An analysis on the validity of the lexicon required by GRE® test takers
Uma análise do léxico requerido a candidatos do GRE®

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Resumo: *O GRE® (General Record Examinations) Revised General Test é um teste padronizado de admissão para o mestrado e doutorado, administrado pela ETS (Educational Testing Service), prestado por 675,000 alunos anualmente. É uma prova que requer um preparo laborioso por parte dos candidatos, e o resultado alcançado pelo aluno determina, em grande parte, junto com outros critérios, sua admissão em cursos de pós-graduação. Livros preparatórios para o GRE® geralmente indicam uma lista de palavras a ser aprendida ou memorizada, palavras as quais apareceram com frequência em edições anteriores da prova. Uma vez que os candidatos são aprovados na universidade de sua escolha, todavia, esse vocabulário será usado, como originalmente proposto pela ETS? A fim de discutir a validade do léxico requerido a candidatos do GRE®, analisamos a lista de palavras do livro preparatório Cracking the New GRE 2012, de acordo com sua frequência na seção acadêmica do COCA.*
Palavras-chave: *GRE, ETS, validade, Corpus of Contemporary American English (COCA)*

Abstract: *The GRE® (General Record Examinations) Revised General Test is a standardized graduate admissions test, which is administered by ETS (Educational Testing Service) and taken by 675,000 students yearly. Requiring an effortful preparation from students, the score achieved by the student in the test greatly determines, along with other criteria, their admission to graduate school programs. Books which prepare for the GRE® test usually indicate a list of words to be learnt or memorized by the test-takers, words which frequently appeared on the test in previous years. Once the test takers are approved in the school of their choice, however, will this vocabulary be in fact put to use, as originally intended by ETS? To investigate the validity of the lexicon required by GRE® test takers, we analyzed the word list from the preparation book Cracking the New Gre 2012 according to its frequency in the academic section of COCA.*
Key-words: *GRE, ETS, validity, language testing, Corpus of Contemporary American English (COCA)*

1. Introduction

ETS released a new version of the GRE® Revised General Test in 2011, with the promise to students that “the revised test more closely reflects the kind of thinking you'll do in graduate or business school and demonstrates that you are ready for graduate-level work.” (About the GRE® revised General

Test: <http://www.ets.org/gre/revised_general/about>. It is not a language proficiency test of English as a foreign language, but for a candidate whose native language is not English, it certainly demands a proficient level. As part of the necessary preparation for success in the test, students have some grueling work to do, which includes memorizing a lengthy list of more than 3000 words, as advocated by some preparation courses, all that in a limited amount of time. The GRE® test consists of two essays (analysis of an issue and analysis of an argument), two verbal reasoning sections and two quantitative reasoning sections, of 30 minutes each, mounting to a 3-hour, 40-minute test. The words from the vocabulary list are tested in the verbal reasoning part of the exam Each section contains 20 questions, divided into reading comprehension (about approximately 10 reading passages), text completion (about 6 questions) and sentence equivalence (3-5 questions). The memorization of so many words might be a challenge for American students, and even more so for foreign test takers, whose English proficiency level is the most diverse. Here are some sample questions from the preparation software offered by ETS on their website *http://www.ets.org/gre*. The questions exemplified below cover words from the vocabulary list analyzed in COCA.

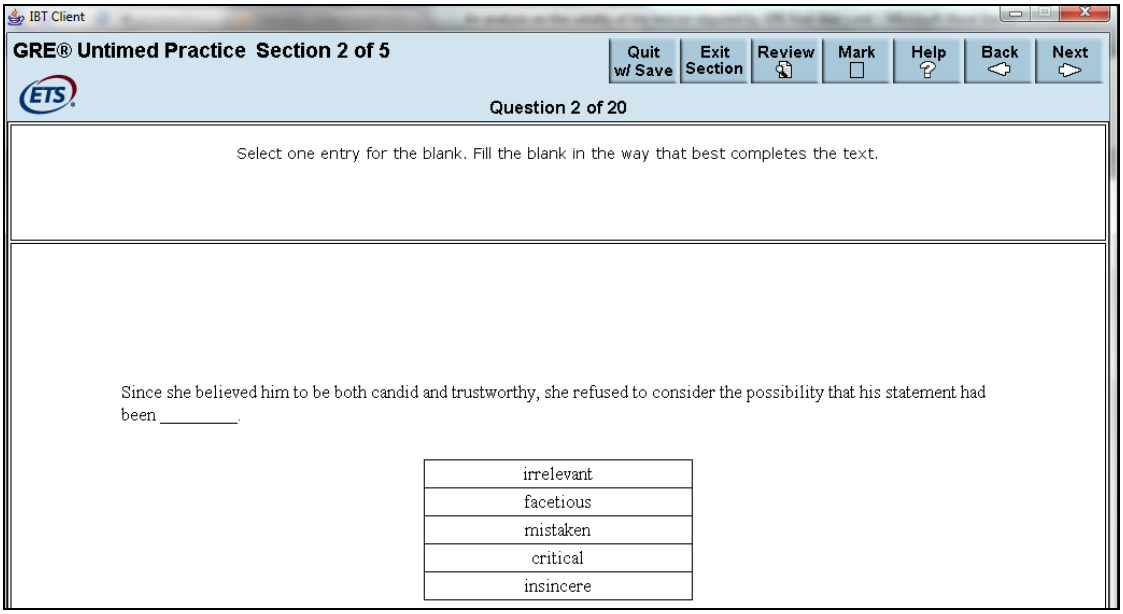


Figure I. **Text Completion**

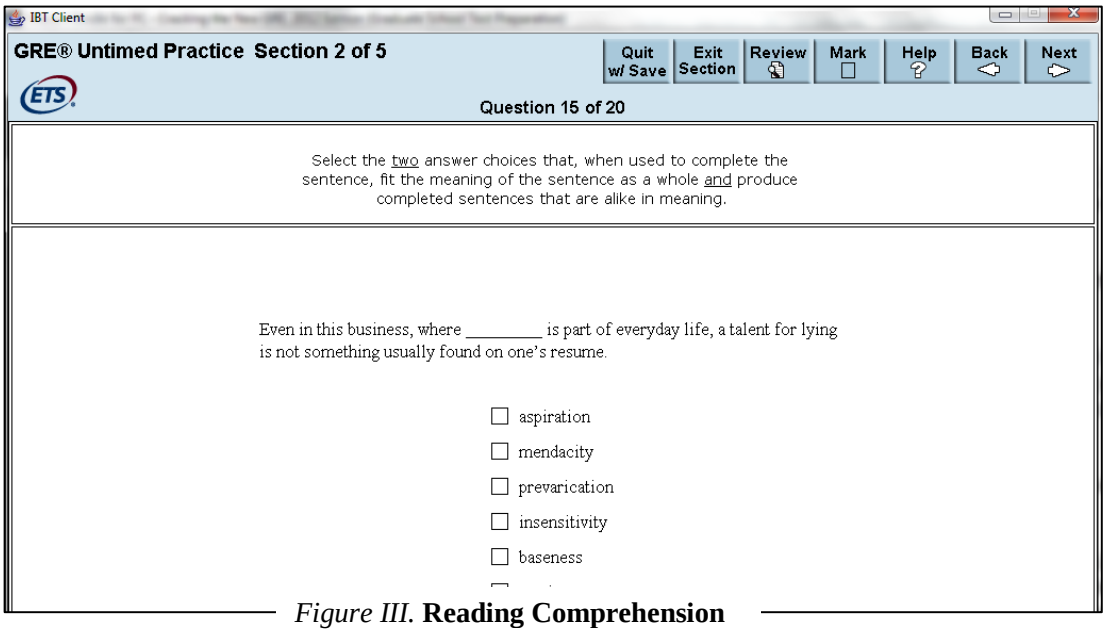
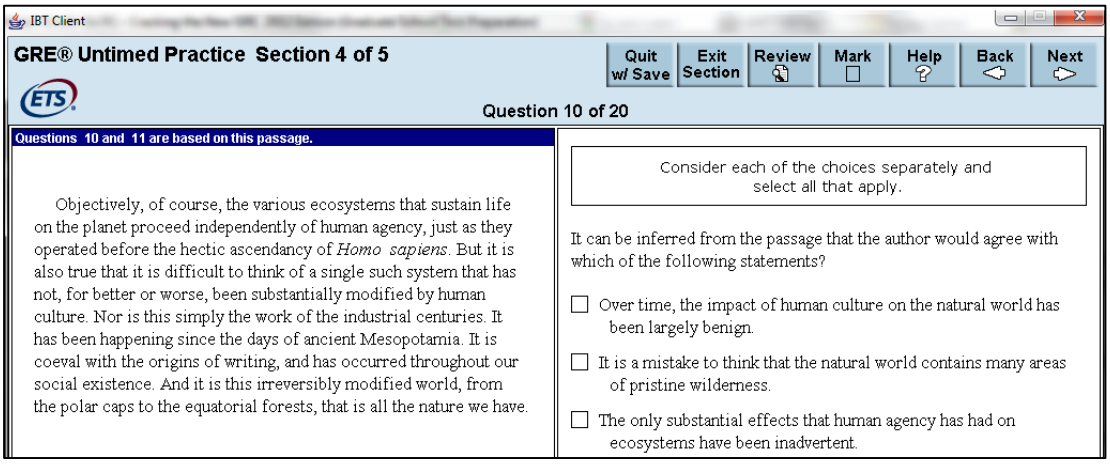


Figure III. **Reading Comprehension**



2. Theoretical Background

Corpus linguistics is the study of the linguistic phenomena and frequency of words in contextualized situations through machine-readable collections of texts, the corpora. Softwares and the internet grant the possibility of access to millions of oral and written productions, thus making the discovery and interpretation of linguistic patterns and co-occurrences across texts and texts varieties possible. (Biber, 2004). Its usefulness relies on the possibility to research how speakers "use the linguistic resources available to them in their language." (Id. Ibid)

Breeze (2007, review of Biber, 2006) explains that "the main challenge of corpus research is to select tools that will confirm intuitions or reveal unexpected patterns of language use." Originally limited to "accurately measuring what it proposes to", the concept of validity has become not only more elaborated, but has also split into specific categories. By investigating the frequency of the GRE's list of words, we want to test the predictive validity, or criterion-related validity, which concerns to "behavior that is external to the measuring instrument itself" (Carmines & Zeller,1979). Predictive validity can be proved when "inferences regarding achievement are established via a statistical relationship between test scores and subsequent academic performance." (Kyei-Blankson, 2005:17). According to Biber, Conrad and Reppen (1998), the average frequency for nouns is 200 per mil, and a frequency of 25 per thousand words is "almost impossibly rare". However, as put by the authors of Cracking the new GRE® (2011), there are indications that assessing candidates from different fields on their ability to perform in the academic environment through a standardized test might not demonstrate accurately predictive validity, that is, the words required by the GRE test could only be necessary for one's approval in the GRE.

The new test supposedly allows graduate schools to get a better sense of an applicant's ability to work in a post-graduate setting—a goal that is unrealistic indeed, considering that the people who take the GRE are applying to programs as diverse as physics and anthropology. However, it's safe to say that neither GRE—new or old—is a realistic measure of how well you'll do in grad school, or even how intelligent you are. In fact, the GRE provides a valid assessment of only one thing: The GRE assesses how well you take the GRE.

3. Methodology

The group of words enlisted in the research was examined in accordance to the online Corpus of Contemporary American English, COCA, which is composed of more than 425 million words, divided into the following sections: spoken, fiction, popular magazines, newspapers, and academic journals. Each of these sections accounts for approximately the same share in the corpus: around 90 million words in the spoken section, 85 million in fiction, 90 million in popular magazines, and almost 86 million in the academic section – 85,791,918 words at the time this research was conducted, in November, 2011. Each word was analyzed according to its frequency per million words in each of the aforementioned sections. An issue in the research was choosing whether to make a specified search of the words, that is, using part of speech tags, a tool provided by the corpus. By specifying the part of speech, our search would also be in accordance to the description *Cracking the New GRE* makes of the words. For example, *precipitate* has two entries in the list, as an adverb and as an adjective. However, the frequency results were surprisingly

low. For example, by searching the frequency of *zealous* with a general adjective tag ([jj*]), these were the results:

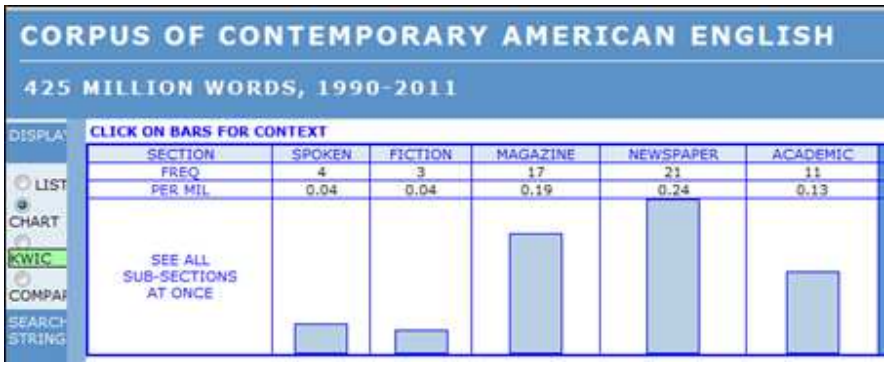


Figure IV. **Results for *zealous* [jj*]**

In the Spoken section of the corpora, the adjective was identified only 4 times, which is 0.04 in every thousand words, and 11 times in the academic section, or 0.13 in every thousand words, making it indeed "almost impossibly rare".

While a more general word search generated a considerably higher frequency:

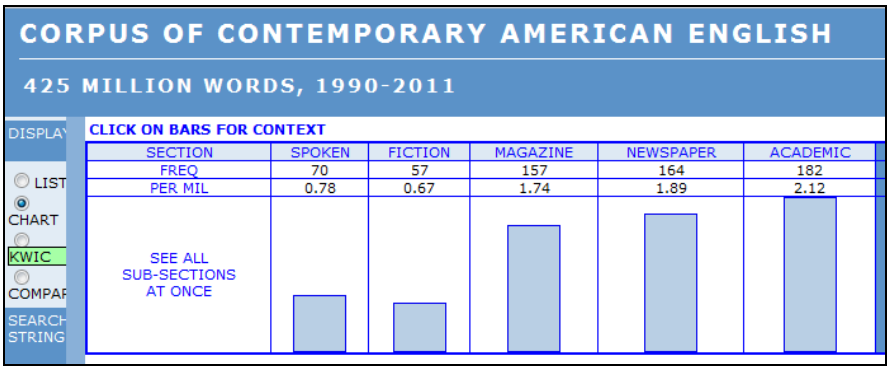


Figure V. **Results for *zealous without a speech tag***

This time, *zealous* was registered 70 times in the spoken section, a frequency 17.5 times higher than when the word was speech-tagged. In the academic section, a general search rendered 182 results for the same word, more than 16 times the frequency in the speech-tagged search.

Considering Chapelle's (1999) restrictions on too detailed or too oriented analysis, which may pose a threat to the validation of a research's "usefulness as a meaningful interpretation of performance", we opted for a less specific search, without specifying the part of speech of each word, as an attempt to emphasize that even by doing so, this vocabulary list is not constituted of words which are bound to be of use for GRE® test-takers later in graduate school, as they read and produce academic literature.

When researched in COCA, the 302 words researched appeared in the following range of frequency:

Table I. **Frequency per thousand words**

Words' frequency range (per mil)	**Hit Parade 1**	**Hit Parade II**	**Hit Parade III**	**Hit Parade IV**	**TOTAL PER RANGE**
0 to 0.99	37	34	41	39	151
1 to 9	37	38	32	29	136
10>	3	4	5	3	15
TOTAL	77	76	78	71	302

Exactly 50% of the list has less than a 1 per thousand words frequency, 45% of the words of the list appear more than once and less than 10 times per mil words, and only almost 5% of the words from the list appear 10 times or more per thousand words.

Table II. **Raw frequency**

Words' frequency range (raw)	**Hit Parade I**	**Hit Parade II**	**Hit Parade III**	**Hit Parade IV**	**TOTAL PER RANGE**
0 to 85 words	37	34	41	39	151
86 to 850	37	38	32	29	136
851>	3	4	5	3	15
TOTAL	77	76	78	71	302

When compared to the total number of words in the academic section of the corpus - 85,791,918, as previously mentioned – it was found that 50% of the words appeared 85 times or less, 45% appeared up to 850 times, and less than 5% appeared 851 times or more.

Table III. **Raw frequency II**

Words' frequency range (raw)	**Hit Parade 1**	**Hit Parade II**	**Hit Parade III**	**Hit Parade IV**	**TOTAL PER RANGE**
0 to 10	7	10	8	8	33
11 to 100	36	25	35	35	131

101 to 1000	32	37	31	25	125
1001>	2	4	4	3	13
TOTAL	77	76	78	71	302

When allotted in different frequency bands, low frequency can once again be attested. Less than 11% of the word list appeared 10 or less times in the corpus, around 43 appeared up to 100 times, around 41% appeared up to a thousand times and only 4%of the words appeared more than a thousand times.

The original division of the words into four lists – the "Hit Parades"- was mantained, and it is interesting to note that they show very even, similar frequencies. Out of the 302 words analyzed, only 15, that is, 4.96%, were found to be frequent in the academic section of the corpus. Not only that, but also their frequency in the other genres – spoken, fiction, magazine and newspaper – were much lower compared to their academic register levels (*see appendix).* The words were: aesthetic, canon, convention, discretion, empirical, hegemony, pedagogy, pervasive, pragmatic, rhetoric, static, subtle, synthesis.

4. Conclusion

The implications of these findings suggest that, in terms of vocabulary, the GRE test and its preparation do not necessarily prepare students for graduate school. The great majority of these words are too infrequent to be deemed as useful tools for graduate life. The only words from the list that surpassed this frequency were *aesthetic, convention, empirical, rhetoric* and *subtle.*

While the mere memorization of a list of words might be helpful and even determining of the student's success on the GRE®, the results of this study might suggest that such list of words will be of little use in their academic life, as originally proposed by ETS, even more if we have in mind Beck & McKeown (1991) in Brand (2004:118)

> "…knowing a word is not an all-or-nothing proposition; it is not the case that one either knows or does not know a word. Rather, knowledge of a word should be viewed in terms of the extent or degree of knowledge that people can possess."

This study is certainly a small-scale production, but it can be referenced as support in the argument on the validity of having students memorize an endless list of words which, based on their frequency levels on the academic section of COCA, might not be part of the lexicon used by students on a frequent basis throughout their graduate experience.

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