2. Theoretical Tasks: Compression (5 Points)

2.1 Peer-to-Peer drop in

In the Peer-to-Peer Lockstep model clients can't drop in or out while the game runs. Describe a modification of the model that allows clients to join while the game runs.

Pause the game when a new player joins, transfer the complete game state and then continue as normal.

2.2 Varying data rates and Peer-to-Peer Lockstep

Some network connections are fast and some are slow. Can Peer-to-Peer games handle varying network speeds? If so, how?

When the connection is too slow the complete game will slow down for all clients – Peer-to-Peer games cannot properly handle this situation because the network speed is directly linked to the execution of the game loop. Running the game loop less often when less data arrives would break most games (see for example tunneling in collision routines).

2.3 Varying data rates and Client/Server

Can Client/Server games handle varying network speeds? If so, how?

Yes, this is implicitly supported. Clients always interpolates game states anyway, the game just runs nicer with smaller steps.