What this code is about

The C++ code function.cpp computes the second term in the right-hand side of equation (2.8)

$$\beta \int_0^{\infty} \frac{x^{-\nu} g(x)}{1+\beta x} \mathrm{d}x = \sum_{k=0}^{\infty} \frac{(-1)^k \mu_{-(k+1)}}{\beta^k} + \frac{\pi \, g(-\frac{1}{\beta}) \, \beta^{\nu}}{\sin(\pi\nu)}, \tag{1}$$

where

$$g(x) = e^{-x/2} \sum_{m=0}^{d} c_m m! \sum_{k=0}^{m} \frac{(-x)^k}{(k!)^2 (m-k)!}, \tag{2}$$

The code requires the $d+1$ numbers c_m's as inputs. These are read-in from the file Constants.txt. The code outputs values for for various β and writes to the file FIFTH.txt.

The file compile.job is a SLURM script to compile the code in an HPC and generate an executable.

The file together.job is a SLURM script to run the executable in an HPC.

The file mpfr.sh is a shell script used to compile and run the code in an Ubuntu 22.04 local machine.