

## ERREU04 - Simple detection of singularity in splitted commands

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### Summarized:

This test validates the emission of a message d'error when a simple singularity is detected (blocking absent or superabundant) by the direct linear solvers (MUMPS, LDLT and MULT\_FRONT) used in splitted commands (TO FACTORIZE, TO SOLVE).

## 1 Principle of the test

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This test is used to validate the emission of some messages by the commands `TO FACTORIZE` or `SOLVE` a symmetric matrix in the case of:

- First case: it misses a blocking. In this case one obtains `FACTOR_20/77` for `LDLT`, `MULT_FRONT` and `MUMPS` when `NPREC > 0` and `FACTOR_57` for `MUMPS` when `NPREC < 0`.
- Second case: there is a superabundant blocking. One obtains `FACTOR_21/76` for `LDLT`, `MULT_FRONT` and `MUMPS` when `NPREC > 0` and `FACTOR_42` for `MUMPS` when `NPREC < 0`.
- Last case: it is checked that message `FACTOR_80` is transmitted when one uses parameter `TYPE_RESOL='SYMDEF'` of the solver `MUMPS` whereas the matrix to be reversed is not symmetric definite positive.