

ALGORITHM 2.2.

chord($\mathbf{F}, \mathbf{x}, \tau_a, \tau_r$)

Evaluate $\mathbf{F}(\mathbf{x})$; $\tau \leftarrow \tau_r \|\mathbf{F}(\mathbf{x})\| + \tau_a$.

Compute $\mathbf{F}'(\mathbf{x})$; factor $\mathbf{F}'(\mathbf{x}) = \mathbf{LU}$.

if the factorization fails **then**

 report an error and terminate

else

while $\|\mathbf{F}(\mathbf{x})\| > \tau$ **do**

 Solve $\mathbf{LU}\mathbf{s} = -\mathbf{F}(\mathbf{x})$.

$\mathbf{x} \leftarrow \mathbf{x} + \mathbf{s}$

 Evaluate $\mathbf{F}(\mathbf{x})$.

end while

end if