Radio interferometer arrays such as HERA consist of many close-packed dishes arranged in a regular pattern, giving rise to a large number of `redundant' baselines with the same length and orientation. In reality, there are many reasons why baselines will not be exactly identical, giving rise to a host of effects that spoil the redundancy of the array and induce spurious structure in the calibration solutions if not accounted for. We study a particular type of non-redundancy, mainly, differences in the primary beam response between antennae, and show the effects in the observed interferometric visibilities and their resulting (delay-space) power spectra.