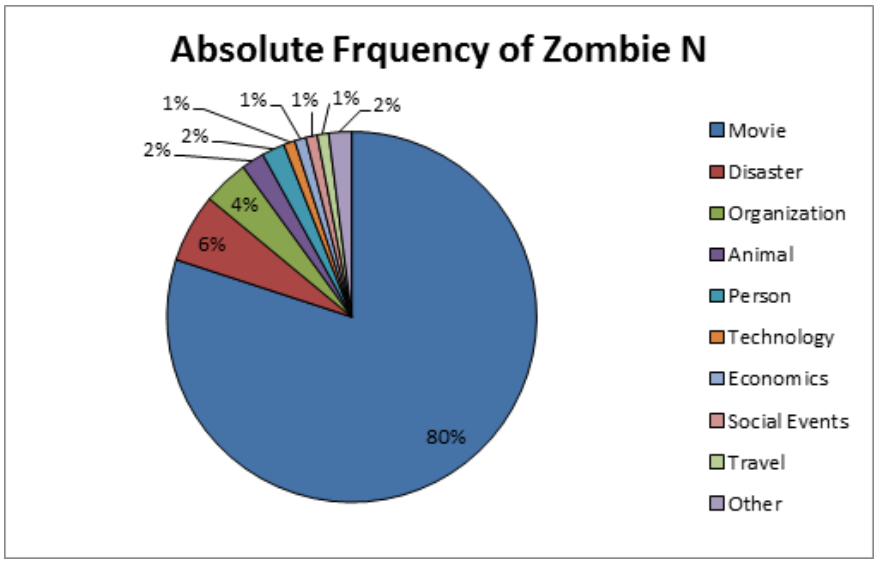

Chart 13.45. The frequency from *NOW Corpus* of the compounds that activate different domains in ZOMBIE – NOUN.

13.3.2.2. *Table for ZOMBIE – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
MOVIE	Zombie movie (2692) Zombie film (198)	2	2890
DISASTER	Zombie invasion (111) Zombie plague (91) Zombie wars (4)	3	206
PERSON	Zombie killer (70)	1	70
ORGANISATION	Zombie banks (53) Zombie enterprises (44) Zombie businesses (12) Zombie company (14) Zombie government (10)	5	133
ANIMAL	Zombie ant (37) Zombie bees (33) Zombie bug (6)	3	76

FINANCE	Zombie economy (36)	1	36
TECHNOLOGY	Zombie computers (32) Zombie machines (22)	2	54
SOCIAL EVENT	Zombie apocalypse (30) Zombie walk (4)	2	34
TRAVEL	Zombie car (24)	1	24
HEALTHY	Zombie syndrome (22)	1	22
FINANCE	Zombie debt (13)	1	13
AREA OF KNOWLEDGE	Zombie formalism (10)	1	10
CONFLICT	Zombie attack (9) Zombie outbreak (8) Zombie threat (6)	3	23
WRITTEN MATERIAL	Zombie story (9) Zombie fiction (3)	2	12
STATE	Zombie state (6)	1	6
WEAPON	Zombie guns (5)	1	5

13.3.2.3. *Pie charts for NOUN – ZOMBIE.*

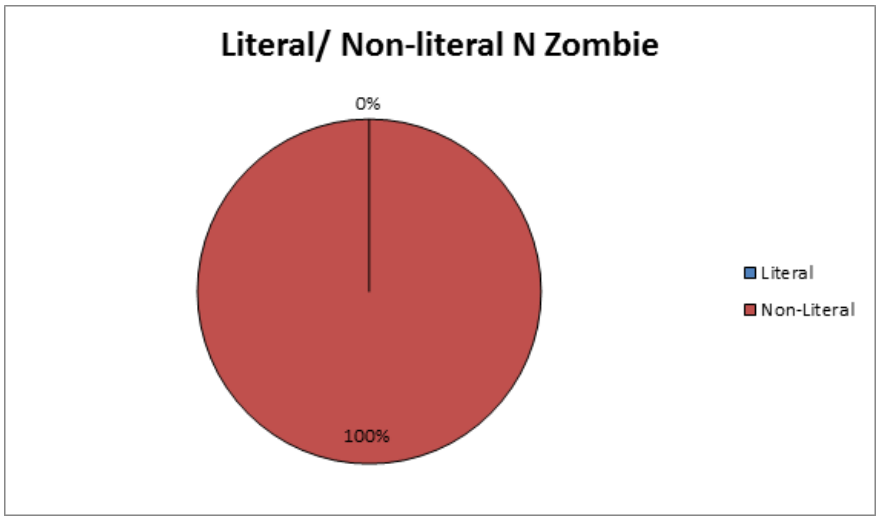

Chart 13.46. Literal and non-literal compounds of NOUN - ZOMBIE.

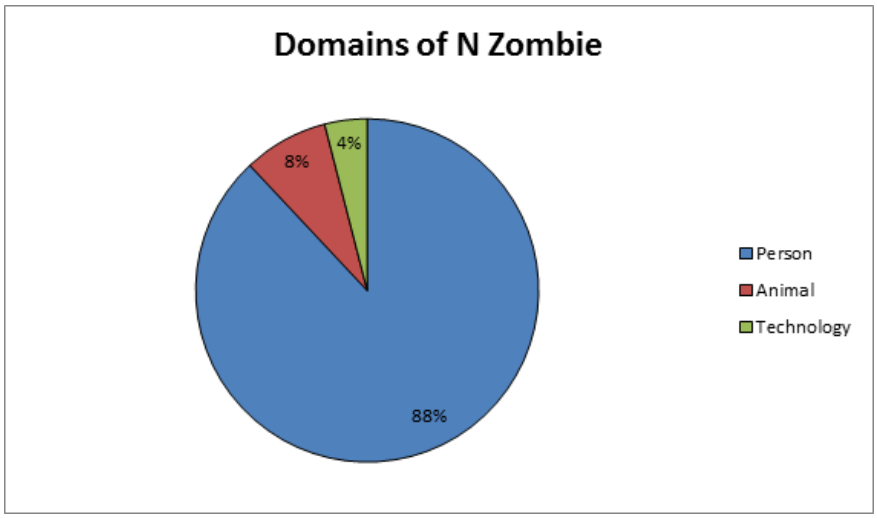

Chart 13.47. Amount of instances of compounds that activate a particular domain in NOUN – ZOMBIE.

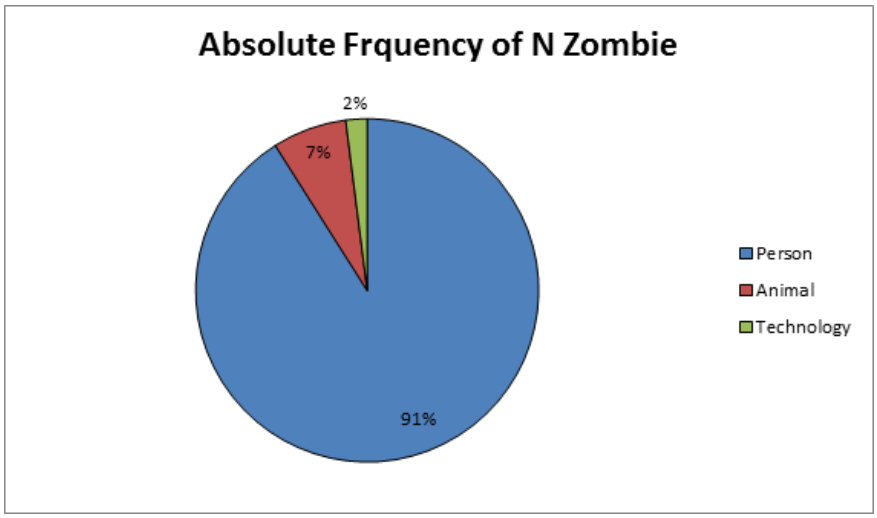

Chart 13.48. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – ZOMBIE.

13.3.2.4. *Table for NOUN – ZOMBIE.*

SEMANTIC SPREAD	INSTANCES	INSTANCE NUMBER	TOTAL FREQUENCY
PERSON	Cyber zombie (18) Phone zombies (11) Smartphone zombies (11) Spam zombies (10) Mombie (6) Credit zombie (5) Drug zombies (5) Party zombies (5) Tv zombie (5) Ebola zombie (4) Fashion zombie (4) Pc zombies (3) Kid zombies (3) Braindead zombie (3) Techzombie (3) Wifi-zombie (2) Consumer zombies (2) Media zombies (2) Botox zombie (2) Classroom zombies (1) Laptop zombies (1)	21	106
ANIMAL	Fungus zombie (4)	2	8

	Chicken zombies (4)		
TECHNOLOGY	Innovation zombie (3)	1	3

13.3.3. Godzilla.

13.3.3.1. *Pie charts for GODZILLA – NOUN.*

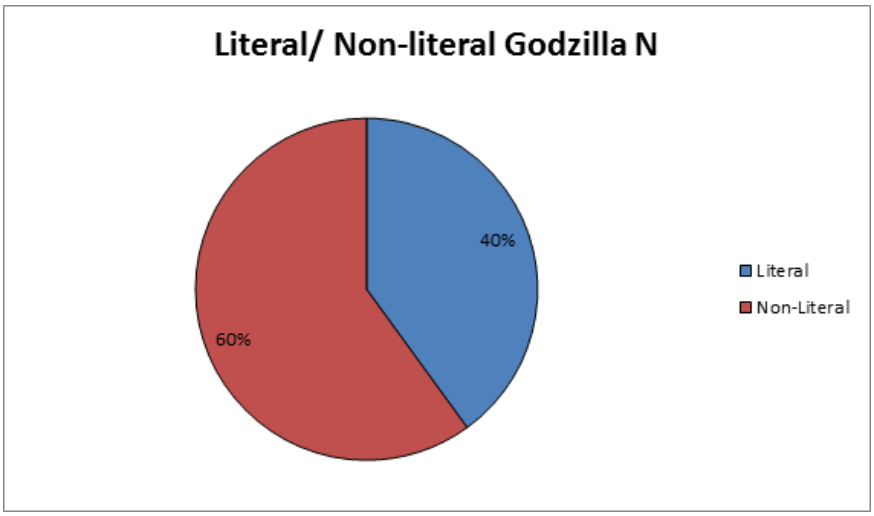

Chart 13.49. Literal and non-literal compounds of GODZILLA - NOUN.

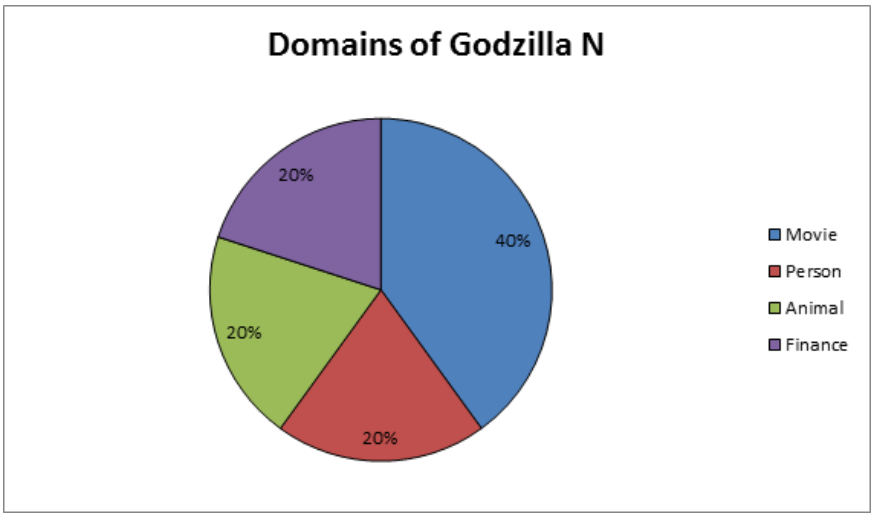

Chart 13.50. Amount of instances of compounds that activate a particular domain in GODZILLA – NOUN.

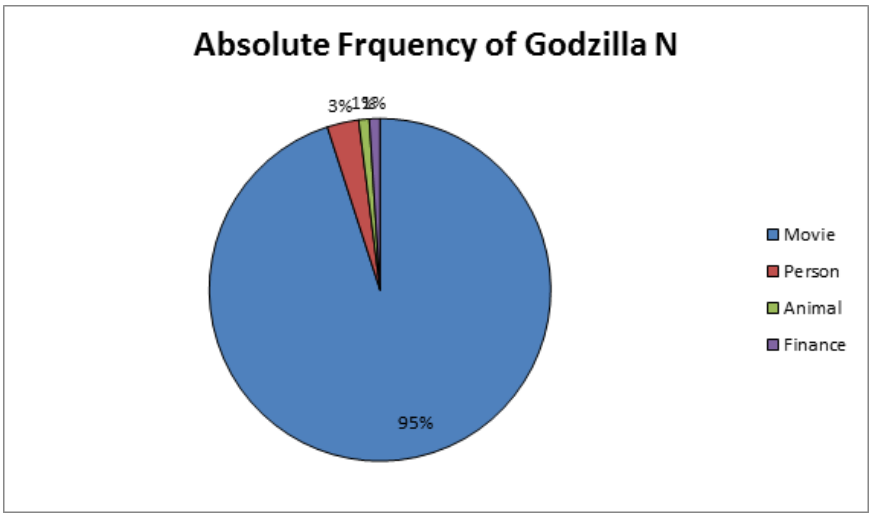

Chart 13.51. The frequency from *NOW Corpus* of the compounds that activate different domains in GODZILLA – NOUN.

13.3.3.2. *Table for GODZILLA – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
MOVIE	Godzilla movie (123) Godzilla film (79)	2	202
PERSON	Godzilla monster (6)	1	6
ANIMAL	Godzilla rat (2)	1	2
FINANCE	Godzilla tax (2)	1	2

13.3.3.3. *Pie charts for NOUN – GODZILLA.*

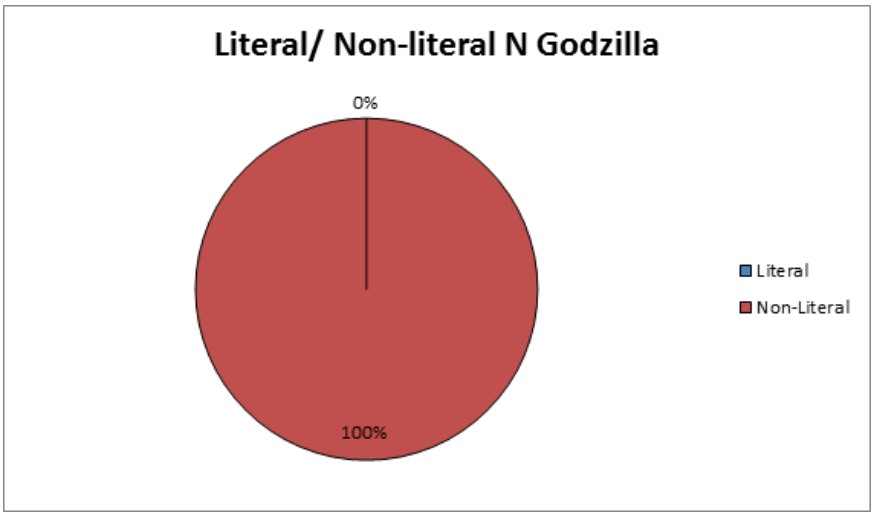

Chart 13.52. Literal and non-literal compounds of NOUN - GODZILLA.

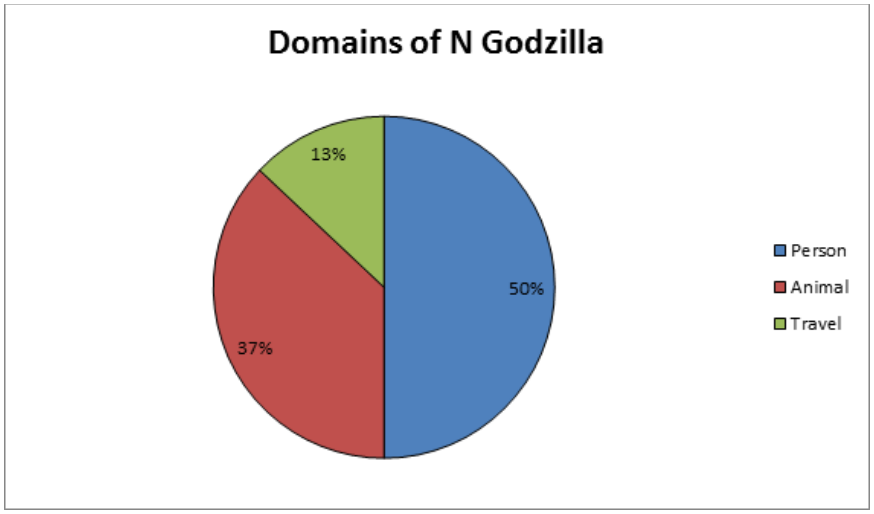

Chart 13.53. Amount of instances of compounds that activate a particular domain in NOUN – GODZILLA.

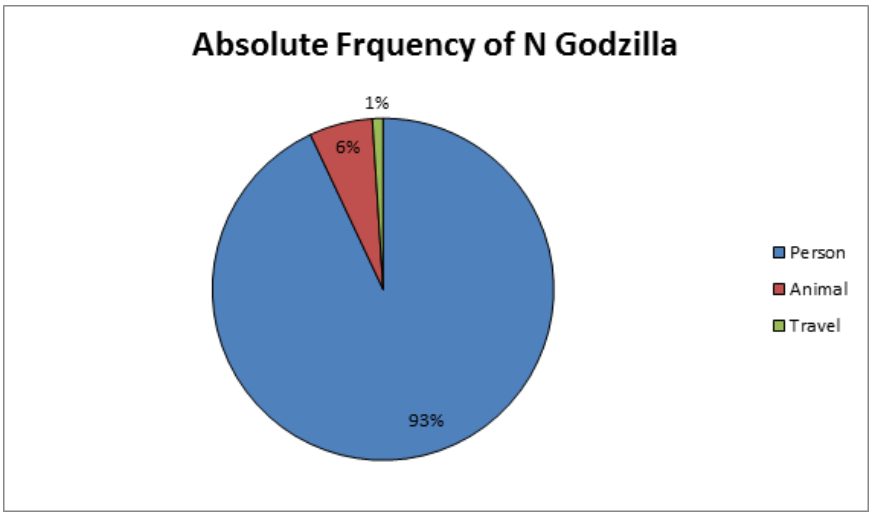

Chart 13.54. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – GODZILLA.

13.3.3.4. *Table for NOUN – GODZILLA.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
PERSON	Bridezilla (202) Groomzilla (29) Mumzilla (7) Promzilla (1)	4	239
ANIMAL	Fishzilla (7) Ratzilla (5) Birdzilla (4)	3	16
TRAVEL	Gold godzilla (3)	1	3

13.4. Internet

13.4.1. Spam.

13.4.1.1. *Pie charts for SPAM – NOUN.*

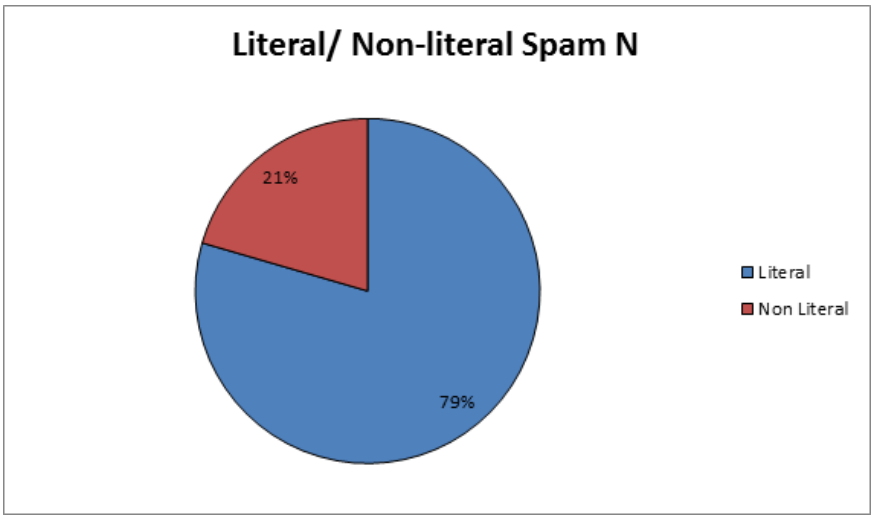

Chart 13.55. Literal and non-literal compounds of SPAM - NOUN.

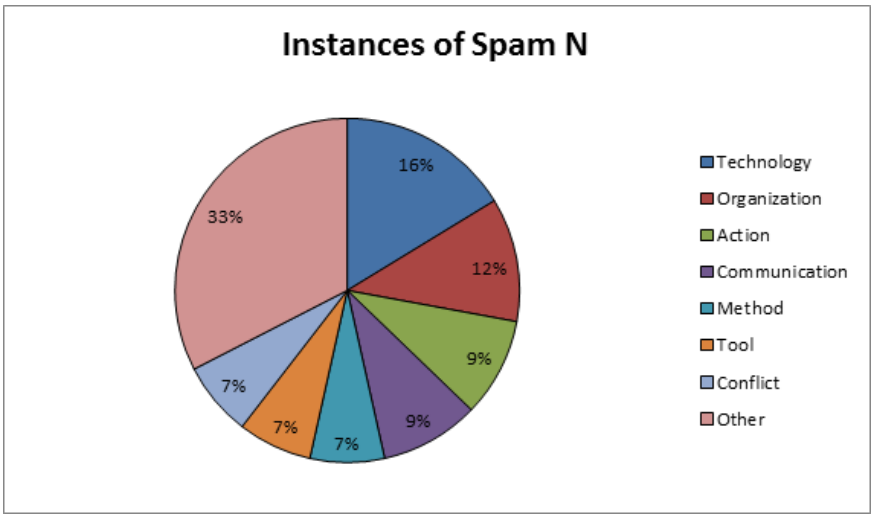

Chart 13.56. Amount of instances of compounds that activate a particular domain in SPAM – NOUN.

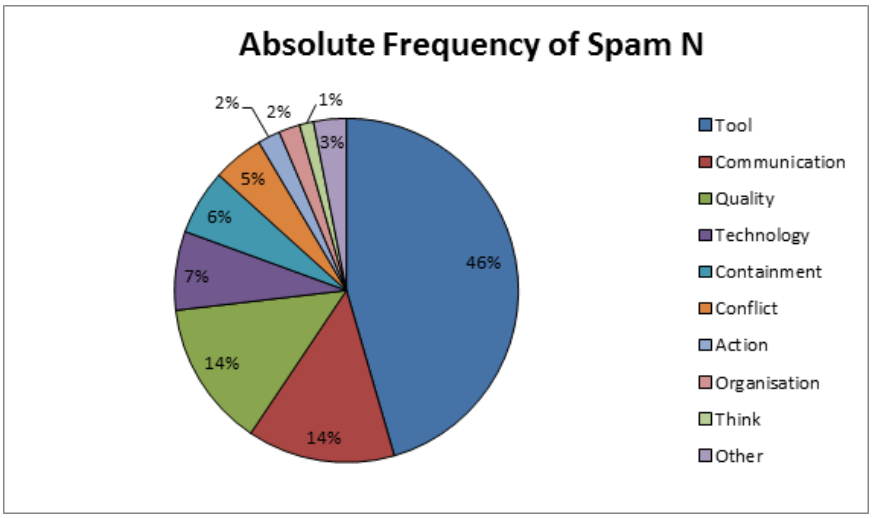

Chart 13.57. The frequency from *NOW Corpus* of the compounds that activate different domains in SPAM – NOUN.

13.4.1.2. *Table for SPAM – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
PERSON	Spam followers (6)	1	6
ORGANISATION	Spam team (34) Spam king (10) Spam Zombies (10) Spam industry (6) Spam business (5)	5	65
TRAVEL	Spam cars (5)	1	5
LOCATION	Spam sites (11) Spam site (7) Spam sources (6)	2	24
CONTAINMENT	Spam Folder (189) Spam box (11)	2	200
COMMUNICATION	Spam messages (237) Spam message (40) Spam texts (58) Spam text (46) Spam Calls (43) Spam callers (19) Spam Traffic (11)	4	454

SOCIAL EVENT	Spam calendar (9)	1	9
CONFLICT	Spam campaigns (40) Spam campaign (35) Spam attacks (39) Spam attack (30) Spam fighting (13)	3	157
ACTION	Spam act (32) Spam complaints (15) Spam reporting (15) Spam distribution (7)	4	69
QUALITY	Spam Emails (316) Spam e-mails (49) Spam mail (45) Spam e-mail (33) Spam fax (6)	2	449
THINK	Spam problem (43)	1	43
TOOL	Spam Filter (1224) Spam filters (173) Spam filtering (78) Spam shield (6) Spam traps (6)	3	1487
MACHINE	Spam machine (6)	1	6
WRITTEN MATERIAL	Spam word (9) Spam Corpus (5)	2	14
TECHNOLOGY	Spam accounts (71) Spam Account (11) Spam bot (49) Spam bots (33) Spam page (21) Spam botnet (15) Spam botnets (8) Spam blockers (11) Spam blocker (5) Spam block (5) Spam apps (7) Spam blogs (6)	7	242
METHOD	Spam control (22) Spam Tactics (7) Spamdexing (2)	3	31
STATE	Spam Volume (6)	1	6

13.4.1.3. *Pie charts for NOUN – SPAM.*

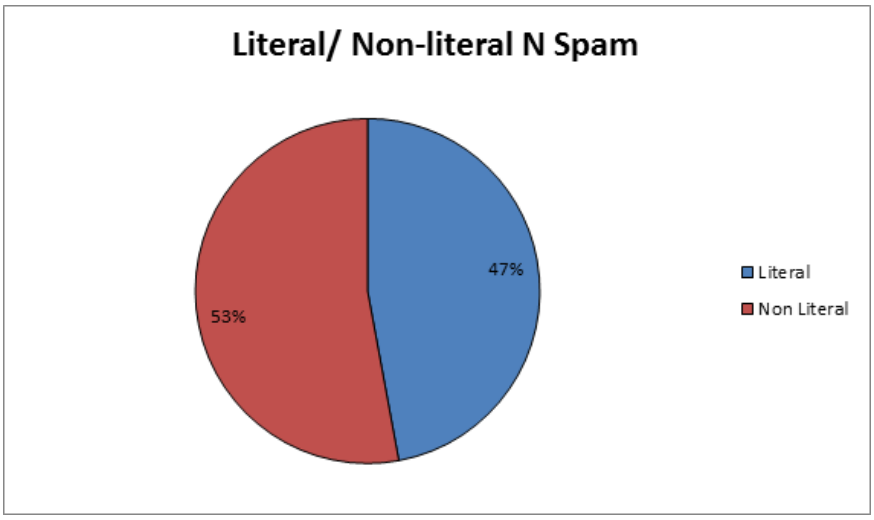

Chart 13.58. Literal and non-literal compounds of NOUN - SPAM.

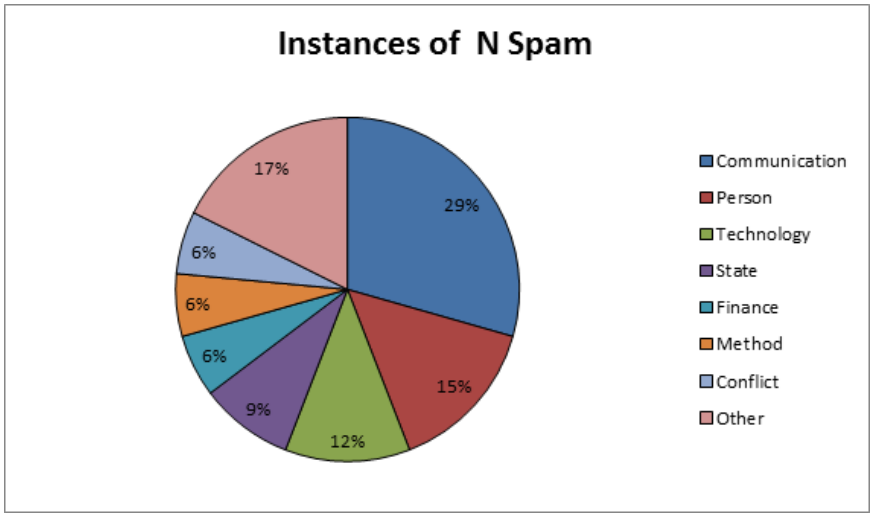

Chart 13.59. Amount of instances of compounds that activate a particular domain in NOUN – SPAM.

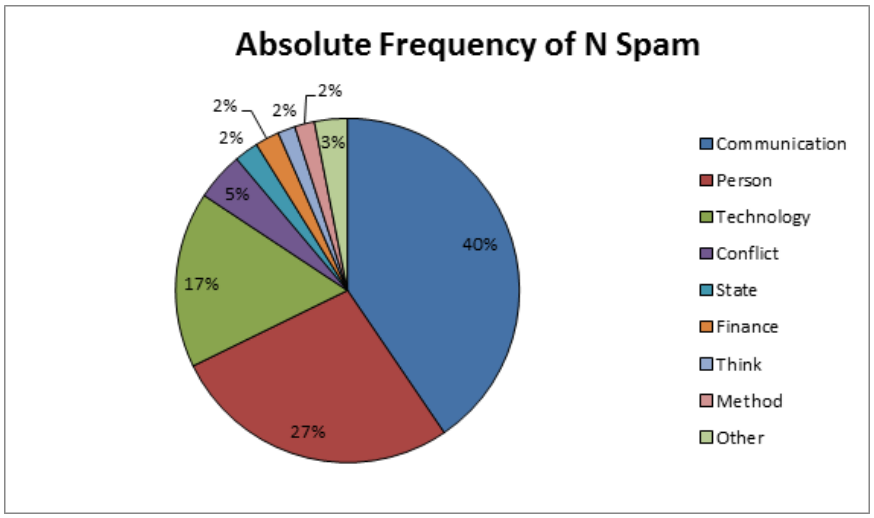

Chart 13.60. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – SPAM.

13.4.1.4. *Table for NOUN – SPAM.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
PERSON	Comment Spam (108) Holiday Spam (10) Calendar spam (7) Friend Spam (5) Baby spam (2)	5	132
ORGANISATION	Brand spam (2)	1	2
COMMUNICATION	Email Spam (115) E-mail Spam (20) Text spam (12) Message spam (12) Media spam (9) Phone spam (8) Porn spam (6) Image spam (3) Computer spam (5) Blog spam (3) Game spam (3)	10	196
SOCIAL BEHAVIOUR	(Celebrity) gossip spam (3)	1	3
CONFLICT	Fight spam (20) Fighting Spam (2)	2	22
QUALITY	Buybull spam (2)	1	2

THINK	Opinion Spam (8)	1	8
TOOL	Flag Spam (4)	1	4
FINANCE	Marketing spam (8) Google spam (3)	2	11
WEAPON	Grenade Spam (4)	1	4
TECHNOLOGY	Web spam (54) Search Spam (19) Botnet spam (4) Ransomware spam (3)	4	80
METHOD	Snowshoe spam (6) Image spam (3)	2	9
STATE	Bulk Spam (4) Grenade Spam (4) Election spam (3)	3	11

13.4.2. Troll.

13.4.2.1. *Pie charts for TROLL – NOUN.*

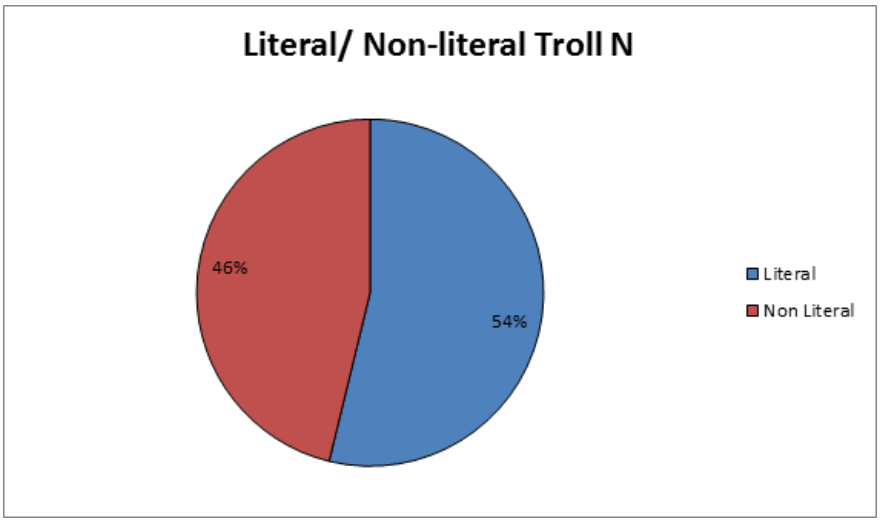

Chart 13.61. Literal and non-literal compounds of TROLL - NOUN.

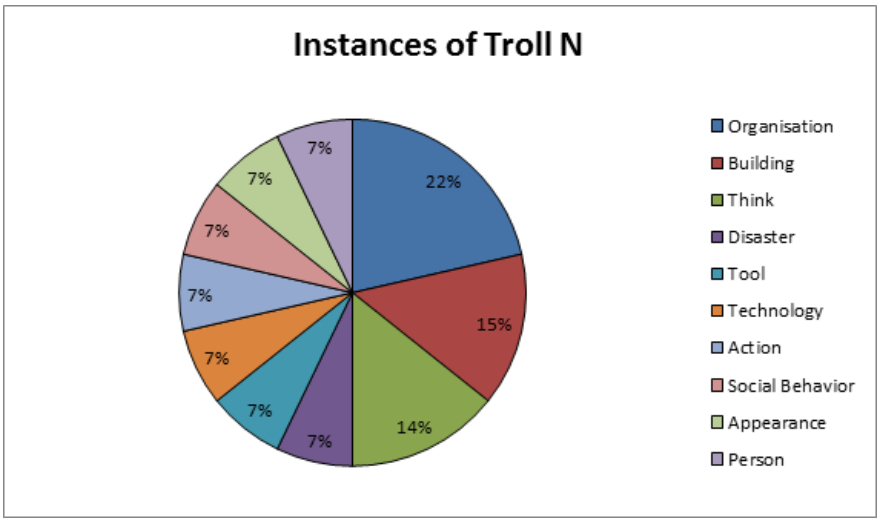

Chart 13.62. Amount of instances of compounds that activate a particular domain in TROLL – NOUN.

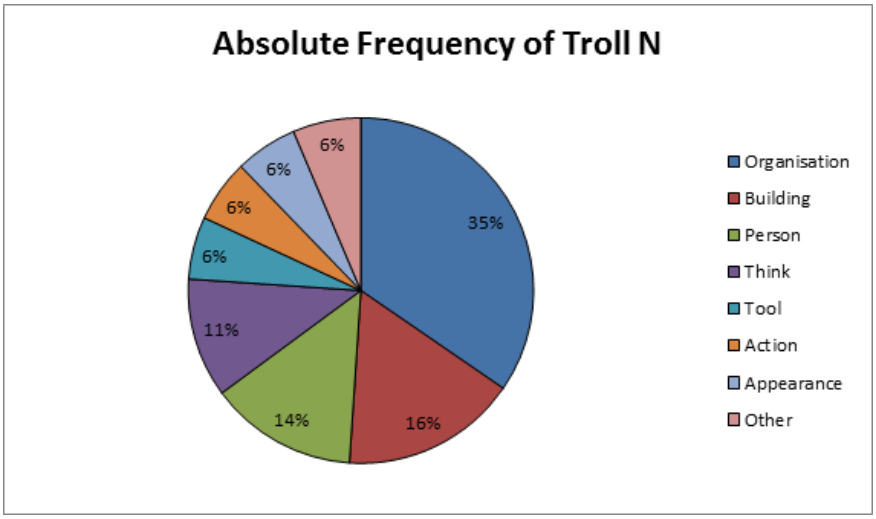

Chart 13.63. The frequency from *NOW Corpus* of the compounds that activate different domains in TROLL – NOUN.

13.4.2.2. *Table for TROLL – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
PERSON	Troll King (26)	1	26
APPEARANCE	Troll face (11)	1	11
SOCIAL BEHAVIOUR	Troll Behaviour (4)	1	4

THINK	Troll logic (8) Troll Problem (13)	2	21
ORGANISATION	Troll army (34) Troll armies (16) Troll Culture (15)	3	65
ACTION	Troll comment (11)	1	11
BUILDING	Troll Factory (23) Troll Farm (8)	2	31
TECHNOLOGY	Trollbot (5)	1	5
TOOL	Troll Bait (11)	1	11
DISASTER	Troll infestation (3)	1	3

13.4.2.3. *Pie charts for NOUN – TROLL.*

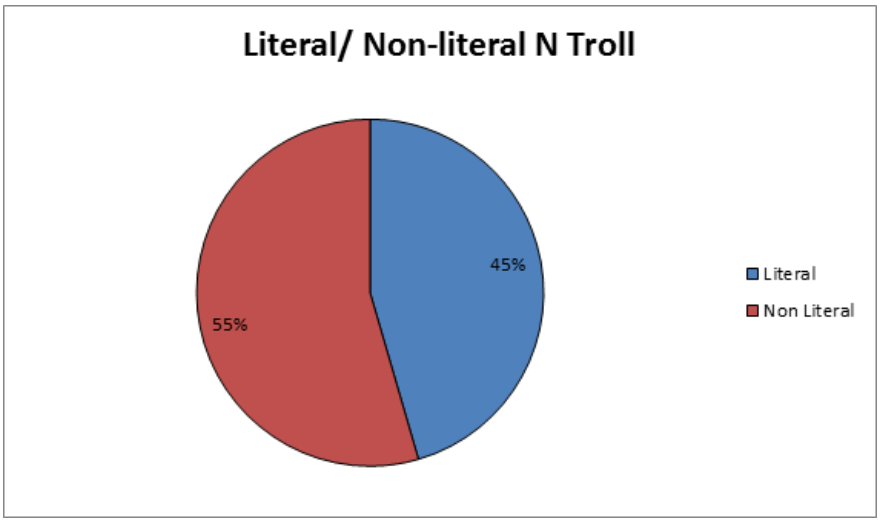

Chart 13.64. Literal and non-literal compounds of NOUN - TROLL.

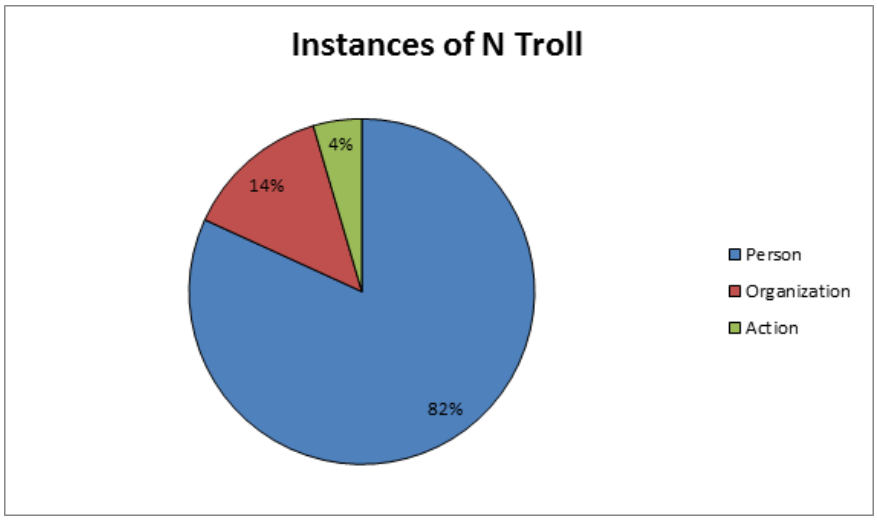

Chart 13.65. Amount of instances of compounds that activate a particular domain in NOUN – TROLL.

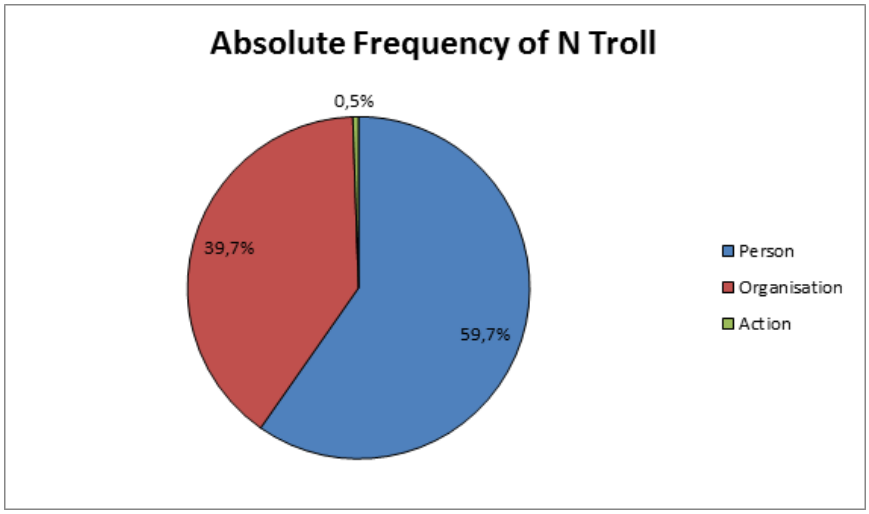

Chart 13.66. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – TROLL.

13.4.2.4. *Table for NOUN – TROLL.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
PERSON	Internet Troll (230) Copyright Troll (31) Media Troll (21) Bitch Troll (6) Master Troll (5) Photoshop Troll (5) Blog troll (5) Misogynist Troll (4) Female troll (4) Climate Troll (3) Web troll (3) Hater Troll (3) Leftist Troll (2) Conservative Troll (2) Armchair Troll (2) Wikipedia Troll (2) Forum Troll (2) Sex troll (2)	18	332
ACTION	Downvote Troll (3)	1	3
ORGANISATION	Patent Troll (221) Anti-patent troll (4) Trademark troll (4)	3	221

13.4.3. Internet.

13.4.3.1. *Pie charts for INTERNET – NOUN.*

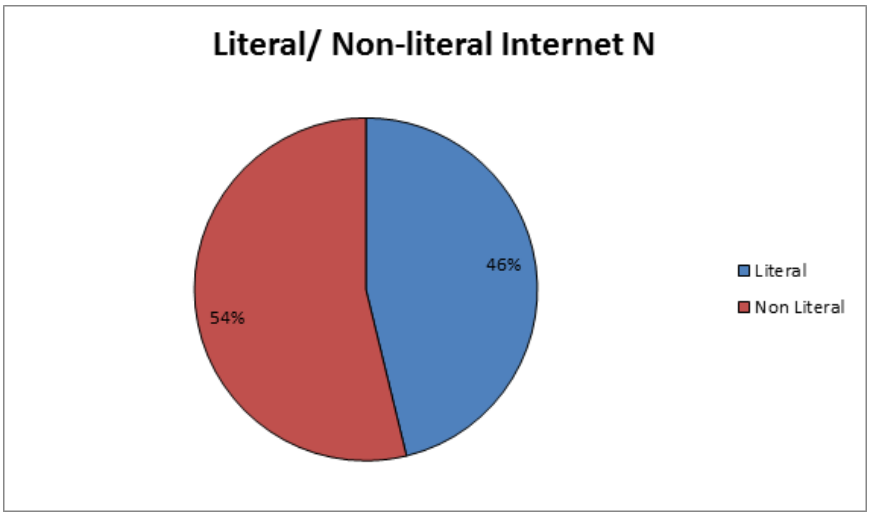

Chart 13.67. Literal and non-literal compounds of INTERNET - NOUN.

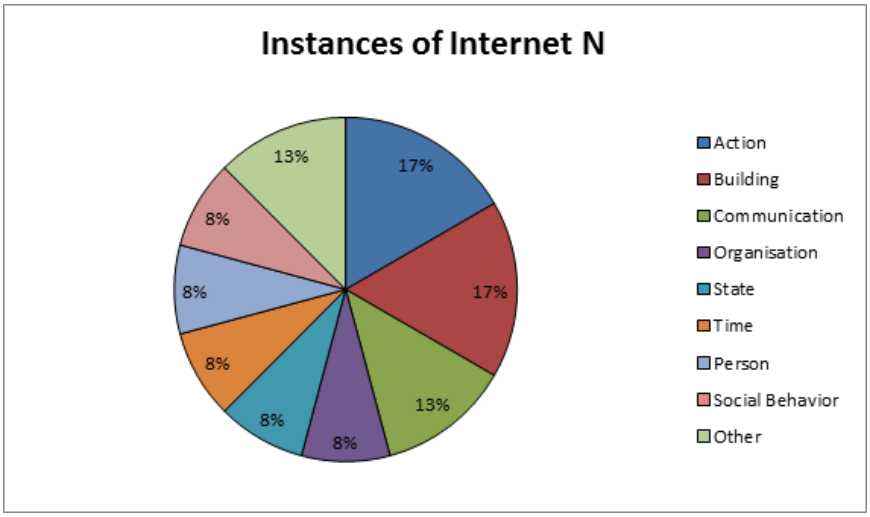

Chart 13.68. Amount of instances of compounds that activate a particular domain in INTERNET – NOUN.

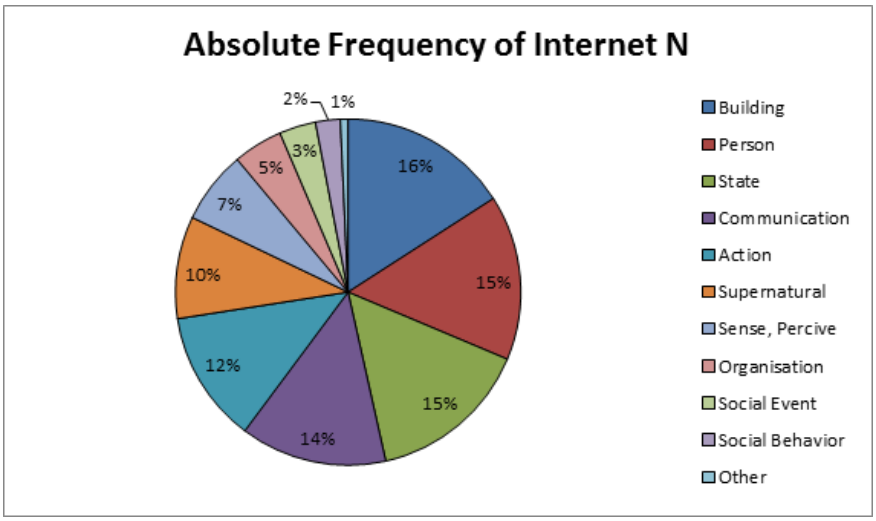

Chart 13.69. The frequency from *NOW Corpus* of the compounds that activate different domains in INTERNET – NOUN.

13.4.3.2. *Table for INTERNET – NOUN.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
PERSON	Internet-savvy (1772) Internet trolls (644) Netizen (521) Networkers (307)	2	3,244
BODY PART	Internet-facing (53)	1	53
BUILDING	Internet Infrastructure (949) Internet Portal (300) Internet cafe (788) Internet Cafes (704) Internet-Cafe (680)	4	3,349
SENSE/PERCEIVE	Internet sensation (1433**)**	1	1,433
TIME	Internet-era (56) Internet-age (41)	2	97
ORGANISATION	Internet governance (872) Netroots (105)	2	977
COMMUNICATION	Internet traffic (2374)	3	2,886

	Internet Bandwidth (409) Netcode (93) Netspeak (10)		
SOCIAL BEHAVIOUR	Netiquette (488)	1	488
SOCIAL EVENT	Internet dating (691) Internet date (30)	2	721
ACTION	Internet-of-things (163) Internet-beaming (27) Internetwork (31)	4	2,595
STATE	Internet freedom (1294) Internet speed (1058) Speeds (840)	2	3,192
SUPERNATURAL	Internet Giant (1440) Internet Giants (569)	1	2,009

13.4.3.3. *Pie charts for NOUN – INTERNET.*

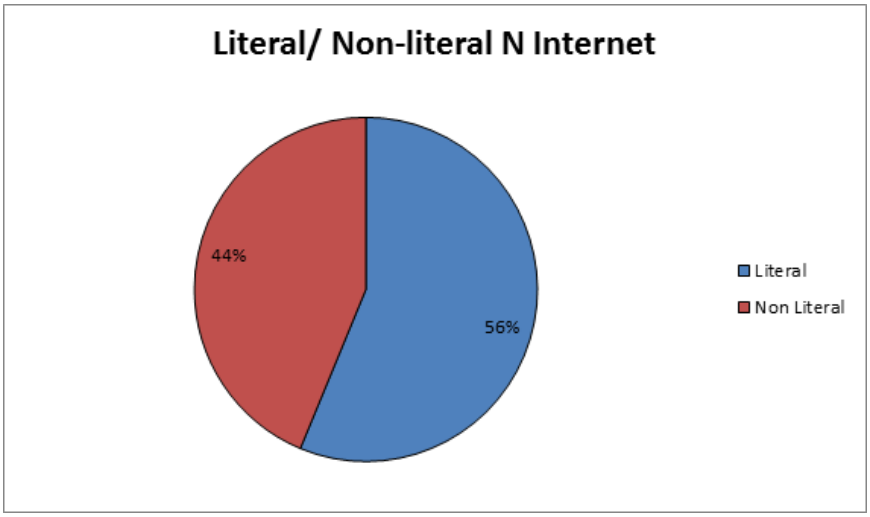

Chart 13.70. Literal and non-literal compounds of NOUN - INTERNET.

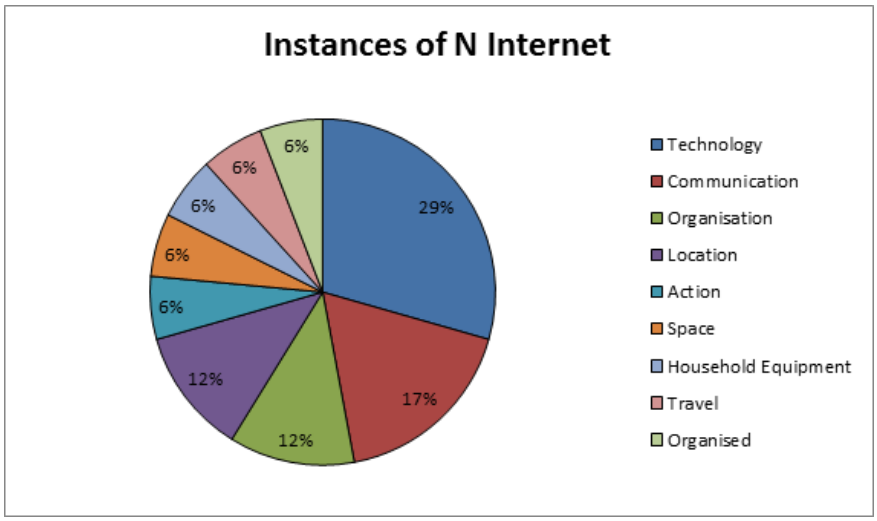

Chart 13.71. Amount of instances of compounds that activate a particular domain in NOUN – INTERNET.

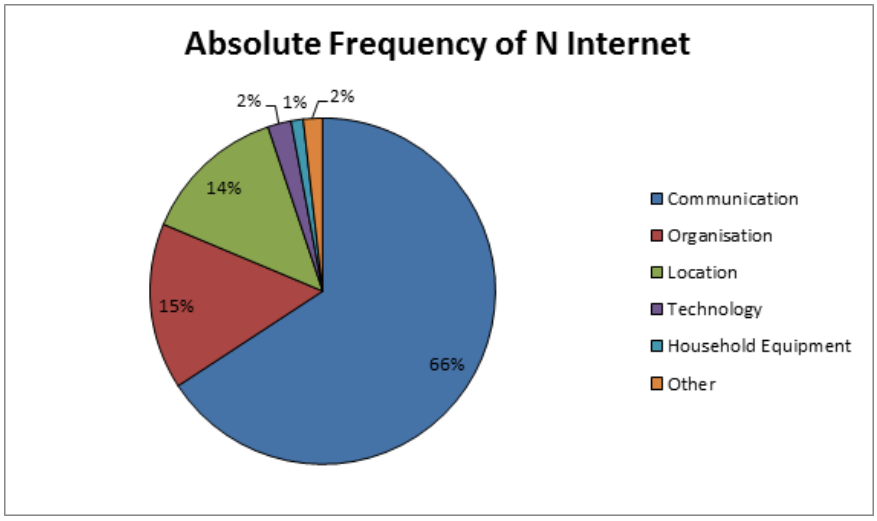

Chart 13.72. The frequency from *NOW Corpus* of the compounds that activate different domains in NOUN – INTERNET.

13.4.3.4. *Table for NOUN – INTERNET.*

DOMAIN	INSTANCES	AMOUNT OF INSTANCES	ABSOLUTE FREQUENCY
LOCATION	Home internet (483) Open-internet (21)	2	502
ORGANISATION	Community internet (551) Team-internet (24)	2	575
ORGANISED	Network internet (19)	1	24

	Networks internet (5)		
TRAVEL	Balloon Internet (15)	1	15
COMMUNICATION	Broadband Internet (2204) Satellite Internet (230) Cable-internet (2)	3	2,436
ACTION	Splinternet (13)	1	13
HOUSEHOLD EQUIPMENT	Household internet (42)	1	42
TECHNOLOGY	Wireless Internet (1659) Voice-over-Internet (81) Pocket internet (37) Mobile-internet (35)	5	81
SPACE	Space Internet (15)	1	15