

The Conceptual Basis of the Particles *Up* and *Down* in English:

Asymmetries in the Vertical Axis

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1. Introduction

This paper aims to discuss the various conceptual bases of the particles *up* and *down* in English and to clarify how those conceptual bases motivate various asymmetries between *up* and *down*. Traditionally, *up* and *down* are classified and discussed as polar antonyms, because their meanings appear opposite when understood from logical truth conditions. However, recent analyses based on cognitive approaches clarify that *up* and *down* behave quite differently in certain situations, especially in so-called the Verb-Particle Constructions (hereafter VPCs). In the Cognitive Linguistics paradigm, the semantic structure of language reflects embodied conceptual structure (i.e. the embodied cognition thesis). It follows from this view that linguistic structures are strongly motivated by their conceptual bases, and furthermore, it can be concluded that the asymmetry between *up* and *down* at the linguistic level reflects inherent asymmetrical characteristics of the vertical axis at the conceptual level.

To discuss the conceptual bases of *up* and *down*, this paper focuses on the various asymmetries between *up* and *down* in their linguistic use, because various asymmetries between *up* and *down* at the linguistic level reflect various asymmetries in their conceptual bases. This method for studying is based on the Lakoff and Johnson's (1980) insight that the "spatial orientations arise from the fact that we have bodies of this sort we have and that they function as they do in our physical environment" (*ibid.*: 14). The vertical axis of our body and environment is characterized by so-called "an up-down or top-bottom asymmetry" (Evans and Green 2006: 178). The interaction of the conceptualizer and the environment gives rise to the UP-DOWN image schema¹.

From its early days, Cognitive Linguistic has paid special attention to spatial prepositions and their cognate particles in order to understand how abstract image-schemas are instantiated into language, because particles are polysemous and their basic meaning is either positional or directional in the spatial domain. Following this

cognitive enterprise, this paper aims to discuss the cognitive bases of the polysemy of *up* and *down*, with special reference to various asymmetries that arise from our subjective perceptual experience. These asymmetries in our perceptual experience constitute asymmetries in the conceptual domain which further motivate asymmetries at the linguistic level.

Similar to other paired particles such as *in-out*, *on-off*, and *from-to*, *up* and *down* show symmetrical (or opposite) relations in many environments.

- (1) a. I walked *up* the hill.
b. I walked *down* the hill.
- (2) a. The temperature went *up*.
b. The temperature went *down*.
- (3) a. Things are looking *up*.
b. Things are looking *down*.

In (1)-(2), *up* and *down* show the upward and downward directions in the spatial and abstract domains, respectively. In (3), the states of well- and ill- being are denoted by *up* and *down* (i.e. orientational metaphors).

However, *up* and *down* do not show a symmetrical relation in all cases. In fact, they behave asymmetrically in many situations, especially in VPCs.

- (4) a. He closed *up* the shop.
b. He closed *down* the shop.
- (5) a. He ate *up* his lunch.
b. *He ate *down* his lunch.
- (6) a. He rolled *up* the carpet.
b. He rolled *out* the carpet.

In (4a), *close up* is, in fact, ambiguous. It is interpreted as either to close the shop or to go bankrupt. These two meanings are metonymically related, in that closing a shop for a long time easily extends to bankruptcy. However, in (4b), *close down* only means to go bankrupt. Because to close the shop and to go bankrupt are not opposite situations, *up* and *down* as used in (4a) and (4b) can be considered to be asymmetrical. (5a) means to consume all the meal. However, there is no expression such as *eat down* in English. Therefore, (5) is an example of asymmetrical distribution. This asymmetrical distribution is further observed in (6). Here, a symmetrical semantic relationship is assigned to *up* and *out* instead of *up* and

down.

Previous work within the Cognitive Linguistic framework has addressed the systematic relations of particles such as *up* and *down* (Bolinger 1971; Lindner 1982; Tyler and Evans 2003). However, these analyses were primarily interested in the systematic relations between sub-senses of particles. In contrast, this paper focuses not only on systematic relations between meanings but also asymmetrical characteristics among particle pairs. Furthermore, it discusses the conceptual bases of asymmetries.

This paper is organized as follows: Section 2 reviews previous cognitive accounts of particles. Section 3 presents the theoretical framework of this study. To analyze both symmetrical and asymmetrical characteristics of particles, I consider the vertical asymmetry of our body and environments. Section 4 shows how these backgrounds account for both symmetrical and asymmetrical distributions of *up* and *down*. Though this paper does not propose a complete alternative to previous studies, it analyzes the relation between the *up-down* asymmetry in the language level and vertical asymmetry in the perceptual level.

2. Previous Studies: Conceptual Basis of English Particles

Since cognitive approaches to language emerged in the 1970s, the polysemy of spatial prepositions has continued to capture the interest of researchers in the field (e.g. Brugman 1984; Lindner 1982; Vandeloise 1993; Tyler and Evans 2003). Their major interest is in the underlying mechanisms which sustain the polysemy of particles. In Cognitive Linguistics, researchers always focus on the conceptual bases of language which motivates the structure of language. However, it is hard to capture the “pre-conceptual” level (in recent terms, Cognitive Unconscious level) of language, because it is intangible. Cognitive approaches, therefore, have used various cognitive devices (e.g. conceptual metaphors, image-schematic networks, frames, cognitive domains, etc.) in order to illustrate the characteristics of the pre-conceptual level and consequently discuss the systematic relations among sub-senses of particles.

This section introduces two principal cognitive approaches to prepositions: the Conceptual Metaphor Theory and Cognitive Grammar.

2.1. Conceptual Metaphors: Lakoff and Johnson (1980)

Though English prepositions are not their primary interest, Lakoff and Johnson (1980) discuss the conceptual background of English prepositions (e.g. orientational metaphors, container metaphors). Paired prepositions such as *in-out*, *up-down*, *on-off* can be classified in terms of conceptual metaphors such as orientational and container metaphors.

In their analysis of orientational metaphors, Lakoff and Johnson argue that orientational metaphors give a concept a spatial orientation, in that “our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature” (Lakoff and Johnson 1980: 3). This suggests that some abstract concepts have internal direction and are derived from our experience in daily life. The following table is the list of the orientational metaphors presented by Lakoff and Johnson:

Table 1: The list of Orientational Metaphors (Lakoff and Johnson 1980)

HAPPY IS UP	SAD IS DOWN
CONSCIOUS IS UP	UNCONSCIOUS IS DOWN
HEALTH IS UP	SICKNESS DEATH IS DOWN
HAVING CONTROL OR FORCE IS UP	BEING SUBJECT TO CONTROL OR FORCE IS DOWN
MORE IS UP	LESS IS DOWN
FORESEEABLE FUTURE EVENT IS UP	—
HIGH STATUS IS UP	LOW STATUS IS DOWN
GOOD IS UP	BAD IS DOWN
VIRTUE IS UP	DEPRAVITY IS DOWN
RATIONAL IS UP	EMOTIONAL IS DOWN

As shown in table 1, this study is not directly related to the study of English particles in that Lakoff and Johnson’s focus is not on the metaphorical expressions but on the metaphorical projections. Therefore, some metaphors such as the HAVING CONTROL OR FORCE IS UP metaphor might not include the expression *up* as their instantiation. However, this analysis is still useful to the study of particles, because the concept, activity and language of humans are metaphorically structured.

2.2. Cognitive Grammar: Lindner (1982)

In the 1980’s, the study of particles further developed within the Cognitive Grammar framework. Among such studies, the image-schematic approach of Lindner was the most influential on the next generation of researchers. She focused on the fact that paired particles behave quite differently within VPCs.

Lindner described meanings of *up-down* and *in-out* by using image schematic networks. Lindner (1982) notes “the relations among particles are best viewed not in terms of the lexical items as wholes, but rather, in terms of the relationships among their specific senses” (*ibid.*: 306). She also states that predicates of lexical items are a unified concept,

which “are best viewed as networks consisting of an array of specific meanings together with the generalizations (or schemas) speakers appear to have extracted from them” (*ibid.*: 306).

2.2.1. Image-Schematic Networks: The Case of *Out*

On the basis of Langacker’s Cognitive Grammar, Lindner (1982) argues that each sub-sense of a particle is “conceptually foregrounded against some aspect of the speaker’s knowledge of the world (i.e. cognitive domains)” (Lindner 1982: 307). For example, she found the systematic relations among (7a), (7b) and (7c).

- | | |
|---|---------------------|
| (7) a. She went <i>out</i> . | (Lindner 1982: 307) |
| b. She picked <i>out</i> a piece of candy. | (Lindner 1982: 308) |
| c. He ironed <i>out</i> the wrinkle in the shirt. | (Lindner 1982: 308) |

Examples (7a)-(7c) are similar in that one object (the TR) moves through space and time, and the path of the object is defined relative to the enclosed object (the LM). Lindner illustrates the relation among each sense by an image schematic network as follows:

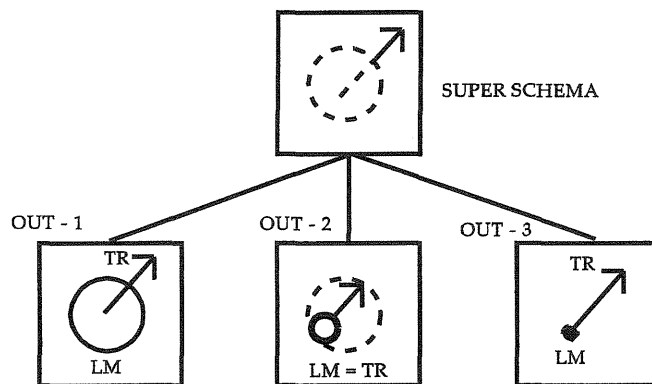


Figure 1: Lindner (1982)

Examples (7a)-(7c) are instantiations of the schemas OUT-1, OUT-2 and OUT-3, respectively. The super schema shows the common characteristics of its sub-schemas. However, the super schema is abstract enough “with respect to whether the boundary of the LM is physical or abstract, and whether or not the trajector exists in the final configuration” (Lindner 1982 309). Lindner’s image schematic approach accounts for the schema-instance relation between the super-schema and its sub-schemas.

Lindner also focuses on the asymmetrical distributions between so-called 'opposition prepositions' (e.g. *up-down*, *in-out*). She (1982) states "we will see that while an opposition relation holds between some senses of *out* and *in* (and *up* and *down*), this relation does not hold between all senses of these pairs" (*ibid.*: 306). This can be seen in the following:

- (8) a. They closed *up* the theater.
- b. They closed *down* the theater.
- (9) a. Roll *out* the carpet and then roll it *up*.
- (10) a. The stars are *out* and the lights are *out*. (Lindner 1982: 305)

In (8), the pair of oppositional particles can be considered synonymous at least with respect to truth conditions. In (9a), an opposite relation in meaning is observed between *out* and *up*. In (10a), we find opposite meanings among different uses of the same particle *out*.

From the examples above, it can be concluded that individual meanings of particles are related to un-profiled cognitive domains. In other words, "configurations of concrete or abstract objects are conceptually foregrounded against some aspects of the speaker's knowledge [i.e. cognitive domains in Langacker's (1987) terminology] of the world" (Lindner 1982: 307). In this view, each sub-sense of a particle can be reduced to a different profile within a different cognitive domain or background.

Given that cognitive domains or the speaker's knowledge of the world determine and delimit each sense of a particle, sustaining its polysemy, our primary objects in the study of particles are 1) background information (i.e. schemas) of each sub-sense rather than the sub-senses themselves, and 2) the relations between super- and sub-schemas.

2.3. Problems in Previous Studies

Two major issues arise from these approaches. The first issue is the granularity of the analysis, which proves unable to plausibly handle the problem of asymmetry, because words that appear symmetrical at the conceptual level do not always behave as such at the linguistic level. In traditional linguistics, asymmetries are never considered as an issue of primary importance to linguistics. However, in empirical studies of paired particles, various asymmetrical characteristics are observed both in the pre-language and language levels. In pre-language level, Lakoff and Johnson (1980) shows the asymmetrical distributions among orientational metaphors. They noted that whereas FORSEEABLE FUTURE EVENT IS UP, no oppositional metaphor is available.

In the language level, three types of asymmetries can be observed in the following examples:

- (11) a. He shut *up* the shop.
b. He shut *down* the shop.
- (12) a. He used *up* all his savings.
b. *He used *down* all his savings.
- (13) a. He hunted *up* the lion.
b. He hunted *down* the lion.

(11) exhibits asymmetry in meaning; (12), asymmetrical distributions; and (13), asymmetry in modification. Though these sentences above are seen in daily linguistic usage, the asymmetries are seldom brought under the light of academic discussion. In fact, this phenomenon has been driven out to the periphery of linguistic analysis.

A second issue is the treatment of value-judgment reversals, which once again stems from the granularity of analysis. In the analysis of particle pairs such as *up-down*, *in-out* and *on-off*, it is said that the former carries positive value and the latter negative default evaluations (Krzyszowski 1997; Hampe 2006). However, in certain situations, the value alignment of these particles is cancelled and, in fact, reversed.

- (14) a. He is *up* in the air.
b. He came *down* to the world.

In (14a), the sentence including *up* shows a negative value in that the subject of the sentence is unstable, while, in (14b), *to come down to the world* demonstrates a positive value in that the subject returns to a normal state from one of excitement. These sentences are rather anomalous in that they do not carry the default value judgment of *up* and *down*.

3. A Conceptual Approach to the *Up-Down* Asymmetry

Among all the notions of Cognitive Linguistics, the embodiment thesis is undoubtedly one of the most significant. Evans and Green (2006) shows levels of representation in cognitive processing in language in the following manner:

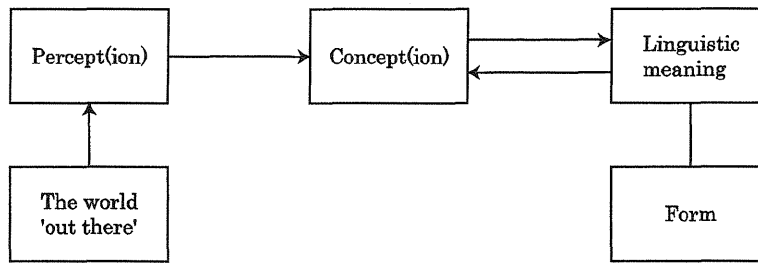


Figure 2: Levels of Representation (Evans and Green 2006: 7)

Figure 2 illustrates that linguistic units (i.e. form and meaning pair) are not abstract signs that can be defined regardless of the cognition of human beings, but that they are abstracted from our daily experience through various embodied schemas. Figure 2 also suggests that structures of symbolic units are motivated and restricted by their conceptual bases. Therefore, characteristics of the world 'out there' are crucial factors for determining the semantic and syntactic values of *up* and *down*, because abstract concepts or movements described by *up* and *down* are derived from the actual spatial movement within the conceived world.

In what follows, I introduce two fundamental notions for describing the cognitive bases of *up* and *down*. That is 1) the asymmetry in the vertical axis at the perceptual level and 2) the granularity of image-schemas.

3.1. Focus-Point I : Asymmetrical Characteristics of Body and Environment

Asymmetries in the vertical axis of our body and environment were not a central matter in previous linguistic studies. However, asymmetries in the vertical axis are of great importance to the embodied cognitive thesis, because the conceptualizer interacts with his/her environment in the conceived world, and on the basis of this interaction, humans can perceive and conceptualize the world. What is important here is that these two interacting factors are mutually asymmetrical in their inherent character.

Evans and Green (2006) makes insightful observations concerning the vertical asymmetry of the body.

- (15) Given that humans walk upright, and because we have a head at the top of our bodies and feet at the bottom, and given the presence of gravity which attracts unsupported objects, the vertical axis of the human body is functionally asymmetrical. This means that the vertical axis is characterized by an up-down or top-bottom asymmetry: the top and bottom parts of our bodies are different.

(Evans and Green 2006: 178)

As such, environments surrounding us have internal vertical asymmetries, i.e., ground at bottom and sky at top. Moreover, the perceived objects which move upward and downward have asymmetrical or opposite value. For example, things above us are easy to perceive, because there is no obstacle between the things and us, while things on the ground are still in our visual field.

3.2. Focus-Point II: Granularity of Image-Schemas

This study also focuses on the granularity of image-schemas, because a part of the problems discussed in 2.3 is related to the high schematicity of cognitive devices for describing language (e.g. image schemas, conceptual metaphors). The schematicity of image schemas is a fundamental issue, because the high schematicity of image-schemas may cause overgeneralization².

This paper attempts to propose feasible image-schemas which are directly and closely related to our daily life for describing the *up-down* asymmetry. Therefore, we focus on the granularity of the un-profiled base (or ground) in a predicate. It was often the case in previous studies that the base part was given scarce specification and explanation. In the case of *up* and *down*, we have sky above us and ground below us. Besides, our body has a head on top and feet on bottom. Only by considering these specifications of the base part can some sub-senses of *up* and *down* be predicted.

In this section, I focused on the asymmetrical characteristics of humans and their environments observable at the perceptual level. The following sections will be devoted to the examination of the conceptual bases which motivate and restrict the asymmetries between *up* and *down*. Then, I will present rather concrete image-schemas in which the characteristics of body and environment are specified.

4. Analysis

In this section, I discuss four conceptual bases of the particles *up* and *down*. Though these bases are partially symmetrical in nature, they are also significantly influenced by vertical asymmetries in our perceived world. Furthermore, this partial asymmetric nature motivates asymmetries between *up* and *down* observable at the language level. The bases discussed in this section are asymmetries of the body (4.1) and asymmetries of the environment (4.2). Asymmetries of the body are further divided into movement of the TR (4.1.1) and physical functions and characteristics of the body (4.1.2). Then, asymmetries of the environment are divided into movement of perceived objects (4.2.1) and characteristics

of the environment (4.2.2).

4.1. Asymmetries of the Body

4.1.1. Movements of the TR

The first conceptual basis I discuss is constituted through the physical movements of conceptualizer, and therefore, I refer to it simply as 'Movements of the Conceptualizer' basis. Vertical human movement in the spatial domain can be understood in the simplified terms as visualized in figure 3.

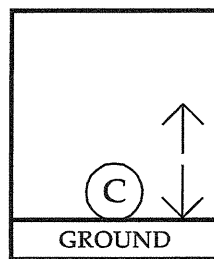


Figure 3

In this case, the TR is the conceptualizer him/herself. Here, the movements of the conceptualizer directly motivate the semantic structure of *up* and *down*.

(16) a. stand *up*, sit *up*, jump *up*

b. lay *down*, sit *down*, crouch *down*

(17) a. As to his health, he's way *up* there.

(Lakoff and Johnson 1980: 15)

b. He came *down* with the bad cold.

In (16), *up* and *down* show the opposite movement in the spatial domain. In (17), they demonstrate the well and ill state of the conceptualizer. The physical movement of the conceptualizer is closely related to the health conditions, because it is usual that standing needs more energy than lying. When we are ill, we usually spend time lying down.

The examples above show symmetrical distributions between *up* and *down*. However, the following examples are asymmetric in their distribution

(18) a. He woke *up* at seven.

b. * He woke *down* at seven.

The state of being *up* is directly related to the state of waking as in (18a). However, there is no expression such as *wake down* in English. The state of being *down* is not directly related to the state of sleeping; rather, it is related to the state of relaxing as expressed in *sitting down, leaning down on the wall*. The following example illustrates the contrast between *up* and *down* very clearly.

- (19) a. He is *up*, and *down* (to the first floor) now.

The particles *up* and *down* in (19) suggest to 'wake up' and to 'come down from the upper level,' respectively. Here, *down* describes only downward movement. There is no sleeping sense in the particle *down*.

4.1.1.1. Change in Psychological State as a Movement of the TR

It is argued that the psychological states of humans are closely related to the state of the physical movement of the body. When the conceptualizer is happy, excited and angry, he/she tends to stand upright, while, when the conceptualizer is unhappy, gloomy and sad, he tends to lie down. These correlations between physical and psychological states are shown in the MORE IS UP; LESS IS DOWN metaphor (Lakoff and Johnson 1980).

- (20) a. He is feeling *up*.
 b. He is feeling *down*.
 (21) a. He was keyed *up*.
 b. Don't let me *down*.

As in (20) and (21), *up* and *down* usually show symmetrical distributions (or semantic extensions) in the psychological states. *Up* represents positive value and *down* negative value in the psychological domain.

4.1.1.2. The Physical and Functional Characteristics of the Body

A second basis of *up* and *down* is the physical and functional characteristics of the human body. Evans and Green (2006) notes that "the vertical axis of the human body is functionally asymmetrical" (*ibid.*: 178). This asymmetry is crucial, because the physical characteristics of the human body delimit our experience which influences the formation of image schemas as we interact with and move around the physical environment.

The positions and associated functions of head and feet motivate the following orientational metaphor:

(22) HAVING CONTROL OR FORCES IS UP; BEING SUBJECT TO CONTROL OR FORCE IS DOWN.

Lakoff and Johnson (1980) designates the basis of this metaphor as physical, that is, "physical size typically correlates with physical strength, and the victor in a fight is typically on top" (*ibid.*: 15). Similarly, the relation between head and feet also corresponds to the relation between control and obedience.

However, it should be noted that there is no actual use of *up* and *down* in this metaphor. There is no doubt that the metaphor in (22) exists. However, this metaphor is instantiated in other pairs of words such as *high - low*, *head - tail*. Therefore, we can conclude that there are relations between the function of head and feet and the concept pair UP-DOWN, though there may be no direct relations observed between the function of head-feet and the linguistic expressions *up* and *down*. The following figure illustrates the physical and functional asymmetry of the body.

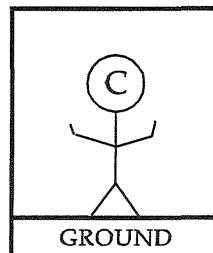


Figure 4

4.2. Asymmetries of the Environment

4.2.1. Movement of Perceived Objects

A third basis of *up* and *down* is informed by the appearance or emergence of perceived objects in the visual field. In this conceptual basis, distribution of *up* and *down* are particularly asymmetric. That is, *up* has a series of extended senses that are based on the appearance into the visual field of objects as demonstrated by expressions such as 'to move upward,' 'to appear,' 'to approach,' 'to emerge,' 'to complete' and 'to exist.' In this conceptual basis however, *down* has no extended sense and expresses only downward direction. This is because things above us like *stars*, *sun* are easy to perceive even if they are far from us, and therefore, *up* metonymically shows the visible state. In contrast, things on the ground are still perceivable as long as there is no obstacle between us and the things.

Therefore, *down* does not have the symmetrical sense of invisibility.

Here, the visual field of the conceptualizer plays an important role. Lakoff and Johnson (1980) states "we conceptualize our visual field as a container and conceptualize what we see as being inside it" (*ibid.*: 30). In what follows, I present the semantic extensions of *up* and *down* in order from objective to subjective³.

The first sense is direction. *Up* and *down* describes the vertical direction of perceived objects as in (23). Here, *up* and *down* have a symmetrical distribution and meaning.

- (23) a. He came *up* from the first floor.
b. He came *down* from the second floor.

However, the following examples show the asymmetry in meaning.

- (24) a. He came *up* to me and said "good-by."
b. He came *down* to me and said "good-by."

In (24), *up* does not show an upward direction but approach, while *down* instead shows downward direction. (24a) means that the subject *he* approached the conceptualizer, while most listeners tend to interpret (24b) as describing a scene where the subject *he* came down from a location physically above the speaker. This asymmetry relates to the deictic use of *up* and *down*. *Up* and *down* has deictic use as in (25).

- (25) a. Pretty woman, walking *up* the street.
b. Pretty woman, walking *down* the street.

The meanings of *down* and *up* in the two examples in (25) are symmetrical, because both are deictic in use. (25b) is a famous line from the song "Pretty Woman." It describes a pretty woman moving to the place where the speaker does not exist, while (25b) describes a scene where a pretty woman approaching to the speaker. These uses of *up* and *down* are parallel to the uses of *come* and *go*. This symmetrical relationship between (25a) and (25b) is not observed in (24), because the deictic sense of *come* and *down* is inconsistent. Therefore, *down* tends to be interpreted as denoting a downward direction in (24b).

The second sense of *up* within this basis is approach. *Up* here describes the motion of an entity approaching the speaker. Here, the verticality of *up* is neutralized. In general, when things come close to us, they look bigger and higher.

- (26) a. My friend came *up* to me.
 b. He went *away* (from me).

In (26), the TR *my friend* comes into the speaker's visual field, though it does not include upward movement. In contrast, the particle *away*, and not *down*, is generally used to describe the motion of entities disappearing from the speaker's visual field. Here the particles *up* and *away* exhibit an opposite relation.

The third sense of *up* here is emergence. *Up* describes the TR's appearance into the visual field of the conceptualizer. This sense is related to the fact that things above us like stars are generally easy to perceive. Furthermore, *up* in this sense expresses not only appearance in the spatial domain but also in the psychological domain. This use of *up* in contrast to particles such as *off* and *out* can be seen in the following examples:

- (27) a. The sun came *up*.
 b. We kindled *up* the light.
 c. The brilliant idea came *up* in my mind.
 d. He turned *off* the light.
 e. The match burned *out*.

(27a-c) shows gradual semantic shift from objective to subjective senses of *up*. Though these three sentences express the appearance of an entity into the conceptualizer's region, the domains, the type of movement and the characteristics of TR are quite different from one another. In (27a), the TR came into the visual field of the conceptualizer as a result of its upward movement. In (27b), the light of the candle came into the sight of the conceptualizer without any physical movement. (27c) is more subjective in that something abstract enters into the psychological region of the conceptualizer.

From (27), it is concluded that whereas an appearance sense is lexicalized in *up*, *down* does not have a corresponding disappearance sense. Generally, disappearance is described by *off* as in (27d) and *out* as in (27e). In the emergence or appearance senses, *up* and *down* are not paired particle, rather *out* and *off* express the opposite of *up*.

A fourth sense of *up* within the visual field base is completion. As Bolinger states, "[it] simply appears that some of particles--most especially *up*--have in some cases traded their full resultative meanings for the bare meaning of 'result achieved'" (Bolinger 1971: 96).

- (28) a. He used *up* all his energy.
 b. *He used *down* all his energy

- (29) a. Time is *up*.
b. *Time is *down*.

(28a) means to consume all energy. However, there is no complementary expression such as *use down* in English. (29a) demonstrates that the completion sense of *up* is lexicalized, because the combination of the copula verb *be* and the particle *up* expresses the completion sense.

Then, the characteristics of the aspect domain motivate the asymmetrical distribution of *up* and *down*. That is, the aspect domain is formed by an activity or time vector and a goal. If we encode the approach of the vector to the goal by *up*, as in *use up*, *eat up*, there is no opposite concept in its domain since consumed resources cannot be reconstituted. As a result, *up* is exclusively used in the aspect domain and *down* cannot illustrate the opposite situation due to the restrictions of the domain⁴.

A final sense of *up* in this basis is creation. Here, *up* takes the created thing in its object position.

- (30) a. He boiled *up* (*boiled) some fresh coffee for breakfast at our campsite.
b. He boiled (**up*) last night's coffee for breakfast. (Talmy 2000: 245-246)
- (31) a. Let's draw *up* [*draw] an agreement.
- (32) a. He wrote *up* his master thesis.
b. I wrote *down* my address and the telephone number.

As a result of a process, the effected and created thing comes into the visual field. In (30a) and (31), the created objects never appear in the object position without *up*. In (32a), *write up* takes the created object *master thesis* as its object, while *write down* generally takes an object that is already known or short.

In conclusion, the semantic extensions of *up* and *down* and their asymmetrical distribution within the Visual Field basis can be summarized as follows:

Table 2: the semantic extensions of *up* and *down* and their asymmetrical distribution

	<i>up</i>	<i>down</i>
DIRECTION	○	○
EMERGENCE	○	×
APPROACH	○	×
COMPLETION	○	×
CREATION	○	×

This table illustrates that upward and downward movements of the perceived objects have different values as conceived by the conceptualizer.

4.2.2. Characteristics of the Environment

The final conceptual basis which I discuss is the Characteristics of the Environment basis which interacts with the conceptualizer. The environment itself is quite asymmetrical with respect to the vertical axis. There is an endless sky above us and a stable ground below us. This relation is illustrated in the following:

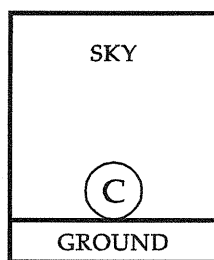


Figure 5

Figure 5 shows that the conceptualizer touches the ground, and conversely, the ground supports the conceptualizer. In contrast, the sky is far away from the conceptualizer and does not contact him/her in a rigid sense. These different relations are crucial factors in motivating the asymmetrical senses of *up* and *down* at the language level.

4.2.2.1. The Structural Mapping of the Relation: *down*

This section discusses the role of ground. There are three characteristics of the ground. First, the ground is stable and supports us. Second, the ground touches the conceptualizer. Third, the ground is generally the goal of downward movement.

Here, we see three sub-senses of *down* which are based on the structural relation between the conceptualizer and the ground.

The first sub-sense of *down* is sense of stability. As a result of the ground's support, the TR becomes stable.

- (33) a. The market settled *down*.
- b. He settled *down* to married life.

(33a) has a positive meaning and this sense is motivated by the characteristics of the ground which here is abstract. (33a) implies that the downward movement of the TR is attached to the stable thing as a result of settling. In (33b), the preposition *to* shows the destination of the TR's direction metaphorically. Again, *married life* represents a strong foundation. Of great importance here is that the structural image-schema of the conceptualizer and ground maps onto another domain.

The second sense is one of bondage. The support relation between the conceptualizer and the ground extends to the deprivation of the conceptualizer's freedom.

(34) a. It is hard to bind [tie] him *down* to a commitment.

b. *It is hard to bind him *up* to a commitment.

(35) a. We pinned her *down* to a promise.

b. *We pinned her *up* to a promise.

In (34a) and (35a), the TR moves downward, and then, connects to the commitment (i.e. a stable surface). However, *up* does not have a corresponding symmetrical as in (34b) and (35b). This difference in felicity is motivated by the nature of the sky and the ground. That is, the sky does not support us.

A third sense based on this structural relation of conceptualizer to ground is one of discovery of an abstract entity.

(36) a. We want to pin *down* the source of this problem quickly.

b. ??We want to pin *up* the source of this problem quickly.

In these three sub-senses of *down*, it can be concluded that the ground must be in the un-profiled base of *down* as shown in Figure 5. This structural relation between the conceptualizer and the ground in the perceived world maps onto various abstract domains.

4.2.2.2. The Floating Characteristics: *up*

Compared to the close relation between the conceptualizer and the ground, the conceptualizer is less related to its counterpart in Fig. 5, the sky. In our experience, we realize that the sky is not attached to us. This sparse relation between us and the sky is reflected at the linguistic level. However, there are a few examples that the characteristics of the sky influence the sense of *up*.

(37) That's *up* in the air.

In (37), the floating characteristic of the thing in the sky maps onto the floating state of the entity referred to by 'that.' A similar case is observed in (38). However, it is *the clouds* that motivates the meaning of the sentence. If the subject's head were actually in the clouds, his visual field would be restricted to a great extent.

(38) He is *up* in the clouds

In (37) and (38), the negative connotations of *up* are motivated by the similarity between the floating state in the sky and an uneasy state in the psychological domain.

4.2.2.3. Location or Movement?: The Reversal of Value Judgement

As shown above, the vertical asymmetry of the environment is an influential factor in determining the semantic value of *up* and *down*. Moreover, it sometimes causes the reversal of value judgments. In the particle pairs *in-out*, *up-down*, *on-off*, it is generally said that the first elements have positive value, while the second elements have a negative default value. The meaning and evaluation of them are "based on the image-schematic notions of *CONTAINMENT*, *VERTICALITY*, and *CONTACT*, respectively" (Hampe 2006: 81).

However, the vertical asymmetry of the environment causes the reversal of evaluations between *up* and *down*.

(39) a. That's *up* in the air.

b. The market settled *down*.

(40) a. He is *up* in the clouds

b. He came *down* to the earth.

In both (39) and (40), the default values of *up* and *down* are reversed. *Up* expresses a negative value, and *down*, a positive value. This phenomenon is interesting in two ways. First, the relation between the TR and the un-profiled ground maps onto the abstract domain. This structural image schema motivates the stability and negative evaluation of (39a) and (40a). Second, the dynamicity of the TR motivates the positive value in (39b) and (40b). That is, in the case where *up* expresses negative value, the TR is a static entity (i.e. location). Comparing airplanes and balloons, the floating balloons are much more unstable than the moving airplanes. Here, the floating and static characteristic of the TR in the sky generates the usage's negative value.

4.3. Summary

The asymmetry of the body and environment along the vertical axis is a crucial factor in motivating semantic values and grammatical usages of *up* and *down*. These asymmetries at the perceptual level motivate *up* and *down* at the linguistic level, e.g., asymmetrical distribution, asymmetrical meaning, and asymmetrical semantic extensions. The following table illustrates the relation between various meanings of *up* and *down* and their bases:

Table 3: Senses of *Up* and *Down* and their Conceptual Bases

	Conceptual Basis	up	down
Body (4.1)	1) Movement of the TR (4.1.1)	stand	lie
		awake	—
	1)' Change in Psychological State as a Movement of the TR (4.1.1.1)	happy	unhappy
	2) Characteristics of body (4.1.2)	order	obedient
Environment (4.2)	3) Movement of Perceived Objects (4.2.1)	upward	downward
		appearance	—
		—	toward ground
	4) Characteristics of the Environment (4.2.2)	unstable	stable
		—	lose power

5. Conclusion

Previous studies of English particles offered analyses that did not focus on characteristics of the body and environment. These accounts, therefore, fail to explain 1) why a large number of asymmetries are observed within paired particles and 2) why value reversals occur.

In contrast, this paper focused on the conceptual bases of *up* and *down* and clarified how asymmetry at the language level is motivated by vertical asymmetry at the perceptual level. The results of my study explain the following three points: 1) the asymmetries between *up* and *down* are motivated by the vertical asymmetry of the body and environment. 2) Value reversal reflects structural characteristics of our relation to the sky and the ground. 3) *Up* exhibits more extended sub-senses and this is because *up* has a series of meanings which are related to the appearance of perceived entities in the visual field.

Notes

1. In Cognitive Linguistics, researchers propose various image schemas to describe

linguistic units. Image schemas are directly embodied, but highly schematic representations of spatial relations. Cognitive approaches in linguistics have revealed that the polysemy of linguistic units can be described as conceptually integrated networks of image schemas. The sub-senses are defined relative to one or more un-profiled domain, which is built up from basic domains (i.e. space, color, etc.)

2. In cognitive linguistics, "human language and thought emerge from recurring patterns of embodied activity (Gibbs 2006: preface). However, as in Lakoff and Johnson (1999), "image schemas are not the same as real images which they refer to as "rich" images." Tyler and Evans (2003) criticized Lakoff's account of *over* as a full specification approach. They aimed to describe the meaning of *over* at a more coarse-grained level or, in other words, more schematic level. The schematicity of image-schemas should be considered seriously when describing the meaning of polysemy at a proper level.
3. This basis is related to the subjective mode. In previous studies of cognitive modes, it has been suggested by many researchers (e.g. Langacker 1990; Nakamura 2003) that humans have two cognitive modes, i.e., so-called "subjective" and "objective" modes. The different characteristics of two modes are illustrated by Langacker's following examples:
 - a. Vanessa jumped across the table. (Langacker 1990: 326)
 - b. Vanessa is sitting across the table. (Langacker 1990: 328)
 (a) is objective, in that the conceptualizer sees the situation and the ground of the conceptualizer is offstage and out of the described situation. On the contrary, (b) is subjective, in that the conceptualizer is in the described situation and sees Vanessa from the point where the conceptualizer is.
4. There are a few completion senses of *down*. However, these completion senses always result from the decrease in quantity as in *dry down*, *slow down*, *drink down*, *close down*. It also has synonymous combination with *up* as in *dry up*, *slow up*, *drink up*, *close up*.

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