Verbs of vision and category violations:
Why *see*, *look* and *watch* are difficult to define

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Abstract

Human beings are primarily visual creatures, receiving a large proportion of our information about the world through visual sensory experience. Despite the centrality of vision in our daily lives, the ways in which the visual sense is conceived by humans is largely mysterious. The English language lexicalizes the visual sense around three core words: *see*, *look*, and *watch*. Despite the high frequency of these verbs in English, the different meanings of the words can be extremely difficult to tease out. English language learners who make mistakes such as 'I went to the Louvre and watched the Mona Lisa' or 'I saw out of the window' inadvertently draw attention to the complexities of these verbs.

To account for the difficulties of these words this paper proposes the existence of certain binary categorization schema in human cognition, such as animate versus inanimate, dynamic versus static, internal versus external, durative versus non-durative among others. The verbs of visual perception violate these category boundaries in such ways as crossing the internal/external boundary, flipping between static and dynamic and conceiving of the same action as both durative and non-durative. These category violations are at the heart of the difficulties encountered when trying to analyze the semantics of the verbs of visual perception.

The sense verbs

Human sensory perception is not evenly divided between the canonical five senses, but is heavily weighted towards the visual and auditory. Indeed, not only are these senses primary in the way in which we perceive the world, the very act of thinking, our sense of being conscious, as much as it is open to introspection, is primarily conceived of as audio-visual. The audio nature of thinking has been described by Plato as 'the soul's dialogue with itself' and the concept of internal dialogue and inner voice is paralleled in the visual sense when people speak readily of 'the mind's eye' and being able to *picture* something in your mind. Dreams are conceived of as basically visual in nature.

Despite the centrality of vision in human awareness of the external world, the actual nature of the visual sense is not readily accessible to introspection. The vocabulary used to refer to the visual sense, in English and other languages, is varied and nuanced, with multiple vocabulary items referring to different aspects of this sense. Native speakers of English are able to select the appropriate word to convey their intended meaning, but it is only when non-native speakers mis-select a word, for example 'Yesterday I looked a movie' or 'I went to the Louvre and watched the Mona Lisa' that some of the complexities inherent in the various terms become apparent. Any teacher of English to non-native speakers will have faced the

question of what the difference is between *see*, *look* and *watch*, and will have felt the extreme difficulty in trying to pin down the differences. That they are not synonyms is proven by the example sentences above, which would be felt by any native speaker as somehow deviant. The precise meanings of these three verbs may be a complex of semi-overlapping category types.

Vision

The physiology of human vision is pretty well understood on a general level among educated people. In very coarse terms, light from the environment enters the iris, is focused by the lens onto the light sensitive membrane at the back of the eyeball (the retina). Light sensitive cells react to the light and create signals that travel down the optic nerve and into the brain where they are processed by brain cells. The resultant state of brain stimulation and its conscious, real-time experience is referred to as a sense of vision. This understanding of the mechanical and physiological mechanisms of visual perception, which conceives of the human body as possessing various ways of perceiving stimuli from the outside environment and transmitting these stimuli to the mind/brain of the person, seems a commonsense observation, but the sense of vision was not always so conceived.

In ancient Greek philosophy there was a theory of vision termed extramission. This theory held that the sense of vision was based upon light being emitted from the eyes of the seeing person.

Plato in the dialogue Timaeus accounts for the function of the eyes thus:

> And of the organs they first contrived the eyes to give light, and the principle according to which they were inserted was as follows: So much of fire as would not burn, but gave a gentle light, they formed into a substance akin to the light of every-day life; and the pure fire which is within us and related thereto they made to flow through the eyes in a stream smooth and dense. (2003, p. 209)

This notion, that the eye emitted some kind of ray or fire or energy, was widely held by a number of classical writers including Euclid, Ptolemy and Galen. This extramission theory was widely regarded as a legitimate account of the working of visual perception. This view was not without its opponents, and the opposite proposal, namely that light entered the eye from the outside environment and stimulated some part of the anatomy, resulting in visual perception is known as intromission. This theory held sway alongside extramission for many centuries, until extramission was decisively overturned by the Arabic scholar Alhanzen (Abū 'Alī al-Hasan ibn al-Hasan ibn al-Haytham, c. 965- c. 1040) and the Persian polymath Avicenna (Abū 'Alī al-Husayn ibn 'Abd Allāh ibn Al-Hasan ibn Ali ibn Sīnā, 980- 1037) who both countered the extramission theory and proposed that the sense of vision worked by the entry of light into the eye.

The development of modern optics and understanding of the physiology of the eye and nervous system has rendered the extramission theory of vision untenable in the modern age.

However, a residual belief in extramission is still widely held by many people, even into the present day. Winer, Cottrel, Gregg, Fournier and Bica (2002) found that extramission beliefs are often held not only by children but, also report that:

> We were, however, startled to find that, despite consistent developmental trends toward decreasing extramission beliefs with age, large numbers of adults also affirmed a belief in visual extramission. Apparently some college students were behaving like prescientific ancient philosophers in affirming an extramission understanding of vision that is entirely at odds with the theories of modern science. (p. 418)

The belief, or at least tacit acceptance of extramission as a basis of our visual perception is also found in a wide variety of literary sources, most notably in the literary device of the 'eye beam'. The 17th century English poet John Donne wrote in his poem *The Ecstasy*: 'Our eyebeams twisted, and did thread/ our eyes upon one double string.' T.S. Elliot in the early 20th Century also referred to eyebeams in the poem *Burnt Norton*: 'And the unseen eyebeam crossed, for the roses/ had the look of flowers that are looked at.' Despite the overwhelming scientific evidence that extramission is a false theory of vision it still seems to find expression in the accounts that people give for describing the visual sense. Part of the reason for the persistence of this view may be connected to the ways in which categorization works in natural human language and cognition.

Binary categorizations in languages and cognition

Linguistic categorization is a complex and nuanced issue within languages. One starting point for many categorization systems is a binary system in which items are either in one category or another category. (For a critique of classical categorization see Taylor, 2003) Sometimes binary categorizations are codified overtly in the language. A clear example of this is the animate versus inanimate categorization of Japanese verbs of existence. The verb *iru* is used with people and animals, that is, animate entities. For inanimate objects Japanese uses the verb *aru* to describe existence. (Note that Japanese does not mark singular versus plural distinctions as English nouns do.)

1) 人がいる

   Hito ga iru.

   There is a person/ are people

2) 犬がいる

   Inu ga iru

   There is a dog/ are dogs.

3) ゴキブリがいる

   Gokiburi ga iru

There is a cockroach/ are cockroaches

By contrast, the verb *aru* is used with inanimate entities.

4) 本がある

Hon ga aru

There is a book/ are books

5) 車がある

Kuruma ga aru

There is a car / are cars.

6) 雲がある

Kumo ga aru

There is a cloud/ are clouds.

As can be seen from the examples and their translation, the English 'be' verb is used in all cases, whereas the Japanese verbs are dependent on the nature of the noun; *iru* for animate and *aru* for inanimate nouns. Even though Japanese and English seem to differ radically in this aspect of categorization, an echo of the animate/ inanimate distinction reflected in language use is found in English possessive constructions. English has two main ways to show a possessive relationship, namely the formulation *N's N*, that is, a noun appended with an apostrophe and an 's', (e.g. My father's house, Jim's coat, the cat's whiskers) and the construction *N of N*, that is the possessed noun followed by the preposition *of* followed by the possessor item, e.g. The roof of the house, the capital of Japan, the reputation of the bank.) There is no specific rule governing which construction is correct, that is, it is not entirely incorrect to say 'the house of my father', or 'the bank's reputation', but there is a tendency for animate nouns to take the *N+'s* pattern and for inanimate nouns to take the *N+of* pattern.

Consider the following:

1) *The man's face* versus *the face of the man.* Both are correct, but the former is preferred

2) *The clock's face* versus *the face of the clock.* Both are correct but the latter is preferred.

As Swan (1994 section 424) states:

The *'s* genitive is most common in expressions where the first noun is animate (refers to something alive). In other cases, we often use the *of* structure.

The existence of an animate/ inanimate distinction in languages as different as English and

Japanese, (and also in other languages) seems to indicate a fundamental concept in human cognition, even though it is a hard distinction in Japanese and a more graded distinction in English. The distinction is still based on two categories, not three or more.

A further binary categorization that may be fundamental in human cognition and may be relevant for understanding the visual sense is the dynamic versus static one. That is, items that are perceived to change state or position or form over the passage of time, and items that do not (unless acted upon by outside forces). Members of the former category clearly include humans and animals, but may also include such non-animate but dynamic items such as fire, wind, water and light. As Lehman (1993) points out with regard to Indo-European languages:

> While nouns and verbs are assigned to either an active, animate or an inactive, inanimate class, some items may be viewed as both animate inanimate. Indo-Europeanists have long been puzzled by the presence of two words for some items, such as fire and water. [....]
> Fire and water, like other objects and activities, may be viewed as either an active process or an inanimate thing.

(1993, p. 92)

The existence of two words (Lehman gives the example of Greek *pûr* and English *fire* in contrast with Latin *ignis* and its Sanskrit cognate *Agnis*) suggests that animacy and dynamism are not the same things. Running water is clearly dynamic, but not animate. Non-dynamic items would include such things as stones, plants, tools, clothes and the like. (Though plants do change over time, i.e. they grow, this change is too slow for human perception and can only be perceived in an interval sense, that is, the current non-dynamic state is different from a previous one but the actual change was not perceived by the observer.) The dynamic/static distinction finds expression in several areas of language. Peters and Peters (2000) note the case with adjectives in English:

> Syntactically, stative and dynamic adjectives differ from each other in several ways (Quirk et al., 1985). For example, in contrast to dynamic adjectives, their stative counterparts cannot be combined with the progressive tense of 'to be', as is shown in (13)(a) and (13)(b) respectively.

(13) (a) She was being playful
      (b) *He was being skinny

> Also, static adjectives cannot be used with the imperative, whereas dynamic can:

(14) (a) Be serious
      (b) *Be skinny

The static versus dynamic binary categorization is also found in German preposition usage. Some German prepositions always cause the noun to be in the accusative case, and some

prepositions cause the noun to be in the dative case. As Paxton (1986, p. 99-101) explains.

> The prepositions governing the accusative only are bis, durch, fur, gegen, ohne um. [Until, through, for, against, without, and around, respectively.]
>
> The chief prepositions which always govern the dative are aus, bei, gegenuber, mit, nach seit, von, zu. [out of, near, opposite, with, after, since, of, to respectively.]

However, there also exists a group of prepositions that 'take accusative when motion is implied [...] and dative when location is indicated.' (ibid, p. 103)

Paxton illustrates with following examples:

Ich lege das Buch auf *den* Tisch. (I put the book on the table)
Das Buch is auf *dem* Tisch (The book is on the table) (ibid, p.103)

When motion is indicated, the definite article for table is accusative *den*. When motion is not indicated, i.e. when the situation is static not dynamic, the definite article for table is dative *dem*.

An additional binary categorization that may be a categorical prime is the internal versus external distinction. That is, some aspects of human experience are seen to be entirely internal to the human organism. Concepts described by words such as 'think', 'dream', 'know'and 'pain', as well as emotion words such as 'happy' and 'sad' are conceived of as existing purely inside humans, (and perhaps some animals) not outside. Wierzbicka (1996) proposes that the words 'think', 'know', 'want', 'feel', 'see' and 'hear' are all linguistic primes, that is, words that are understood by all humans and have expression in all human languages. There is a clear separation between these inner phenomena and the external world. It is impossible for pain or a dream or thoughts to exist outside the body of the person experiencing them.

Finally, the concept of time may be another categorical binary, even though it is counterintuitive at first sight. In his classic paper, Vendler (1967) observed,

> The fact that verbs have tenses indicates that considerations involving the concept of time are relevant to their use. These considerations are not limited merely to the obvious discrimination between past, present, and future; there is another, a more subtle dependence on the concept: the use of a verb may also suggest the particular way in which a verb presupposes and involves the notion of time.
>
> (p. 143)

Vendler then went on to examine the ways in which verbs may differ from each other in certain key ways. The proposed categories are as follows:

■ States. These are verbs such as 'know', 'like', 'believe' and the like. These

verbs do not take continuous tenses (I am knowing it*) or imperatives (Know it*). They are not dynamic or intentional.

- Activities. These are verbs such as talk, run, push that have a durative element, i.e., they are perceived as unfolding over time. They do not have a telic element. That is, they do not unfold towards some completion point. It does not matter how long one has talked, whether for ten seconds of for an hour, one has still talked.

- Accomplishments. These are actions that are both a durative and telic. The action of 'drawing a circle' or 'running a mile' are both perceived to take time and also to have an internal structure, moving ever closer to the completion of the action and finally reaching a completion point. Compare *drawing a line* with *drawing a circle*. In the first case, any movement of the writing implement in contact with the writing surface will be construed as drawing a line, no matter how long or short. The drawing stops when the implement stops or is withdrawn from the surface. By contrast, *drawing a circle* is only said to have occurred when the writing implement again reaches the start point after having gone through the full 360 degrees.

- Achievements. These are verbs that are telic but not durative. That is, they have a completion aspect (in a way that stative verbs do not) but they are conceived of as occurring instantaneously. Compare the expressions 'he was walking for twenty minutes' with 'he was kicking a ball against a wall for twenty minutes.' The first example supposes a single action going on for a duration of twenty minutes. The second example supposes that the person kicked the ball repeatedly over a period of twenty minutes, not that the action of setting a ball in motion my contacting with the foot at speed took twenty minutes. Although high-speed cameras could probably give a value for the amount of time that a foot was in contact with a ball during the action of kicking, in daily usage the action is perceived of as having zero time dimension.

The binary nature of these categories is combined into a matrix that distinguishes between durative and non-durative and telic and non-telic. Actions either take time or occur instantly. Actions either move toward a completion point or continue without development or change until they cease. (Compare 'the storm lasted all night' and 'the journey took six hours.)

To sum up, these binary categorizations, animate versus inanimate, dynamic versus static and internal versus external, telic versus non-telic, durative versus instantaneous are often, but not always, encoded explicitly in a language. These binaries (and there may be other basic binary categories, see appendix 1) may have the status of categorical primes in human cognition. The words and the concepts for which they stand may fall cleanly in to one or other of the categories, with no possible overlap as is the case with Japanese *iru* and *aru*, or the categories' may have a certain fuzzy edge where they overlap one with the other, as is the case with English Noun +'s constructions versus *noun of noun*, but the categorization system itself is based on a binary distinction. A word or concept may fall cleanly or fuzzily into one or the other category, but there is no third category, either as a separate full category in

and of itself, or as a default, catch-all category for everything that does not fit into the other categories.

It should be noted here that these categories are constructions of human cognition, not empirical descriptions of the nature of reality, and should therefore be seen as sense making tools deployed by humans as they strive to understand reality on their own, human, terms rather than categories that have objective validity.

Binary categories and visual perception

That visual perception verbs pose problematical to analyze and explain to non-native speakers is a common observation among language teachers. Similarly, the persistence of extramission accounts of vison, in spite of their scientific invalidity, is also hard to explain. The existence of binary cognitive categories as a way of sense making in the world may, it is proposed here, lie at the heart of both of these difficulties.

Firstly, it is clear that the sense of visual perception in humans violates binary categorization schemas. The observed object is, of necessity, external to the observer. It is outside their body, completely and irrevocably. But at the same time, the locus of the actual perception is within the observer's body. It is located in the consciousness, the mind-brain state of the observer, not in any way external. This category violation is profound. As Douglas (2003), states, category violations are deeply felt by humans.

> We can recognize in our notions of dirt that we are using a kind of compendium which includes all the rejected elements of ordered systems. It is a relative idea. Shoes are not dirty in themselves, but it is dirty to place them on the dining table. […] similarly, bathroom equipment in the drawing room, clothing lying on chairs; outdoor things indoors; under-clothing appearing where outdoor clothing should be, and so on. In short, our pollution behavior is the reaction which condemns any object or idea likely to confuse or contradict cherished classifications. […] Uncomfortable facts which refuse to be fitted in, we find ourselves ignoring or distorting so that they do not disturb the established assumptions. (pp.36-37)

Douglas elaborates on the theme of bodily boundedness and the dangers of both transgression and internal contradiction.

> Four kinds of social pollution seem worth distinguishing. The first is the danger pressing on external boundaries; the second, danger from transgressing the internal lines of the system; third, danger in the margins of the lines. The fourth is danger from internal contradictions. (ibid, pp.123-124)

In the following section I will examine the ways in which binary categories are relevant to each of the verbs of visual perception, and how the semantics of the verbs violate several of these categories, leading to confusion as to the exact meanings of these verbs.

The verb *see*

In terms of binary categories, the verb *see* may be conceived of as a non-durative action and also as an action that crosses the external/internal boundary in one direction, i.e. from outside to inside. Light from the seen object enters the eye and then is transmitted to the brain by the various physiological processes until it manifests itself in the consciousness of the individual. The external object existed first and the cognitive state existed second. It is no surprise that the expression I *see* in English means I *understand*. The connection with seeing bringing about a cognitive/epistemic state is implicit. The non-durative aspect of *see* is slightly more problematical. If one says 'I saw John at the party' one is saying in effect that one's cognitive state was changed by the entrance of light into the eye and the transmission of electrical signals to the brain. One's epistemic state has changed from not knowing whether John attended the party, to knowing that he did indeed attend the party. The change in epistemic state is perceived as instantaneous. The time taken for the light to travel from the object (John) to the eye and the time taken for the nerve signals to travel along the optic nerve to the brain and the change of epistemic state are not perceivable to humans.

However, other usages of the verb *see* treat clearly durative actions as non-durative. If someone says 'I saw an interesting movie last night', the statement disattends entirely to the time taken to view the movie. The two-hour duration of the movie is collapsed in this schema to a zero point and the telic aspect is foregrounded. One saw the movie in its entirety and as a result one now knows the story arc and the ending. If one is interrupted before the end of a movie, one cannot claim to have seen it. Consider the contrast between 'There was a power cut while I was watching the movie on TV' and 'There was power cut while I was seeing the movie on TV.' The first statement is acceptable. The second is not because it implies a durative aspect to seeing and violates the telic process of perceiving a movie until the end, thus precluding the use of the verb *see*.

The verb *look*

The underlying conceptual schema of the verb *look* is also problematical because of binary category violations. As with the verb *see*, the basic violation is the crossing of the internal/external boundary, i.e. objects existing externally to the viewer find manifestation in the internal consciousness of the viewer. But whereas the verb *see* posits a direction of movement from external to internal, the verb *look* is based on a schema of movement in the opposite direction, that is, from internal to external.

Consider the following situation. A person is shown a photograph of a group of people and is instructed to look at John in the photograph. The ability of the viewer to carry out this action is dependent entirely on her pre-existing epistemic state. That is, if the viewer knows the person named John and can identify him in the photograph, then she can claim to have looked at John. However, if the viewer does not know the person named John, then she cannot look at John. She could of course look at all of the faces in the photograph in turn and then claim that she has looked at John at some point, but then the whole exercise could be revealed as

a hoax, and the viewer could be informed that there was actually no person named John in the photo and therefore the statement that she had looked at all of the faces in turn and therefore looked at John proves to be false.

The key point to be made here is that the verb *look* is based on the pre-existence of knowledge in the mind/consciousness of the looker. The temporal order of *look* is perceived as internal followed by external; one looks at something one already knows. Even though nothing actually leaves the eyes and strikes the external object, the schema order gives an impressionistic feel of extramission. The combination *look for* is an even stronger than *look at*. One can have an object in mind and then focus one's attention on various parts of the surrounding environment, without coming across the desired object. If the looked for object is not in the external environment, it remains *unlooked-at*.

Another aspect of the verb *look* that may be a source of confusion is the durative and non-durative binaries. In one sense the verb look can be used for durative actions. That is, one can focus one's attention on something for a perceptible period of time. E.g. 'I looked at the puzzle for ages, but couldn't figure out how to solve it.' But look also has a non-durative sense, e.g. 'He looked at his watch and then the door.' In this case the verb does not show prolonged attention to the viewed object but a sudden shift in the focus of attention from one viewed object to another. This reflects a psycho-physiological aspect of human vision. People tend to focus their eyes and their attention on a small subset of the three-dimensional world around them. That is, they *look at* something in particular and therefore do not *look at* other things in their environment. When a shift of focus occurs, when one stops *looking at* one thing and then starts *looking at* another thing, humans do not do it by means of a tracking shot, a slow sweep of the eyes from the first object to the second object. Rather, they do it by a sudden 'switch' in attention and focus, which is perceived as being instantaneous by the observer. (Filmmakers make use of this by using cuts between scenes and camera angles, without this instantaneous switch causing any jarring sense to the audience.) Thus, the verb *look* can be used in both a durative and a non-durative sense to describe an act of visual perception.

The verb *watch*

The verb *watch* shares something in common with the verb *look*, in that it is regarded as a purposeful action on the part of the observer, that is, the person who is watching is consciously focusing on some object in the external world, and thus fulfils the same extramission schema as *look*. The verb *watch* is more connected to the dynamism of the observed object than the verb *look*. Swan (1994, section 368) states: 'Watch is like look (at), but suggests that something is happening or is going to happen. We watch things that change, move or develop.' The dynamic aspect of the observed item is here foregrounded. Once can go to the cinema and watch a movie, or go to a stadium and watch a football match, but one does not go to the Louvre and watch the Mona Lisa.

Even if the item being observed is non-dynamic, the dynamic aspect can be foregrounded. E.g. 'I'm just going to the toilet. Can you watch my bag?' In this case the bag is static and will (hopefully) remain so. What is being attended to here is the notion that watching the bag

means ensuring that nothing dynamic happens to the bag, i.e. that it does not move, that it is not stolen by some person, but remains where it has been left.

Here there comes another point that is often difficult for language learners to grasp and for language teachers to explain. In English is is possible to say both 'Watch a movie' and 'See a movie.' As was mentioned above, both verbs refer to the process of visual perception, but they encode very different schemas. The verb *see* conceives of the act as basically passive, telic and non-durative. The durative dimension is entirely dissatended to. The verb *watch* conceptualizes the act as active, a product of will and purpose (and thus extramission based) and also as durative. Watching unfolds over perceivable time, whereas *see* does not (hence its resistance to use with the continuous tense). *Watch* also attends to a dynamic rather than a static schema of the observed object. With *look* the dynamic aspect is conceived of as a property of the action. The extramission schema would conceptualize the emissions from the eyes as dynamic rather than the viewed object, whereas the schema activated by *watch* prioritizes the dynamic nature of the viewed object over the dynamic action of watching.

Conclusion

To sum up, the three main verbs of visual perception in English are multi- dimensional and complex, and differentiating between their underlying concepts can be challenging. All three verbs have a central category violation that undermines everyday human cognition, namely, vision is perceived of as crossing the internal/external boundary of the body and the world. For *see* the direction of this crossing is perceived of as from external to internal, and with *look* and *watch* the directionality is schematized as from internal to external, from the mind state to the external world, which may account for the persistence of extramission theory as an account of visual perception as reported by Winer et al. (2002), despite this account being scientifically untenable.

Furthermore, the perception verbs can violate the durative/non-durative binary categorization in their various meanings. *See* is a non-durative verb. 'I saw him at the party' is seen as an instantaneous change of epistemic (internal) state, from the initial state of not knowing for sure whether he was at the party or not, to the subsequent state of knowing for sure that he attended the party. Alternately, 'I saw a really good movie last weekend' clearly refers to an action that unfolded over a period of time, but this durativity is completely dissatended to in the conceptualization of the action. *See* can encompass both durative and non-durative events, but schematizes them as non-durative. Similarly, *look* can cross categories from durative to non-durative. A chess player may look at the board for an hour before making his move. And upon making the move can look up at his opponent's face, the attention shift being instantaneous. The verb *watch* also shares the internal to external schema of *look* and also violates category boundaries. The observed item may be moving changing or developing, either perceived as happening before the observer's eyes in real time as in 'I watched an ant crawl over the page', or happening over time periods that are not perceptible to the observer, as in 'I watched my children grow up.' Alternatively, the verb can also be used to accommodate non-dynamic situations in a way that foregrounds dynamicity or lack thereof

as in 'Can you watch my bag while I go to the toilet?'

It is proposed here that visual verbs are so difficult to pin down because of their polysemous nature and internal complexity, but also because they contain within them meanings that contradict one another and violate basic human cognitive binary schemas. As many language teachers can attest, it is the most basic of everyday words, for the most daily occurrences that often prove the most difficult to investigate, explicate and understand.

References

Douglas, M. (2003). *Purity and danger: An analysis of concepts of pollution and taboo.* London: Routledge.

Leheman W. P. (1993) *Theoretical bases of Indo-European linguistics.* London: Routledge.

Paxton, N. (1986.) *Teach yourself German grammar.* Sevenoaks: Hodder and Stoughton.

Peters, I. & Peters, W. (2000) The Treatment of Adjectives in SIMPLE: Theoretical Observations in Proceedings of LREC 2000. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.676.683&rep=rep1&type=pdf

Plato. (trans 2003). *Gorgias and Timaeus.* Mineola, New York: Dover Thrift Edition.

Pinker, S. (2008). *The stuff of thought: Language as a window into human nature.* London: Penguin.

Swan, M. (1994). *Practical English usage.* Oxford: Oxford University Press

Taylor, J. R. (2003). *Linguistic categorization.* Oxford: Oxford University Press.

Vendler, Z. (1957). Verbs and times. *The Philosophical Review 56*, pp. 143-160.

Wierzbicka, A. (1996). *Prime and universals.* Oxford: Oxford University Press.

Winer, G.A., Cottrell, J.E., Gregg. V., Fournier, J.S., & Bica, L.A. (2002) Fundamentally misunderstanding visual perception. *American Psychologist.* 57, 6/7, pp. 417- 424.

Appendix

If we take it as given that language emerged in humans while they still lived as nomadic hunter-gatherers, it seems reasonable to suggest that the human cognitive endowment was heavily influenced by the material culture of those people. Certain things such as bacteria, viruses, books, robots and other automata, computers, micro-second recording instruments, a theory of gravity and so on were unknown to their worldview. Given the material circumstances of their existence, the following binary categories are proposed. There may be others.

Human vs. Non-Human
Animate vs. Inanimate
Internal vs. External
Dynamic vs. Static
Manufactured vs. Naturally Occurring

Living vs. Non-living
Natural vs. Supernatural
Durative vs. Non-durative