

A Few Notes on Abstracts

1) An abstract is intended to be a concise *and interesting* summary of a paper. As such, it contains three main parts, just as the paper does:

- A) an "introduction",
- B) a "body", and
- C) a "conclusion".

2) The "introduction" in the abstract is typically one or two sentences. It tries to interest people in the topic of the paper either by (a) describing what previous research has left unfinished, or (b) what problems there are applying previous work, or (c) how the work presented in this new paper represents an improvement on previous work, like a simpler, or more elegant proof for a known result.

3) The "body" of an abstract summarizes, at the most general level possible, the main argument of the paper. In general, the abstract does NOT use mathematical notation, unless there is no possible substitute. For instance, there is no substitute for " p -value", or " L^p norm", etc.

If the paper is mainly about a proof, the abstract will state, in general terms, a key feature of that proof. For instance, a paper by Timothy Jones in *American Mathematical Monthly* offered a new proof that π is irrational. The abstract stated, "Using the concept that a quadratic function with the same symmetric properties as sine should, when multiplied by sine and integrated, obey upper and lower bounds for the integral, a contradiction is generated for rational candidate values of π ." For anyone familiar with the standard proof, this clearly indicates how the new proof is different. And for someone who has never seen the other proof, it gives just enough detail to indicate the probable level of difficulty of the proof.

If the paper is mainly about unexplored consequences of existing results, or if it seeks to clarify a common confusion, the abstract will explain briefly how the authors went about the job. For instance, the abstract of a paper by Selke, Bayarri, and Berger in *The American Statistician* on common misinterpretations of the p -value contains the following, "The fact that these interpretations can be completely misleading when testing precise hypotheses is first reviewed, through consideration of two revealing simulations." That is, they used simulations, not proofs, and these simulations were very carefully chosen.

4) The "conclusion" of an abstract states, in general terms, why it's worth reading the whole paper. For instance, Jones' abstract finishes by stating that his new approach to the problem provides a proof that is "better motivated" than the standard one. (If you have ever seen the standard one, you will know *exactly* what he means!) And the abstract of Selke *et al.*'s paper states that they offer two correct interpretations of the p -values which go beyond the standard definition given in every intro stats book that they hope will be helpful.

When you are reading "The Gini Index and Measures of Inequality", ask yourself the following questions.

(A) Which sentence(s) in the abstract form the "introduction"; which, the "body"; and which, the "conclusion"?

(B) Did the abstract include everything that was of importance, without going into too much detail?

Note: When you are researching the literature for your own capstone, you will probably find it helpful to write your own abstract of every paper you decide to cite, focusing on your specific concerns.