Non-interacting Fermi gas in a magnetic quadrupole trap TO CHUN JOHNATHAN LAU, University of Southampton, OLGA GOULKO, University of Massachusetts Amherst, FRÉDÉRIC CHEVY, École Normale Supérieure, CARLOS LOBO, University of Southampton — A non-interacting gas of spin polarised 6Li Fermi gas in a magnetic quadrupole trap which is not in thermal equilibrium can nevertheless show thermal signatures in some cases. This puzzling behaviour can be seen by measuring the doubly integrated momentum distribution along a particular axis. This distribution can be extremely close to a Gaussian from which we can extract a temperature. However, we show, using molecular dynamics simulations that the temperature thus measured is generally different along different axes. We provide a general explanation of this phenomenon based on ergodicity and check it with further simulations.