

Pragmatic Analysis of Processing Effort at both Lexical and Phrasal Levels of Financial Budget Discourse Texts

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Abstract: In Kenya there are obstacles to access to information at the county level which include among other issues-Language barrier. This has impeded public participation hindering county development. This is augmented by Kenya Institute of Economic Affairs report, World Bank report and First Devolution Conference report. The financial jargon used in Homa Bay County's budget discourse texts hinders public participation which has formed a communication breakdown between the county government of Homa Bay and the public. Findings on Discourse Analysis from various linguists do not explain "discourse exclusion", a peculiar case where the county government and the people are constitutionally mandated to engage in a discourse but fails to do so due to relevance. This research article looked into processing effort at both lexical and phrasal levels in order to analyze the processing effort at both the lexical and phrasal levels of the financial budget discourse texts of Homa Bay County Government. Theory used is Relevance Theory (Sperber & Wilson, 2004) whose tenets include; cognitive effects, processing effort and contextual assumptions. The study used descriptive design; the research area is Homa Bay County Kenya. The population includes 428,911 persons who had attained the voting age of 18 years and budget discourse texts between 2014 and 2016. Snowballing was used to sample 43 members of the public, and 20 linguistic items that formed the budget discourse text between 2014 and 2016. Data collection techniques involved; use of questionnaires, structured oral interviews, tape recording and content analysis of available documents. Data analysis was done thematically and presented in textual and tabular forms and in line with literature and theory used; descriptive design was used. Findings show that phrasal processing effort is cognitively more involving than lexical processing effort. The study is significant in building pragmatic theories, editing and enhances public communication mechanisms for the wider economic development.

Keywords: Processing Effort, Discourse Texts, Lexical level, Phrasal level, Pragmatics.

INTRODUCTION

The financial jargon used in budget discourse texts hinders public participation which has formed a communication breakdown between the governments and the public; this triggers the analysis of processing effort of Homa Bay's county's budget discourse texts in Kenya. Despite its reach and popularity, however, processing effort theories are poorly understood. There is confusion among both linguists and philosophers about what relevance theorists are committed to and what kinds of explanations they attempt to give [1]. This research analyzes the processing effort of the county's budget discourse texts at both lexical and phrasal levels and determines the linguistic postulations which would show relationship between grammar and cognitive processes.

MacDonald [2] looks at environmental distribution of lexical processing effort specifically

about the relevance of simple distributional statistics to human language processing. More specifically, it attempts to establish a connection between measurable properties of the linguistic environment and the effort involved in processing words. This work looks at the processing effort of specific linguistic levels such as lexical level and phrasal level.

Genzel & Charniak's [3] uses entropy rate principle, which predicts that the entropy of a sentence increases with its position in the text. They show that this principle holds for individual sentences (not just for averages), but they also find that the entropy rate effect is partly an artifact of sentence length, which also correlates with sentence position. Secondly, they evaluate a set of predictions that the entropy rate principle makes for human language processing; using a corpus of eye-tracking data, they show that entropy and processing effort are correlated, and that processing

effort is constant throughout a text. However, these findings do not explain the processing effort at the lexical level and at the phrasal level instead the findings concentrate on the sentence length and sentence as a whole. These findings also do not specify the text used whether financial discourse or otherwise and therefore leaving a gap as to the effect of a specific discourse to the processing effort.

Blakemore [4] identifies a relationship between processing effort and cognitive effects of conceptual and procedural encodings but fails to delve into the relationship between processing effort at lexical level and phrasal level. His findings also do not address the processing effort of specific discourse texts.

Studies show that there is lack of clarity on grammar and cognition Egashimori [5]. This research is based on processing effort of lexical and phrasal levels of linguistic analysis of the budget discourse texts of Homa Bay County thereby advancing a number of postulations on how grammar reflects the cognitive processes or vice versa.

Fyodor [6] in his studies on modularity of mind argues that pragmatics is a central system but not a modular system, he proposed the law of nonexistence of cognitive science, arguing that the science that deals with thought processes is too complex to study. However, this study argues from the perspective that pragmatics is inferential and that linguistic codes are behavioral hence a contextual linguistic behavior of respondents can easily reflect particular thought processes.

Theoretical Framework-Relevance Theory

Relevance is defined as a potential property of inputs to cognitive process, whether these are external stimuli (sights, sounds, utterances, actions) or internal representations (thoughts, memories, conclusions of inferences) [7].

Information can be relevant in one context and not in another (or more relevant in one context than another). So the basic notion is that of relevance in a context. Context means a set of mentally represented assumptions used in interpreting (or processing) a given idea of information. Information is relevant in a context when it interacts with the context to yield what are called cognitive effects. The role of the context is central to processing effort analysis which is the aspect under study in this research. Relevance Theory is appropriate for this study since it entails tenets such as cognitive effects, contextual assumptions, processing effort and communication principle which are all important for comprehension of lexical and phrasal linguistic items of financial discourse.

Cognitive effects strengthen a contextual assumption. They contradict and eliminate a contextual assumption; they combine with a contextual assumption to yield a contextual implication i.e conclusion derivable from a new information and context together. The greater the cognitive effect, the greater the relevance. This tenet is of value to my study since discourse text presents information which is context base

The fact that humans pay attention to what is relevant to them also has a consequence for communicator in the communication process; by demanding attention from audience, the communicator suggests that the information he/she is offering is relevant enough to be worth the audience's attention. Relevance is the key to communication as well. Sperber & Wilson have therefore also formulated a communicative principle of relevance [8]. which states that every act of ostensive communication communicates a presumption of its own optimal relevance. Relevance Theory analyses inferential communication in terms of two layers of intention; informative intention to make a certain set of assumptions manifest or more manifest to the audience and communicative intention to make the informative intention mutually manifest [9].

Understanding an utterance is affected by the processing effort required, and this has been studied within psychology. The following are factors known to affect the processing effort required for utterance comprehension: a) Recency of use: The more recently a word, a concept, a sound, a syntactic construction or contextual assumption has been used, the less processing effort it requires. b) Frequency of use: the more frequently a word, a concept, a sound, a syntactic construction or contextual assumption has been used, the less processing effort it requires. c) Linguistic complexity: The more linguistically complex a word, a phrase, a syntactic or phonological construction the more processing effort is required (other things being equal). d) Logical complexity: negative expressions such as not, impossible, doubt cause more processing difficulties than corresponding positive expression [7].

Assessment of relevance depends on the cognitive affects and the processing effort needed to recover those cognitive effects and the role of the context. The cognitive principle of relevance states as follows:

Human cognition tends to be geared towards the maximization of relevance. This is the principle which (according to relevance theory given all types of information – both accidental and intentional. when someone speaks we will pay attention to any information we can pick up that seems relevant to us, whether devised from the content of the utterance their

final expression and gestures, their accompanying behavior, their pauses, hesitation and so on and process this information in a context that is likely to maximize relevance.

The context is chosen by consideration of relevance. The individual chooses the context which involves the best possible balance of effort against effect. When this balance is achieved assumption are being optionally processed [7]. An assumption is manifested to an individual at a given time if he is capable at that time of representing it mentally accepting its representation as false or as probably true. A set of assumptions that are manifested to an individual is called a cognitive environment. An individual's total cognitive environmental is a function of his physical environment and his cognitive abilities.

RESEARCH METHODOLOGY

Descriptive research design is used because this research is not only restricted in fact findings, but is also intended to result in the formation of important principles of knowledge and solution to significant problems based on correlations and frequencies of linguistic items and levels of processing efforts [10]. Study area is Homa Bay County in the republic of Kenya. Homa Bay County lies between latitude 0o15' South and 0o52' South, and between longitudes 34o East and 35o East. The county covers an area of 4,267.1 Km² inclusive of the water surface which on its own covers an area of 1,227 km². The county is located in South Western Kenya along Lake Victoria. The study population involves the members of the public above eighteen years old. According to the 2009 census, Homa Bay County had 428,911 persons who had attained the voting age of 18 years, representing 41.7 per cent of the total county population [11]. The budget discourse texts within 2014 and 2016 include: County yearly budget proposals, county budgets, County Budget Review and Outlook Paper, County Debt Management Strategy Paper, County fiscal strategy paper, Quarterly implementation report on county budget and County integrated development plan. These texts are meant for public participation and therefore accessible to the public. Purposive sampling has been used. The study involved a total of 43 members of the public with each sub county producing 7 after purposive sampling. The study looked at 20 linguistic items which were gotten from the budget discourse texts within 2014 and 2016 after the content analysis of the texts. Data Collection Techniques involved collecting information through reading secondary data and doing content analysis of available documents which included the budget documents which provided information on discourse analysis of Homa Bay county budget texts.

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

Data shows generally that processing lexical items poses lower processing effort than phrasal level of linguistic analysis. These results are used to explain *lexical* processing effort. The central aim of data in Table 1 below is to contribute towards an understanding of lexical processing effort, but from a previously unexplored perspective – the computational level of explanation [12]. Total frequencies of the number of respondents are summarized as per each lexical item.

In forming a computational-level explanation we can characterize lexical processing effort as cognitively less involving to the *processor* standing at 206 (complexity levels) against 304 (not complex) of the data presented. The length of the word plays a role in increasing the processing effort for example, word *framework* attracts a figure of 24 (very complex, complex and not sure) higher than all other words which are shorter, this is in line with Genzel & Charniak's [13] entropy rate principle which found a significant correlations between both entropy and sentence length. Their findings postulated that there is a significant positive correlation between entropy and length of a sentence which stipulates that the entropy rate increases with the length of the sentence predicting a higher processing effort.

The findings are also in line with Macdonald [2] who posits that lexical processing effort is widely held to be sensitive to perceptual factors such as (word length in letters or phonemes, typographic case, clarity), lexical/semantic variables (*eg.* grammatical category, familiarity, corpus frequency, concreteness, ambiguity), and contextual influences (from the syntactic, semantic and pragmatic context). However, at this point this research deals with the lexical length hence it is plausible to argue for *lexical* processing effort and deduce that *lexical* processing effort for these financial lexical items is affected by word length. This is corroborated by words which are longer in this data such as *establishment* which stand at 17 (very complex, complex, not sure), *expenditure* which stands at 15 (very complex, complex, not sure), *development* which stands at 16 (very complex, complex, not sure) as opposed to shorter words such as *budget* which stands at 13 (very complex, complex, not sure), *finance* which stands at 12 (very complex, complex, not sure), *estimates* which stands at 13 (very complex, complex, not sure)

The Table 1 on below displays the overall results of the processing effort of words of the budget discourse text. The words are rated as: very complex, complex, not complex and not sure. Forty three respondents were involved and each respondent filled in the questionnaire for each and every word rating it using the above criteria. The overall scores are as follows: Very complex had a total response score of 61, complex-101, not complex-304, not sure-44. The

linguistic items investigated were 12 words shown on Table 1. The processing effort at the lexical level of the county discourse text shown on Table 1 shows that processing the words stand at 162(very complex and

complex) against 304(not complex) and 44(not sure).The processing difficulty of an addition of 162 and 44 gives 206 against 304(not complex).

Table-1: Summary of Words

Words	Very Complex	Complex	Not complex	Not sure	TOTAL
1.Expenditure	2	11	28	2	43
2.Development	5	9	27	2	43
3. Fiscal	9	9	14	11	43
4 Finance	3	7	30	3	43
5.Budget	4	5	31	3	43
6. Estimates	2	8	24	3	43
7.Vote	2	12	24	5	43
8. Capital	9	5	27	2	43
9. Framework	7	14	19	3	43
10.Establishment	8	7	26	2	43
11. Staff	7	6	28	2	43
12. Summary	3	8	26	6	43
TOTAL	61	101	304	44	

Word category plays a role in terms of processing effort. Although most of these words are nouns, there is a glaring effect on the word *framework* which is a compound noun differing from the rest of the nouns which are simple nouns. Blakemore [4] identifies a relationship between processing effort and cognitive effects of conceptual and procedural encodings. In relevance-theoretic terms, the function of conceptual expressions (i.e., open lexical categories, such as nouns, adjectives and verbs) is to convey conceptual meaning which is propositionally extendable and contributes to expanding the inferential processing of an utterance, whereas the function of procedural expressions is to activate domain specific cognitive procedures (i.e., morph-syntactic constraints in utterance processing) and contributes to constraining the inferential processing of these same utterances. The word *framework* which is a compound noun stands at 24 (very complex, complex and not sure) higher than the rest of the nouns which are simple nouns. These findings are within open lexical categories and specifically compounding in nouns.

The lexical form can also attract a higher processing effort depending on its own linguistic complexity and people's judgment for example the word *fiscal* has a processing complexity of 29(very complex, complex and not sure) much higher despite its short length. Semantic variables have been proposed to explain quantitative differences in lexical processing behavior between otherwise matched words. Variables such as concreteness are assumed to reflect between-word differences in semantic representation, or differences in how these representations are accessed. Semantic variables are derived from a corpus of natural language – whereas variables such as Ambiguity/Polysemy, Concreteness and Imageability

are *subjective* – they are measured using ratings elicited from human judgments. Concreteness has been the most intensively studied of the lexical properties thought to influence semantic processing [14]. The lexical item *fiscal* being abstract attracts more processing effort which is in line with Schwanenflugel & Shoben [14].

It can also be argued that the word *fiscal* has a processing complexity of 29(very complex, complex and not sure) against 14(not complex) which is 67% due to frequency of use. Processing effort is higher because this word is not frequently used in the normal speech this is line with [7] which stipulates that the more linguistically complex a word, a phrase, a syntactic or phonological construction the more processing effort is required (other things being equal) and the more frequently a word, a concept, a sound, a syntactic construction or contextual assumption has been used, the less processing effort it requires. The words such as budget, expenditure, development, staff, finance have a lower processing effort going by the higher figures of not complex which are 31,28,27,28,30 respectively as opposed to complexity figures of the words which are 9,13,14,13,10 which can be attributed to frequency of use in speech.

Significance of the Study

This study is significant for both theoretical and applied linguistics especially in building relevance theories of linguistics.

Findings of this research in terms of relevant theoretic framework show relationship between processing effort and grammar specifically the interface between cognition and grammar. This research has shown that processing effort builds from lexical level of linguistics and gets higher towards phrasal level of

linguistic analysis which contradicts studies which have shown that there is lack of clarity on grammar and cognition [5].

CONCLUSION

Findings of this research show that processing effort of majority members of the public of Homa Bay County towards budget discourse texts of Homa Bay County government is a challenge to public participation which is a constitutional requirement for management and governance of county governments in Kenya. Lexical processing effort show low levels of relevance thereby depicting majority of the public find financial budget texts difficult to grasp.

Findings also indicate that *lexical* processing effort is lower than *phrasal* processing effort for Homa Bay County budget discourse texts. Within the lexical linguistic categories; the processing effort would differ according to lexical length. The lexical form can also attract a higher processing effort depending on its own linguistic nature which is in line with [15] which states that an uncommon word, or an uncommon sense of an ambiguous word, requires more effort to process than a common one.

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