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Semantic Minimalism as the Foundation of Knowledge

An ongoing debate within philosophy of language indicates there is disagreement around how meaning is derived from linguistic expressions. Some believe interpretations based on semantic values are insufficient for proper comprehension while others accept the importance of semantics for supporting linguistic efforts. Those who deny the significance of linguistic semantics tend to appeal to *pragmatics,* or the additional information surrounding the utterance of expressions. While *semanticists* do not deny the significance of pragmatics, they generally aim to defend the role of semantic values within linguistic communication (Cappelen and Lepore 4). They often suggest a basic or literal understanding of words is necessary for comprehension, where pragmatics conveys supplemental information to through nuanced behaviours or expressions. Although these pragmatic considerations may alter how information is presented and interpreted, semantics are still required for securing a foundational level of meaning associated with linguistic expressions and utterances.

This paper aims to establish the importance of linguistic semantics and argues for their necessity in learning. While a speaker's meaning does play an important role within language, it only does so after a semantic understanding has been established in childhood. The first half of this paper analyzes the nature of the semantics/pragmatics debate and the arguments given by supporters on each side. It also introduces a problem associated with pragmatic accounts of language to demonstrate the necessity of semantics for linguistic comprehension. The second half of this paper aims to support semanticist considerations by reviewing the process of language learning in childhood. A discussion of scientific evidence within the domains of neuroscience and developmental psychology is presented which supports semanticist claims, indicating the necessity of literal meanings for the construction of conceptual knowledge early in life. Additionally, pragmatic features of communication are briefly

considered in light of these findings, suggesting one's ability to appeal to context is only gained once a

linguistic foundation has been established in infancy. I conclude by reminding the reader that

pragmatist views ultimately depend on semantic understanding, as the ability to learn simple linguistic

terms in infancy secures one's capacity to comprehend more complex features of language, in addition

to conceptual relationships embedded within our world.

Carston on Contextualism

While the difference between semantics and pragmatics may seem readily apparent, a debate

still lingers surrounding the relationship between these two features of language (Carston, 'Linguistic

Communication and the Semantics/Pragmatics Distinction' 321). We are able to read or listen to a

phrase and have a general idea of its meaning, and this is accomplished through an understanding of

linguist semantics. This definitive expression is called *explicature* (Carston, 'Implicature, Explicature,

and Truth-Theoretic Semantics' 163). There may be extra information, however, which is not expressed

through semantics and instead may arise from how the speaker utters a phrase, for example. This

underlying information is known as *implicature* (Carston, *Thoughts and Utterances* 95) and exists as

one of many aspects of the pragmatic considerations surrounding language and communication

(Carston, 'Implicature, Explicature, and Truth-Theoretic Semantics' 173–74). Given this understanding,

it seems that semantic and pragmatic aspects of language belong to distinct categories which both

contribute to the meaning of an expression or sentence (Carston, 'Implicature, Explicature, and Truth-

Theoretic Semantics' 158).

Robyn Carston believes implicature and pragmatics significantly contribute to the meaning of

an expression, where a full understanding of an utterance depends on understanding what the speaker

intends to convey (Carston, 'Implicature, Explicature, and Truth-Theoretic Semantics' 173). Carston

suggests semantics or explicature, the minimal content expressed within an expression, is ultimately

incomplete in some way as more information must be conveyed in order to provide a detailed account

of the speaker's intentions (Carston, 'Linguistic Communication and the Semantics/Pragmatics

Distinction' 329). She believes a significant portion of an utterance's meaning is generated from

pragmatic considerations, producing a specific understanding of what the communicator intends to

portray (Carston, *Thoughts and Utterances* 96–97). Without considering pragmatic features of

communication, Carston is hesitant to agree that semantic accounts of language are sufficient for

explaining how interpretation and communication successfully obtain.

One source of conflict between those engaged in the debate between semantics and pragmatics

surrounds the use of terms which do not have a clear referent or meaning. Some of these terms are

known as *indexicals,* where their ambiguity compels a reader or listener to consider present contexts to

determine which referent is being identified (Carston, *Thoughts and Utterances* 20). Pragmatists like

Carston believe the use of indexicals, along with other types of words, results in an *underdeterminacy*

of meaning, where semantics alone are insufficient for understanding the meaning of an expression. For

example, "She didn't get enough" makes use of the personal pronoun 'she', and evaluating the

explicature indicates the speaker is referring to some salient female individual (Carston, 'Implicature,

Explicature, and Truth-Theoretic Semantics' 155). Which individual the speaker is referring to,

however, remains unclear until the listener considers the wider context at present. While 'she' seems to

be a fairly uncontroversial example, words like 'get' may also suggest a certain level of dependency on

contextual features to better understand precisely what the speaker intends to say. Perhaps the lady in

question did not receive enough of something, or perhaps she failed to acquire whatever she aimed to

procure. Given this, explicature alone is insufficient for a precise understanding, suggesting other

information is necessary to determine exactly what is being stated. On the other hand, some believe

'get' does not pose this problem, as a listener is able to appeal to a general understanding of its definition for basic comprehension. Though vague, 'get' could be considered differently than 'she' as its meaning is not dependent on contextual features in the same manner. Context may contribute to the precise meaning of 'get' but overall, a listener remains able to determine whether the sentence is true or false. Alternatively, this is impossible for sentences involving personal pronouns like 'she' as its truth depends on who is being referred to.

After a brief discussion of semantics and pragmatics, the importance of *context* for determining what speakers really mean when they utter an expression becomes quite clear. Pragmatic accounts of language suggests context, or aspects of the environment present during communication, are necessary for determining what a speaker intends to convey. Those who believe that semantics alone cannot provide an adequate understanding of an utterance tend to be classified as *contextualists* to some degree (Cappelen and Lepore 5). While there is some disagreement on how context contributes to the meaning of an expression, pragmatists generally fall within various categories of *contextualism.* This discussion will be elaborated upon in a later section of this paper, however it is important to note here that Carston tends to appeal to *moderate contextualism* (MC), where some words depend on contextual features for their meaning (Cappelen and Lepore 7).

Cappelen and Lepore's Semantic Minimalism

Semantic minimalism suggests there is semantic content shared between sentences regardless of context (Cappelen and Lepore 143). Semantic content offers a minimal understanding of what words mean, and these meanings exist independently from contextual features. For example, the expression "Manitoba is beside Ontario" is true in all occasions in which it is spoken or read. This case appeals to the relationship between the referents of 'Manitoba' and 'Ontario' and since this relationship is not

affected by context, it is evaluated as true regardless of the situation in which it appears. While this

example includes a concrete relation between fixed referents, semantic minimalism also applies to

phrases which are slightly ambiguous, such as "real egg sandwiches." As such, contextual phrases can

be accounted for by semantic minimalism because these terms refer to something or some idea.

Although statements like these may be vague, the sentence itself can be evaluated as either true or

false.

Given this, Cappelen and Lepore grant that language does have a pragmatic component, one

which stands in its own independent category and influences the truth values of sentences (Cappelen

and Lepore 190). They acknowledge the importance of indexicals for communication but believe only

a finite number exist, constituting a *basic set* of indexicals (Cappelen and Lepore 17). These terms

reference various aspects of the context associated with an expression, such as a point in time or

location (Cappelen and Lepore 146). This basic set includes personal pronouns like "I" and "we,"

demonstrative pronouns like "this" or "that," adverbs such as "now," "today," and "there," and

adjectives such as "actual" or "present" (Cappelen and Lepore 144). When indexicals are used within

sentences or expressions, truth values and referents cannot be ascribed to sentences without an

understanding of contextual features (Cappelen and Lepore 145). These terms are considered

"genuinely context sensitive" (Cappelen and Lepore 143) as their semantic values are "grammatically

triggered" (Cappelen and Lepore 144) by the listener's ability to determine the referents after

comprehending the utterance. For example, "He's happy" suggests a particular male identifiable within

a context is experiencing a positive emotional state (Cappelen and Lepore 145). The truth value of this

phrase can be identified after a listener considers how the semantic value of each of these words

pertains to their knowledge of the world. This phrase is considered true provided the male being

referred to does indeed possess the property of "being happy" in the most basic sense.

The Problem with Moderate Contextualism

Cappelen and Lepore argue that appeals to the necessity of context for referent fixing, outside of the basic set of indexicals, produces a slippery slope to *radical contextualism* (RC) (Cappelen and Lepore 39), where expressions are ultimately dependent on contexts in order to determine a truth value (Cappelen and Lepore 32). They suggest a range exists between semantic minimalism and RC, where MC rests somewhere in the middle between these two opposing views (Cappelen and Lepore 7). In general, *contextualists* state that the speaker's beliefs or intentions can impact the semantic values of the terms that are used within an expression (Cappelen and Lepore 13). Proponents of MC hold that many different types of words beyond the basic set are context sensitive, some of which include quantifiers (Cappelen and Lepore 18), comparative adjectives (Cappelen and Lepore 21), propositional attitude ascriptions (Cappelen and Lepore 22), and counterfactual conditionals (Cappelen and Lepore 24–25). Supporters of MC suggest context shapes what these words mean or refer to, and without knowledge of a particular context, the meanings of certain words are incomplete or underdetermined (Cappelen and Lepore 33). One example used to demonstrate incomplete semantic meaning is "Fred is ready," as it is supposedly unclear exactly what Fred is ready *for* without appealing to some other body of knowledge (Cappelen and Lepore 36). Similarly, the phrase "It is raining" suggests underdeterminacy as more information is required, in the form of a location, to determine whether the statement is true or false (Carston, Thoughts and Utterances 22). This suggests that two utterances of the same sentence within different contexts may lead to different truth values, a phenomenon which Cappelen and Lepore call *context shifting* (40). They state that supporters of MC employ *context shifting arguments* (CSAs) to demonstrate how MC is a significant feature of language, however, Cappelen and Lepore believe this mistake arises from the conflation of semantic content with speech

act content (40). Given this confusion, they explain that most utterances could take advantage of a CSA, suggesting the majority of terms used are indeed dependent on context for their meaning (Cappelen and Lepore 40). This notion is agreed upon by supporters of RC, as they believe a sentence's truth value is generated by the context of utterance (Cappelen and Lepore 44). The phrase "It is raining" may be true if the speaker is witnessing local weather patterns, however, it may also be considered false if the speaker is instead surveying meteorological data collected from a different location. Until a specific context is identified, RC supporters believe it is impossible to determine whether the speaker's claims are accurate. While proponents of MC disagree with this tendency to slide into RC, Cappelen and Lepore believe there is nothing which fundamentally separates the set of MC context-sensitive terms from other words, and with enough consideration, most utterances can be examined in ways which motivate intuitions appealing to RC (Cappelen and Lepore 48).

We can see this is a skewed perspective, however, if we consider the ways young children learn words. Infants are able to successfully learn associations between objects and labels without appealing to contextual specification. As a child begins to learn their native language, the truth values associated with utterances are concrete because they strive to gain an understanding of the world around them. After children learn to speak and are able to verbally discern different objects, context serves as a tool for learning additional words and referents, building up a body of knowledge and understanding which facilitates further efforts of communication. Though context is not absent from early language learning, it does not play the type of role contextualists believe it does until they have a firm understanding of the words which represent features of their world.

Semantic Minimalism for Learning

Semantic minimalism serves as the foundation of early linguistic learning because it acts as a basic structure from which we can scaffold new knowledge. In infancy, simple nouns and verbs are important for establishing an understanding of spoken languages, as they act as labels for objects and concepts. The developing brain is highly flexible and motivated to learn languages from other humans (Keil 261) and repeated experiences over time allows infants to learn that various nouns and verbs have shared properties (Keil 264). This forms the basis of conceptual categories, becoming finer-grained as children learn additional exemplars and counterexamples (Keil 316). Thus, the accumulation of knowledge must begin with specific and concrete concepts, creating a foundation for understanding other aspects of the world and ways to express these features through language.

The *problem of reference* asks how children associate words with meaning, and which features of objects are associated with terms (Siegler et al. 232). One important behaviour for word learning is *joint attention,* where the gaze of an adult serves as a cue to the infant to investigate the object of interest (Hopkins et al. 260). When an adult simultaneously utters the name of the object, an association is formed between the referent and the term. Additionally, *infant-directed speech* also facilitates learning through vocal cues, as this exaggerated and musical speech aims to distinguish word boundaries (Keil 267) and portray emotional information, such as excitement or disapproval (Siegler et al. 223). These two methods suggest referents are learned through the behaviours of adults, combining visual and auditory cues to establish the foundation of words and their referents.

As infants learn the components of speech associated with the dominant language in their environment, they become increasingly capable of distinguishing new words and their referents (Siegler et al. 224–25). The developing vocal tract eventually gives rise to early sounds characterized by vowels, supporting their ability to understand how these sounds match those uttered by adults (Siegler et al. 230). When learning to communicate, babbling serves as practice for early speech sounds

but evidence also suggests it serves as a cue for adults that the child is ready to learn labels through

conversational patterns of turn-taking (Siegler et al. 231). Furthermore, a mutual understanding

established between two individuals, known as *intersubjectivity,* builds on joint attention through

behavioural imitation and synchronization (Siegler et al. 232; Raczaszek-Leonardi et al. 211). These

mechanisms provide a behavioural foundation which transforms patterns of familiar sounds into speech

acts, facilitating the ability to recognize new sounds and words associated with their native language

(Siegler et al. 232). The words most frequently repeated by adults are typically learned first, such as

"Mommy" and "Daddy," and after a sufficient amount of neural wiring, semantic understanding can be

established (Siegler et al. 232). Surprisingly, at around six months infants will look to the appropriate

parent when they hear either term, demonstrating they understand the relationship between referent and

label quite early (Siegler et al. 232). This is the result of developing cortical structures, and as infants

are exposed to a wider variety of labels and objects, they acquire the ability to rapidly learn new words

and their meanings (Siegler et al. 232–33). Once children are able to utter these words, they use them to

communicate in simple ways. An important stage in the development of infant communication is the

holophrastic period, where an idea or phrase is associated with a single word (Keil 264). Examples

may include "Drink" or "Potty" to signal the desire to be given a cup of juice or use the bathroom.

Holophrases may also be combined with gestures and additional words to signify more complex ideas

(Siegler et al. 235), such as "Take off!" to indicate the child is requesting help removing their coat

(Tomasello 261). These simple utterances are applied to a variety of contexts as an attempt to

communicate desires, needs, experiences, and ideas (Tomasello 261). As children encounter objects

they do not know the word for, they tend mislabel it with another term whose referent possesses similar

characteristics, known as *overextension* (Siegler et al. 235). For example, a child may point to a zebra

and say "Cow" due to the presence of four legs and similarities in size or coloration (Keil 278).

Once this semantic foundation has been established, further communicative development can begin. At 18 months, a child's ability to communicate rapidly accelerates while word learning continues at a regular pace (Keil 273; Siegler et al. 236). This period makes use of contextual cues as a tool for learning new object labels. *Pragmatic cues* include social contexts in which words are used, and children look to caregivers for approval on whether associations they've identified are correct (Keil 268; Siegler et al. 236). This collection of experiences generates a young individual's ability to understand the world around them and discuss it with others. This tendency also holds for non-verbal languages like sign-language, and evidence suggests deaf babies babble with their hands in preparation for non-verbal language acquisition (Petitto et al. 43). While it may be tempting to attribute this remarkable trajectory to innate abilities encoded DNA, an important aspect of linguistic development is social interaction and adult tutelage (Hopkins et al. 59). Neglected infants tend to show developmental delays and impaired communication later in life (Curtiss et al. 544; Keil 273) suggesting the expression of DNA requires certain environmental factors for typical language acquisition (Hopkins et al. 23).

In childhood, the development of vocabulary mirrors conceptual development, as linguistic concepts assist in understanding the world by generalizing from previous experiences (Siegler et al. 262). Children are motivated to understand a variety of categories but often assume objects can be classified as a person, animal, or inanimate object (Siegler et al. 263). Over time, these categories begin to include hierarchies of labels, consisting of general terms which branch into more specific concepts, such as "tigers" or "cats" from "animals" (Siegler et al. 265). The terms first learned are considered *basic level* and typically involve a medium category like "fish" (Siegler et al. 266). This is due to the number of consistent characteristics between concepts, like similarities in shape, texture, or colour. Examples which appear to be slightly different from medium category exemplars suggest a *subordinate level* or a more specific category (Siegler et al. 266) such as "shark" or "hammerhead." As children are

exposed new objects, parents help them learn by stating the subordinate level category as a type of its

medium level classification (Siegler et al. 266). This is further facilitated through dialogues involving

questions and answers pertaining to conceptual relationships. Establishing causal connections are a

significant aspect of categorization, and serves as an explanation for why children go through a period

of asking many questions (Siegler et al. 267). As children age, their reliance on the common features of

category members evolves to consider defining features of semantic referents (Keil 279). Evidence

suggests children provided with explanations of the features associated with words are able to

distinguish similar objects more efficiently and remember them better when tested the next day

(Krascum and Andrews 342-43). These behaviours suggest the coupling of labels and referents

generates one's understanding of objects and higher-order concepts, suggesting linguistic semantics

serves as a foundation for knowledge in the first few years of life.

     Findings from neuroscience suggest the brain develops in a particular spatial and functional

order, utilizing existing connections to expand neuronal links to develop subsequent areas within the

brain. This is due to the functional specialization of cortical regions, where specific cognitive functions,

including linguistic processing, are supported by one or more locations within the neocortex (Stevens

2). As neurons grow and branch to establish functional connections, they form more complicated

processes which are associated with a variety behaviours (Stevens 4). For example, visual perception is

quite limited within the first few months of life but as regions of the brain associated with vision

mature, attentional capacities do so as well, allowing individuals to notice and fixate on objects within

their environment (Amso and Scerif 609). As auditory capacities develop in a similar manner, infants

gain the ability to associate visual cues with auditory cues, serving a foundation for learning words and

their referents over time, developing cortical regions associated with object recognition. These

connected regions and their neuronal pathways eventually facilitate an understanding of more complex

speech sounds (Friederici 941) and the ability to comprehend abstract categories or classes of objects

(Amso and Scerif 611). Evidence suggests the more children hear a language spoken within their

immediate environment, connectivity between cognitive structures becomes further reinforced to

generate the ability to understand novel utterances in the same language (Friederici 942–43). Therefore,

the hierarchical development of physical and functional brain systems (Stevens 4) enables infants to

become fluent members within a linguistic community, provided typical physiological maturation

occurs.

Thus, it seems the problem of reference involves a story about how semantics establishes a

foundation for communication, one which grounds contexts within a single perspective, namely the

child's. We engage with infants in a particular way to facilitate learning the association between spoken

words and what they mean. Acts of demonstration through social interactions are central for this

learning process, where contextual simplicity is necessary for establishing a foundation for cognitive

faculties to emerge. Once established, children become involved in peer-based social interactions

which provide access to new information about the social world, thus supporting a better understanding

of implicature. Therefore, it seems Cappelen and Lepore's perspective on semantic minimalism is a

foundational dimension of language, as children rely on simplicity in order to begin learning about the

world and its objects.

Concluding Remarks

From a cursory survey of the scientific literature surrounding the development of the brain and

knowledge, it is apparent there is ample evidence to support the view of semantic minimalism as an

integral feature of language. Although context is an important aspect of language and learning,

semantic minimalism provides a framework which eventually supports further knowledge of contextual

elements within the environment. This suggests radical contextualism cannot be true, as we would not

be able to learn languages due to the underdevelopment of the human brain in the earliest stages of life.

If radical contextualism were true, an inquisitive toddler would find themselves trapped by confusion,

as the clarification of context would always be necessary for learning new words and objects. These

considerations also compel proponents of moderate contextualism to acknowledge the role of semantic

minimalism for language learning, as their view requires individuals to possess a level of semantic

understanding for uttering accurate statements. Thus, it seems the account of semantic minimalism, as

provided by Cappelen and Lepore, is fundamental for securing the "shared content" within acts of

communication (Carston, 'Linguistic Communication and the Semantics/Pragmatics Distinction' 331).

Until various parts of the brain have sufficiently developed, context plays a limited role in learning and

using language due to a lack of functional connectivity in the brain. This reality implies that appeals to

context for comprehension are ultimately situated on top of an internalized semantic understanding of

language as it relates to the world.

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