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# Statistical Methods in Language and Linguistic Research

**Pascual Cantos Gómez.**
Sheffield: Equinox, 2013. 260 pages. ISBN: 978-1-84553-432-5.

Pascual Cantos Gómez's book seems to have originated from his observation of the increasingly important role of quantitative approaches in language studies. This direction is clearly a strength in its onset, as the book aims to add clarity and specificity to the Humanities and its empirical scope. Early references (Gries, 1970) may have been more interested in explaining the theory behind the data rather than developing different examples, whereas more recent references (Bachman, 2004) may have missed an explicit and direct approach to the many-fold possible perspectives arising in language investigation.

A second strong point in this publication is its affordance for non-experts as a descriptive resource with illustrations of statistics adapted to actual research concerns. The book should enable language researchers to induce decision-making for statistical technique applications. Quantitative analyses have become a must in many projects and case studies on language assessment, genre, discourse studies, and foreign language teaching and learning, and yet, researchers often fail to explain why they favor a specific method over another. This book may facilitate such a process.

The chapters may be grouped according to three major divisions: "Introduction of basic statistical topics" (Chapters 1 and 2), "Description of statistical techniques with different potential variables" (Chapters 3 and 4), and "Exploration of corpus-related issues" (Chapters 5 and 6).

The intention to produce material for practical purposes is stated in chapter 1, where, for basic issues (that is, central tendency measurements, standard scores, distributions, etc.), the author directly moves to what the statistical notions can do for specialised language research. One example is word category use according to text types in different subject areas. Chapter 2 also introduces basic concepts: scales and variables, for which examples related to linguistic research and second language teaching are provided.

Chapter 3 offers a wealth of information on parametric and non-parametric tests, with a variety of contexts where the different calculations can take place. The language researcher can find detailed justification for the preference of one or more statistical methods in relation to the type of linguistic research conducted. An example would be the use of two-way ANOVA if two independent variables, age and nationality, are tested to examine joint effect on students' scores (versus only one effect tested at a time in one-way ANOVA).

Chapter 4 examines the statistical techniques required with different independent/dependent variables. Again, a set of hypothetical research scenarios are provided as examples. Even when some concepts may become mathematically complex for the non-expert user (for instance, Eucledian distance and clustering), the explanations are carefully designed in a sequenced manner, with a consistent reference to research cases as an aid for the clarification of procedures. For example, multiple regression is explained with the use of the relationship between motivation and age for language learning, leading to predict models with low error margins where various subjects may be placed. The statistical software SPSS is also examined as a necessary tool for test performance when a given significance value adds strength to the experiment (for instance, Wilks's lambda test for discriminant model confirmation). The combination of technology and operational maths described with the cases is found as particularly enriching, making chapters 3 and 4, in my view, key guiding material for statistical technique comprehension and applicability in language and linguistic investigations.

Chapter 5 explores the statistics for corpus-based wordlists. Since corpus linguistics is probably a more familiar topic for language researchers, the concepts may be easier to grasp, or even found as basic by some readers. However, their mathematical scrutiny contributes rich input for statistical knowledge (like the log-likelihood explanation via contingency tables), and the choice of examples from literature may encourage literary text-oriented research (like the frequency list management for the study of style in *Alice's Adventures in Wonderland*).

Chapter 6 deals with word co-occurrence. It begins with more familiar issues on collocation and concordance, moving on to the formulae behind the scores measuring collocational strength and values. Different examples from literature and Spanish corpora illustrate how such values operate in corpus-based and corpus-driven processing.

The overall benefit from Cantos Gómez's *Statistical Methods in Language and Linguistic Research* is thus clear: Language researchers aiming to use statistics in their research can use this resource as guiding reference. Other language students whose investigation may not need to rely on quantitative methods, may discover in the multitude of case scenarios described direct evidence for statistical extension in their work (for instance when comparing sets and grouping elements according to linguistic features, or even if examining stylistic aspects in literary works).

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