

Numerical Analysis of Convergence Speed in Transport Equation Seminar Talk

Student: Pavel Prudnikov
Scientific supervisor: Ivan Remizov

Research group: Evolution equations and applications
National Research University Higher School of Economics

27.05.2020

Initial condition and solution

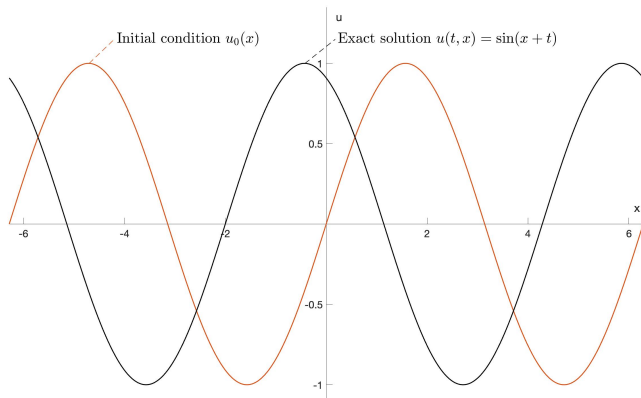


Figure 1: Graphs of initial condition and solution of the transport equation ($t = 2$)

Convergence visualization. Part I

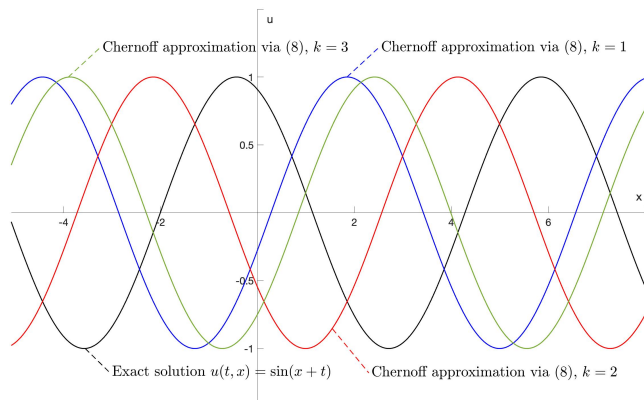


Figure 2: Graphs of approximations to the solution of the transport equation ($t = 2$, $n = 1$)

Convergence visualization. Part II

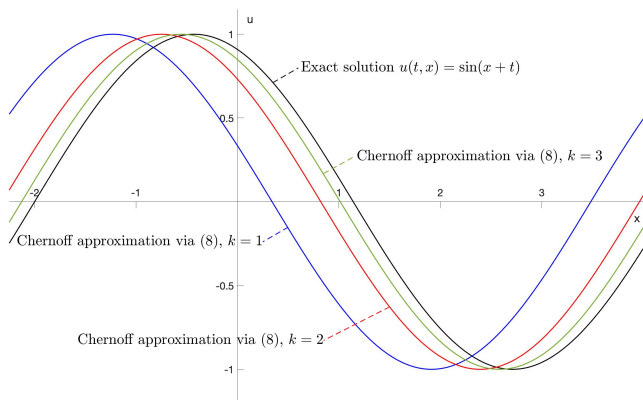


Figure 3: Graphs of approximations to the solution of the transport equation ($t = 2$, $n = 5$)

Convergence speed approximation. Standard

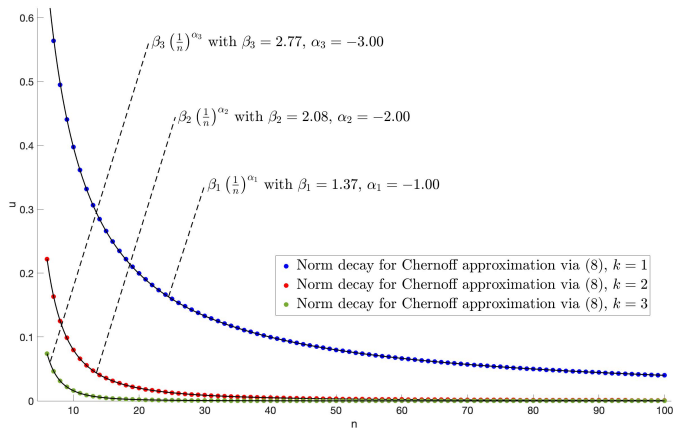


Figure 4: Graphs of estimates of the convergence speed ($t = 1$)

Convergence speed approximation. Log-log

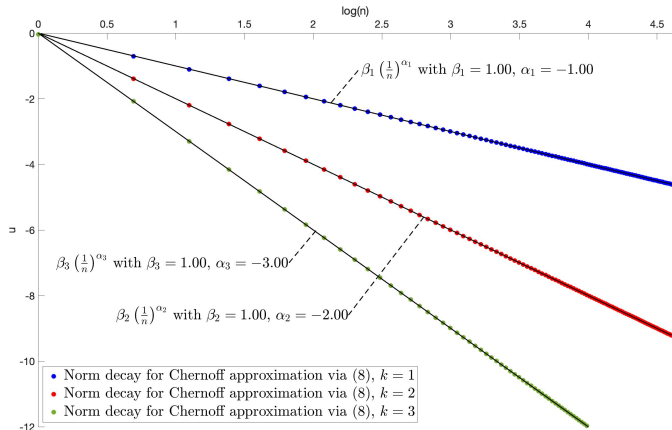


Figure 5: Graphs of estimates of the convergence speed in log-log scale ($t = 1$)

Initial condition and solution

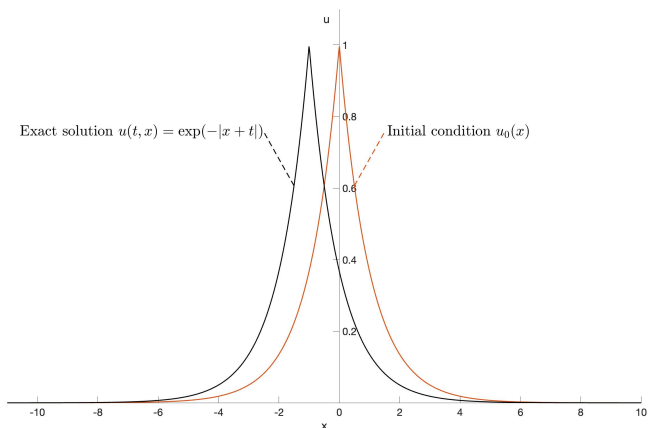


Figure 6: Graphs of initial condition and solution of the transport equation ($t = 1$)

Convergence visualization. Part I

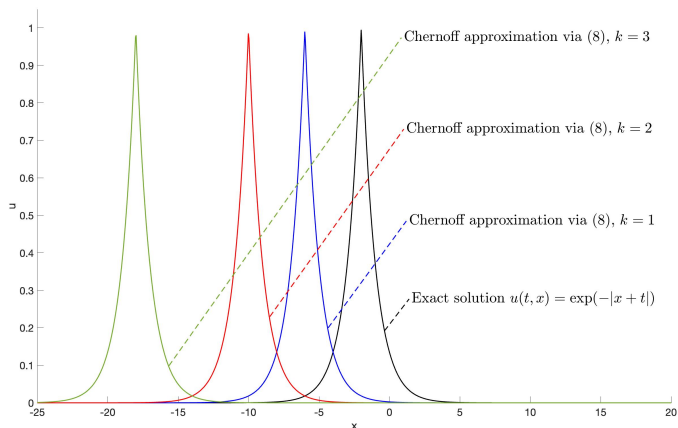


Figure 7: Graphs of approximations to the solution of the transport equation ($t = 2$, $n = 1$)

Convergence visualization. Part II

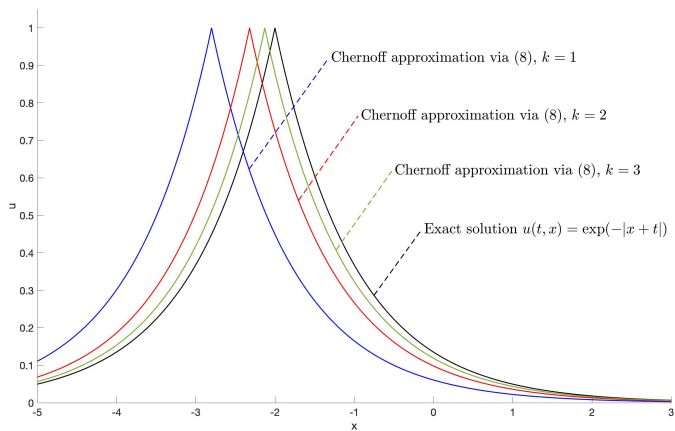


Figure 8: Graphs of approximations to the solution of the transport equation ($t = 2$, $n = 5$)

Convergence speed approximation. Standard

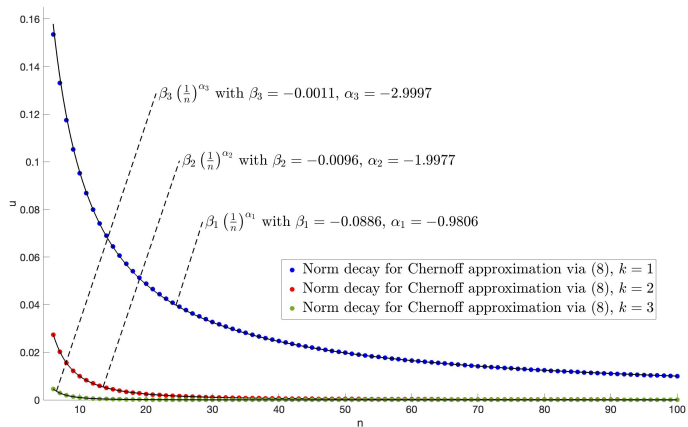


Figure 9: Graphs of estimates of the convergence speed ($t = 1$)

Convergence speed approximation. Log-log

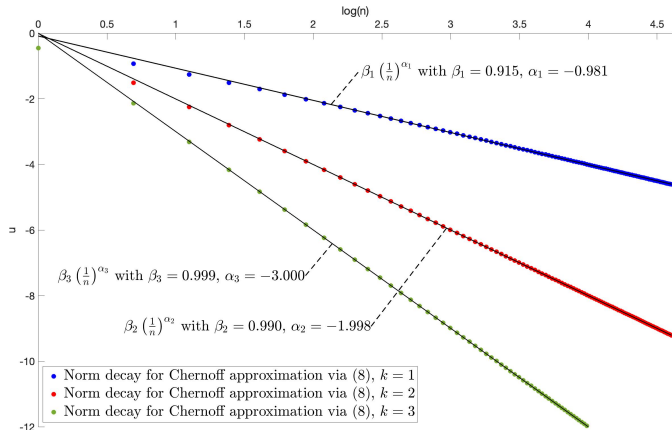


Figure 10: Graphs of estimates of the convergence speed in log-log scale ($t = 1$)

Thank you for your attention!