

On Comparison of the Algorithms for Linear Programming

EDITOR:

I would like to comment on some of the observations made by R. K. Mueller and L. Cooper in their paper "A Comparison of the Primal-Simplex and Primal-Dual Algorithms for Linear Programming" [*Comm. ACM* 8 (Nov. 1965), 682].

The Simplex Method referred to in the paper is *not* widely used to solve Linear Programming problems. The commonly used method is the Composite Simplex Algorithm [1]. Both the systems [2] and [3], as well as the references (1)–(4) mentioned in [1], use the Composite Simplex Algorithm. System [4] uses 'suboptimization' with 'crashing.' One of the advantages of the Composite Simplex Algorithm is to be able to start from an infeasible basis. In 'crashing' a non-artificial (maybe infeasible) basis is the starting basis. Therefore the need for a starting basis having a large number of artificial vectors seldom arises.

In most codes (even those still using the Simplex Method) some weight is given in Phase I to the optimization of the objective function when the infeasibilities are being removed; e.g., this is included in the formation of the pricing vector in [2, p. V-5-3]. Therefore at the end of Phase I, when the problem is feasible, the solution is *not* "far from optimal." Often the codes have the facility for specifying the weight (scale factor) to be attached to the objective function while the problem is still infeasible [3(ii), p. 12]. Judicious choice of this weight leads to a significant decrease in Phase II iterations.

One of the "extremely important findings" with which the authors conclude their paper is, that for problems where "the ratio of n to m is about two or more, it becomes extremely undesirable to use Simplex rather than Primal-Dual." In general, a large number of practical problems have $n > 2m$; perhaps it would be more relevant to compare Primal-Dual (or its modifications) with the Composite Simplex rather than with the somewhat obsolete Primal-Simplex method. Such comparisons would certainly lead to valuable information for the design and improvement of present and future large scale linear programming systems (codes).

REFERENCES:

1. WOLFE, P. The Composite Simplex Algorithm. *SIAM Rev.* 7 (1965), 42–54.
2. LP 90 Reference Manual, SHARE Distr. Agency, #1377, White Plains, N.Y.
3. ALPS. Honeywell E.D.P., (i) DSI-275 and (ii) DSI-314, Wellesley Hills, Mass., 1964.
4. 1107 LP. Users Manual, Univac Division of Sperry Rand Corp., UDI-572, New York, 1963.

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Toward Improved Communication Capability

EDITOR:

This letter is written on the behalf of all undelivered and unpublished contributions from members of the ACM.

At the closing session of the FJCC, 1965, all contributed papers were characterized as "bad." At the same session, one of the delivered papers was awarded a prize as the "best" of the "bad."

Computer Conferences have been popular meeting places for over fifteen years. There must be something wrong with a system which on one hand purports to produce "computer professionals" and on the other does not lead to improvement in professional communication.

The publication of the weights to be applied to originality, topicality, clarity, comprehensiveness, style and organization would give authors some guidelines. If the scoring in each area

were made known to a rejected author, he could take steps to improve his communications capability.

More people continue to write more papers. With some there is an earnest desire to promote thought and discussion. These individuals need the guidance which such a system would provide. Very few creative thinkers are good communicators. The system should be so designed that those who do not win can plan to improve their next contribution.

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On JOE

EDITOR:

Unless I misunderstand Reilly and Federighi's table [*Comm. ACM* 8, H9 (Sept. 1965)] of instructions, the routine:

TMA JOE
SAL 1
SAR 1
TAM JOE

although hermitian, will not strip off the leading and trailing digits of JOE. One which does and maintains the hermitian property is:

TMA JOE	TAM JOE
SAL 1	SAR 1
SAR 2	SAL 2
SAL 1	SAR 1
TAM JOE	TMA JOE

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On Editorial Procedures

EDITOR:

The editorial procedures of the *Journal* may need some changes. I am led to suggest this by the handling of a paper I recently published in the *Journal* (October, 1965). Other authors may have had similar experiences.

The manuscript was extensively rewritten by the editorial staff, resulting in many distortions of content. Correcting the proofs cost me two days.

Much of the editorial rewriting was caused by my use of "I," which is not forbidden by the rules for ACM authors [*Comm. ACM* 8 (Jan. 1965), 70], but is not accepted by the *Journal* editorial staff. It should be noted that "I" is not inconsistent with "generally accepted practices for scientific papers;" for instance, it is *recommended* by the *Style Manual for Biological Journals* (p. 2) and by the instructions for *Science* authors.

This experience leads me to suggest the following. (1) ACM instructions for authors should include as complete a description as possible of the rules used by the editorial staff. (2) During editing more care should be taken, at least more than in this case, to preserve content.

Going beyond these suggestions, I would like to raise a question. Is anything gained, or is something perhaps even lost, by editorially imposing upon ACM papers a uniformity exceeding the unanimous recommendations of style manuals? For instance, what is gained by "I-gouging"? To take two specific illustrations from my paper, what is gained by writing "A total of 13 other keywords ..." (p. 492) instead of "Thirteen other keywords ..." or combining three short sentences, originally separated for emphasis, into one long sentence draped over semicolons (p. 493)? In these cases and others why should the editorial staff have the last word on style?

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