...
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References


Annex

The error parameter

$\epsilon = 0.01$.

In both cases we have $\epsilon < 1$, although the true error is $\epsilon$. This is partially explained by the fact that the overrelaxation converges very slowly. For the first 25 iterations starting from $\phi = 1$, the average error is only linear, with factor 0.7. The first three with $\phi = 1$ in the 16th, with $\phi = 0.0001$, with $\phi = 0.00001$. This allows checking the validity of the other two bounds. Thus we have here a very nonlinear problem.

All examples were calculated on a UNIVAC 1100. The time for one Newton iteration was 0.5 sec (without error information). An extra use (with error information) was made of (3) to compute $\phi$, although the matrices $A$ were neither nonsingular nor diagonally dominant. Perhaps this accounts for the fact that the example $u$ was found even when $\phi$ was too large.