

# Exploiting Lexical Ambiguity And Misunderstanding In Software Engineering With Regards To English Language

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## Abstract

*This paper is primarily concerned with lexical ambiguity, ambiguity which is created when a word has multiple meaning. The aim of this research is to identify kinds of ambiguity found in words in the field of software engineering, specifically and in all other programs which students come across during their studies. Outside etymology, lexical semantics overlaps for controls for example, philosophy, psychology, anthropology, PC science, etc. It focuses on the cases of ambiguity found between the selected words related to software engineering with regards to English Language. It was hypothesized that an ESP course should be developed in order to avoid lexical ambiguity faced by learners. For this purpose, a questionnaire comprising words having different meanings in common English and different in software engineering. 50 students of software engineering and 50 students from all other study programs were taken. SPSS results have not shown significant differences in between both. That leads towards the dire need of having a specific course for software engineering students at the BS level in which they teach their subject related vocabulary to remove ambiguity. Such a course can best be developed after mutual consultation in English and software engineering faculty. It is hoped that this research can improve teachers' as well as learners' performance to a great extent. Moreover, it can also be applicable to other fields of study.*

**Keywords:** Lexical ambiguity; Kinds of ambiguity; English Language; Software Engineering

## Introduction

Ambiguity is innate in any language. Its occurrence is obvious in many words and constructions that initially doesn't feel to be problematic, mutually in written and oral discourse. In any classroom language plays a pivotal role. It is considered as a basic source to communicate different ideas. According to Thompson & Rubenstein (2000), it help students in building understanding and processing the ideas. It also provides a method by which student's learning is assessed. Pinker (1994) defined language as "simply by producing noises with our mouths, one can surely caters to fabricate new combinations of ideas to arise in each

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other's minds". According to Lemke (1990), as learners get exposure to the vocabulary of a particular field, they do not yet speak the subject's language. Moreover, they start weaving connections of what they are hearing and what they already have heard. If a commonly used words of English language are also used in some technical field, learners hearing the word for the first time in classroom can incorporate the particular usage as a new attribute of the word they already have in their mind. As a result, the use of domain specific words that are alike commonly used words in English language. It caters in making incorrect associations between words that they already know and words that morphologically or phonetically look similar but have different meanings in statistics. Such words are known as lexical ambiguity. (Barwell, 2005)

#### **Research Question**

How same words which have different meaning in different field of studies create lexical ambiguity?

#### **Literature review**

Ambiguity and ambiguity resolution in ways of lexical and structural forms, has fascinated the attention of many researchers, especially in the field of psycholinguistics, computational linguistics, cognitive psychology, and other disciplines concerned with the aspects of sentence processing (e.g., Hirst, 1987; Clifton 1994; Franz, 1996; Van Gompel 2000; Gorfein, 2001).

#### **Characterization of Ambiguity**

Equivocalness is a semantic property. Semanticists contend over precisely what meaning is, but it doubtlessly includes partner expressions in a dialect with something else. The mystical status is about how phonetic expressions get related with regions. We will utilize the term 'denotation' for the affiliation between and districts.

An expression is equivocal in the event that it has two or more unmistakable indications that is ,if it is related with more than one locale of the meaning space the most obvious occasions of uncertainty include expressions with two denotations that are disjoint from one another. A standard illustration is a bank, which as a descriptive word signify measures along one measurement, but as a verb is roughly synonymous with long . But there are conceivable cases of expressions that have numerous non-disjoint indications . In the case the verb eat can denote either the ingestion of nourishment (we ate the cake) or gradual destructive utilization (Salt ate the paint on them right bumper); both denotations are suitable to (1) in spite of the fact that eat does not appear ambiguous in this sentence.

### **Word meaning in English**

Meanings of words have been dealt like lexeme's meaning. Syntactic and lexical are two kinds of meanings available. Lyons (1995, p.52) says that a lexeme may or may not have different word categories and such categories may have variation in their meanings for example variation in the form of syntactic meaning or in the form of their language structure. In order to illustrate it further, the lexeme 'Bank' has two contours bank and banks, which diverge in terms of its syntactic meaning, this is solitary frame (of a thing of a specific lesson) and another one is the plural shape (thing that belongs to a particular class). Zgusta (1971, p.61 cited in Pastry specialist 1992, p.12) asserts that it should be okay if an individual belonging to a word is making it different from all other words in lexical meaning. Meanings of lexical words can be considered as the particular esteem it has in a specific dialect framework, and the 'Personality' it procures through utilization inside that framework.

It may not be considered as homogenous as three kinds of meaning relates to dialects i.e. clear, social, and expressive are part of it. Henceforth, lexeme's, lexical meaning can be examined like obvious and non-descriptive.

### **Graphic Meaning**

The graphic denotation of a lexeme ( sometimes known as conceptual, propositional or cognitive meaning) which is broadly expected as centrally calculated in phonetic communication which comprises of sense and indication. Agreeing to Lyons (1977, p.207), who thinks that lexeme is actually a relation in between people, places, forms and properties which are outside language.

A lexeme indicates a itinerary of substances in the world generally. As illustration, a lexeme 'shirt' refers towards a piece of cloth that people use to wear on upper part of their bodies. Another lexeme 'student' points towards all the understudies in the globe and the lexeme "happy" indicates the characteristic of being cheerful. Signification, is invariant in this way and also dependent on context. Lyons makes an aptitude in between reference and signification. He describes that a relation that binds a dialect expression like shirt or other expressions which have been discussed above alludes to on specific events of its expression, is reference. An expression for example, shirt may refer towards one shirt or another, it depends on the individual who articulates the expression. Reference is dependent on utterance subsequently. Lexemes are without reference, but can be utilized as gear of expressions in specific settings of expression.

### **Non –descriptive Meaning**

The non-descriptive, meaning of lexemes (some of the time called intention, full of feelings , associative or expressive meaning ), gives extra effect to its fundamental meaning by differentiating. In Geerearts (cited in Asher , 1994, p.2154), connotation alludes to “ all sorts of non-denotational meaning as a whole” counting emotive , complex, discursive and reminiscent meaning. In Jefferies (1998,pp.1099-144). Cure (1986) has explored that the essence is employed to allude to the evoked and expressive meaning. It is very clear that non-descriptive meanings of lexemes don't have clear there categorization. Expressive meaning (now and then called emotive , attitudinal , or full of feelings meaning), is a chunk of lexeme's intention that communicates the attitudes of speakers and their assessment. For example, 'complain' and 'whine' seem to have identical meaning, but actually whine communes disturbance of the speaker while complaining but the previous one does not do so.

Evoked meaning (elaborated in terms of other linguists) is the intention of lexeme which is “a result of the presence of distinctive lingos and registers within the language” (Curse, 1986,p.282). Tongues are assortments of dialect which have cash inside a particular community or a bunch of speakers. Regional variety can be categorized as geological (e.g Scottish tongue: 'loch', American English : 'fall' as contradicted to British English : autumn), transient (e.g words utilized by individuals of diverse age bunches inside a community or words utilized at diverse periods in the history of dialect), and social (words utilized at diverse periods in the history of dialect), and social ( words utilized by individuals of diverse social classes).

Words have both expressive meanings i.e. sense and indication with their intention- expressive and evoked meaning. It is since of numerous clear implications happening in an implication, the word is particular from others.

### **Ambiguity and Lexical Ambiguity in English**

Ambiguity has been inspected in semantics a lot. It portrays the etymological wonder whereby expressions have possibly been caught on in many ways. An ambiguous expression can have many elucidations in its setting. Trust is that the English vocabulary has been especially wealthy in the different meaning since of its shifted history. The first edition of the Oxford English Lexicon , for occasion, has recorded 154 sense division beneath the word 'set'. Momentous is something like a “heavy” semantic mound, that relates additionally to an expansive number of common center lexical things, can be endured in regular utilization without occurrence of ambiguity.

Uncertainty is of two kinds: basic and lexical ambiguity. A sentence can be termed as vague if its more than one translations are available as exemplified in the taking after sentence (Hurford & Heasley ,1983, p.121):

- Visiting friends may be a good experience,

It can be construed in these two ways:

- It can a good experience to visit friends.
- Friends who are visiting us can be a good experience.

**Methodology**

Methodology of this study revolves around lexical ambiguity that occurs in different field of studies. Random sampling was used. For this the researcher used a quantitative method. A close ended Questionnaire (multiple choice ), consist of 10 questions, was conducted as a main tool which was effective. Students were suppose to choose the meaning of the words which are randomly used in both fields, like Cookie, Memory, Zip, Bug, Java, Cache etc. Options like, a hidden store of things, memory for computer data, hidden listening device etc were given to be choosed from 4 options. These choices were provided according to the different context that have different meaning.. Sample size was 100. Data was collected from 50 software engineering students and 50 students of other departments. It was analyzed on SPSS.

**Results and Findings**

Through data analysis we come to know that the result of questionnaire proves to be fruitful and it is clear that by drilling and practicing students can learn to idenfntify different meaning in different context. The results demonstrates that there was no significant mean difference in the responses of students of targeted programs.

**Data analysis:**

Independent sample t test was run to analyze the difference between software engineering and other programs participants

Table 1  
*Independent Samples t-test comparing differences between software engineering and other programs participants (N=100)*

Variables	Software Engineering (n=50)		Other Programs (n=50)		t(98)	P	95%CI		Cohen's d
	M	SD	M	SD			LL	UL	
	Total Responses	19.90	3.17	19.86			3.50	.060	
Cache	2.28	.90	2.10	.81	1.04	.29	-.421	.301	
Memory	1.84	.91	1.90	.90	-.330	.74	-.282	.602	
Bug	2.42	1.12	2.26	1.10	.718	.47	-.195	.115	
Java	2.08	.39	2.12	.38	-.512	.61	-.272	.392	
Zip	1.46	.86	1.40	.80	.359	.72	-.585	.185	
Trojan horse	1.68	.91	1.88	1.02	-1.031	.30	-.357	.277	
Accumulator	1.56	.73	1.60	.85	-.251	.80	-.158	.358	
Virus	2.28	.64	2.18	.66	.769	.44	-.240	.280	
Cookie	2.18	.62	2.16	.68	.153	.87	-.377	.097	

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Firewall	2.12	.43	2.26	.72	-	.24	-	1.366
					1.173		1.286	

*Note. CI=confidence interval; LL= lower limit; UL=upper limit; M=mean; SD= standard deviation*

**Table 2**  
**Group Statistics**

	Software Engineering & Other Programs	N	Mean	Std. Deviation	Std. Error Mean
Cache	S_Engineering	50	2.28	.904	.128
	Other Programs	50	2.10	.814	.115
Memory	S_Engineering	50	1.84	.912	.129
	Other Programs	50	1.90	.909	.129
Bug	S_Engineering	50	2.42	1.126	.159
	Other Programs	50	2.26	1.103	.156
Java	S_Engineering	50	2.08	.396	.056
	Other Programs	50	2.12	.385	.055
Zip	S_Engineering	50	1.46	.862	.122
	Other Programs	50	1.40	.808	.114
Trojan horse	S_Engineering	50	1.68	.913	.129
	Other Programs	50	1.88	1.023	.145
Accumulator	S_Engineering	50	1.56	.733	.104
	Other Programs	50	1.60	.857	.121
Virus	S_Engineering	50	2.28	.640	.091
	Other Programs	50	2.18	.661	.093
Cookie	S_Engineering	50	2.18	.629	.089
	Other Programs	50	2.16	.681	.096
Firewall	S_Engineering	50	2.12	.435	.062
	Other Programs	50	2.26	.723	.102
Sum_Quiz	S_Engineering	50	19.9000	3.17033	.44835
	Other Programs	50	19.8600	3.50516	.49570

After going through all the tables and results, it is evident from table 1 and table 2 that there is no significant difference between  $t=1.046$ ;  $.298$  of the factor cache in group 1 ( $M = 2.28$ ;  $SD .094$ ) group 2 ( $M=2.1$  ;  $SD.814$ ).

It was also revealed through the result that the word memory,  $t= -.330$  in group 1 the mean and standard deviation are ( $M = 1.84$ ;  $SD .912$ ) and group 2 ( $M=1.90$  ;  $SD.909$ ).

According to the result of the word Bug,  $t= .718$  in group 1 ( $M = 2.42$ ;  $SD .1.126$ ) group 2 ( $M=2.26$  ;  $SD.1.103$ ).

Java  $t= -.512$  in group 1 ( $M = 2.08$ ;  $SD .396$ ) group 2 ( $M=2.12$  ;  $SD.385$ ). These were the revelations of the word Java.

It was also found that, Zip  $t = .359$  in group 1 ( $M = 1.46$ ;  $SD .862$ ) group 2 ( $M=1.40$  ;  $SD.808$ ).

Results show that, Torjan horse  $t=-1.031$  in group 1 ( $M = 1.68$ ;  $SD .913$ ) group 2 ( $M=1.88$  ;  $SD 1.023$ ).

It can be seen that, Accumulator  $t=-.251$  in group 1 ( $M = 1.56$ ;  $SD .733$ ) group 2 ( $M=1.60$  ;  $SD.857$ ).

Results prove that, Virus  $t=.769$  in group 1 ( $M = 2.28$ ;  $SD .640$ ) group 2 ( $M=2.18$  ;  $SD.661$ ).

According to the result the work Cookie,  $t = .153$  in group 1 ( $M = 2.18$ ;  $SD .629$ ) group 2 ( $M=2.16$  ;  $SD.681$ ).

It can be seen that according to the result of the word, Firewall  $t= -1.173$  in group 1 ( $M = 2.12$ ;  $SD .435$ ) group 2 ( $M=2.26$  ;  $SD.723$ ).

Finally it was revealed that, Sum \_Quiz  $t = .060$  in group 1 ( $M = 19.9000$ ;  $SD . 3.17033$ ) group 2 ( $M=19.8600$  ;  $SD. 3.50516$ ).

According to the above explained results, it was found that there was no significant mean difference in responses of software engineering and other programs participants. It can be vividly said that by practicing these lexicals, ambiguity can be lessened.

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**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
<b>Cache</b>	Equal variances assumed	1.277	.261	1.046	98	.298	.180	.172	-.162	.522
	Equal variances not assumed			1.046	96.943	.298	.180	.172	-.162	.522
<b>Memory</b>	Equal variances assumed	.030	.862	-.330	98	.742	-.060	.182	-.421	.301
	Equal variances not assumed			-.330	97.999	.742	-.060	.182	-.421	.301
<b>Bug</b>	Equal variances assumed	.466	.497	.718	98	.475	.160	.223	-.282	.602
	Equal variances not assumed			.718	97.957	.475	.160	.223	-.282	.602
<b>Java</b>	Equal variances assumed	.169	.682	-.512	98	.610	-.040	.078	-.195	.115
	Equal variances not assumed			-.512	97.930	.610	-.040	.078	-.195	.115
<b>Zip</b>	Equal variances assumed	.307	.581	.359	98	.720	.060	.167	-.272	.392
	Equal variances not assumed			.359	97.593	.720	.060	.167	-.272	.392
<b>Trojan horse</b>	Equal variances	.617	.434	-1.031	98	.305	-.200	.194	-.585	.185

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	assumed									
	Equal variances not assumed			-1.031	96.768	.305	-.200	.194	-.585	.185
<b>Accumulator</b>	Equal variances assumed	.794	.375	-.251	98	.802	-.040	.159	-.357	.277
	Equal variances not assumed			-.251	95.691	.803	-.040	.159	-.357	.277
<b>Virus</b>	Equal variances assumed	.097	.757	.769	98	.444	.100	.130	-.158	.358
	Equal variances not assumed			.769	97.904	.444	.100	.130	-.158	.358
<b>Cookie</b>	Equal variances assumed	.740	.392	.153	98	.879	.020	.131	-.240	.280
	Equal variances not assumed			.153	97.387	.879	.020	.131	-.240	.280
<b>Firewall</b>	Equal variances assumed	13.000	.000	-1.173	98	.244	-.140	.119	-.377	.097
	Equal variances not assumed			-1.173	80.380	.244	-.140	.119	-.378	.098

**Conclusion:**

Thus, data collected from 50 engineering students and from 50 students of other departments in the form of questionnaires, revealed when analyzed on SPSS that there is no significant difference in between English understanding level of engineering and other students. Initially it was hypothesized that the same words which have different concepts in different fields of studies create lexical ambiguity. They sometimes mix or get confused between them as they look homonyms but actually they are not. When learners take classes of functional English they face problems in understanding meanings of different words because of it. But current research suggests that just with the help of practice they can learn to differentiate in their meanings according to context. They need little help and guidance through which any ambiguity can be resolved. As a solution relevant activities can be designed for this purpose. They could be asked to practice and search for clarity. It seems like there is no need to develop an extra or separate ESP course (English for Specific Purposes) for engineering students or other field students for clarity. This issue can be resolved with coordination among English faculty and faculty of software engineering during course development. It is hoped that results of current research may be applicable to disciplines other than software engineering as well.

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