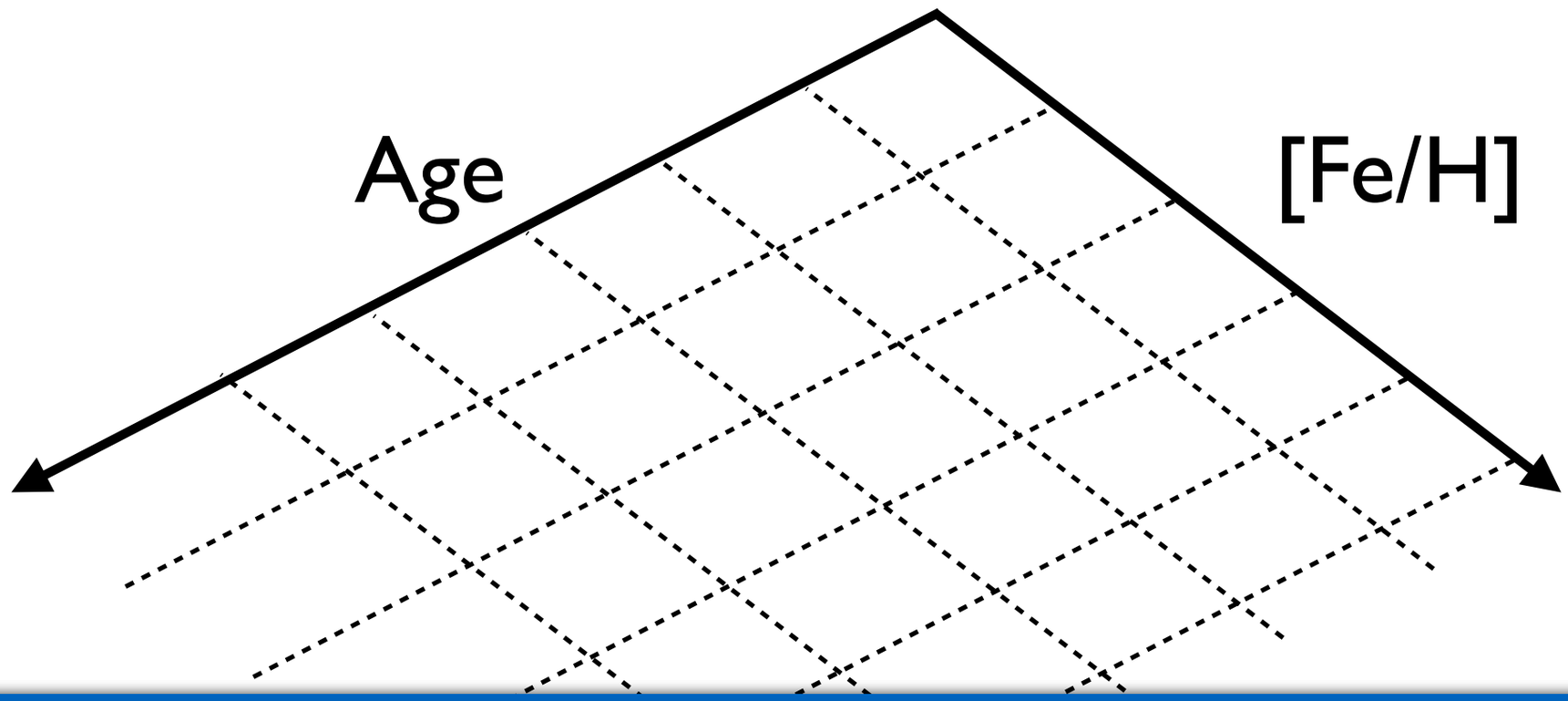
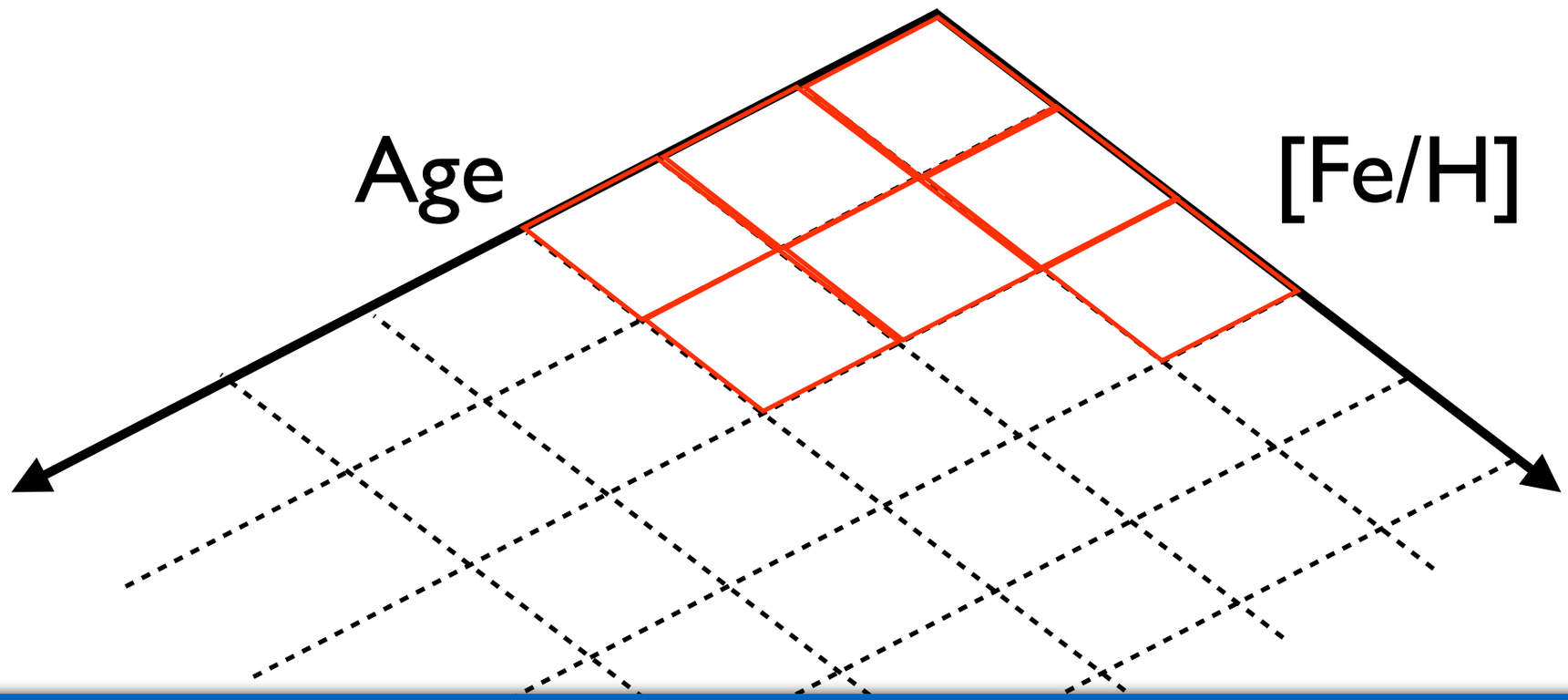
Target selection effects

Step1: Create a grid
of age and [Fe/H]



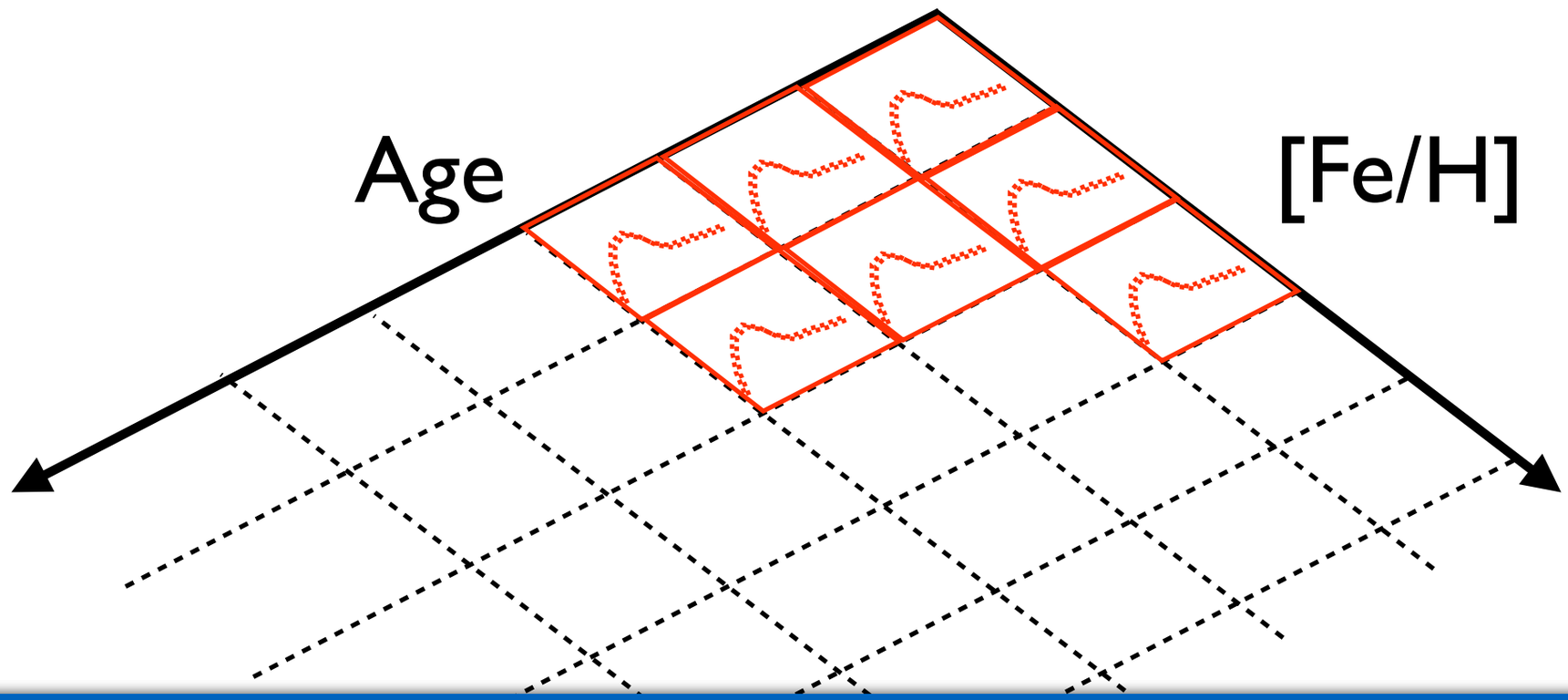
Target selection effects

Step2: at each point assign an isochrone of that age and metallicity



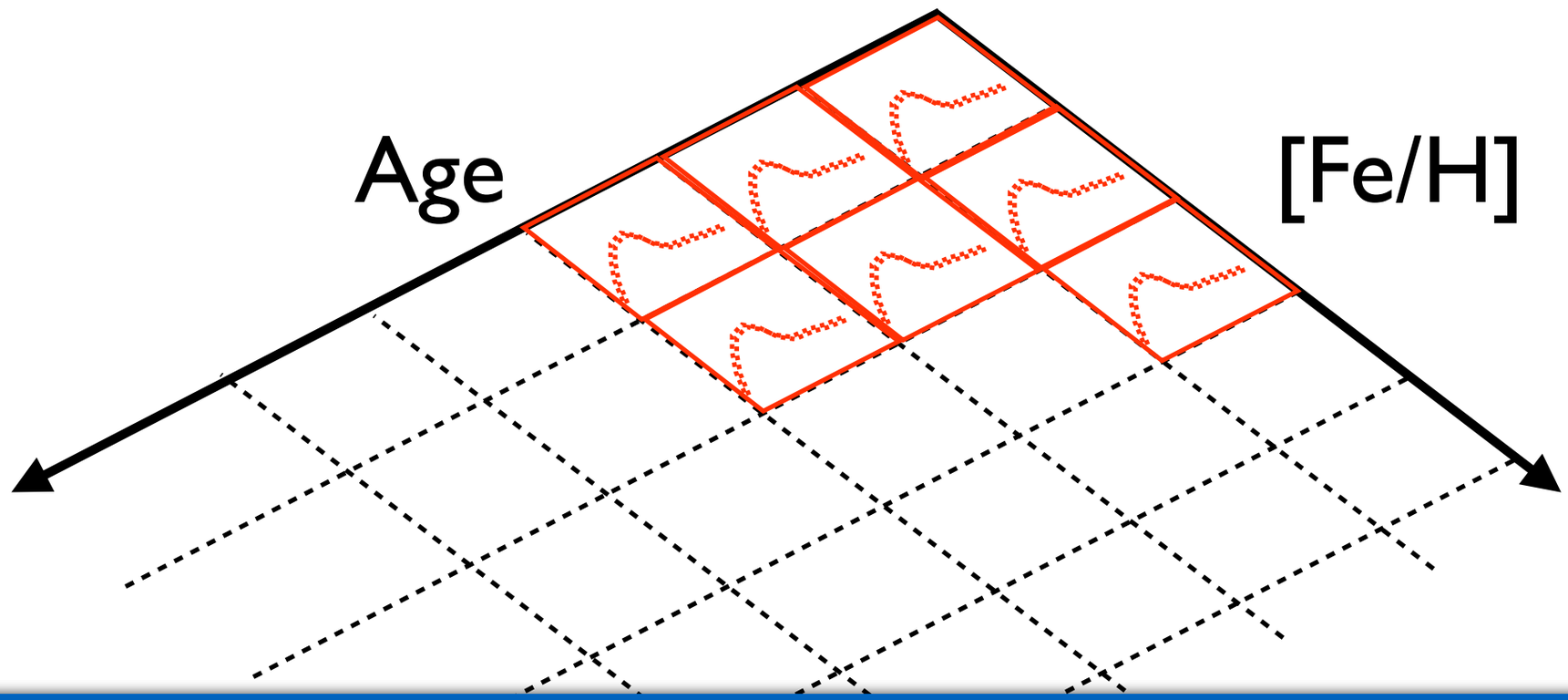
Target selection effects

Step3: populate each isochrone with an IMF



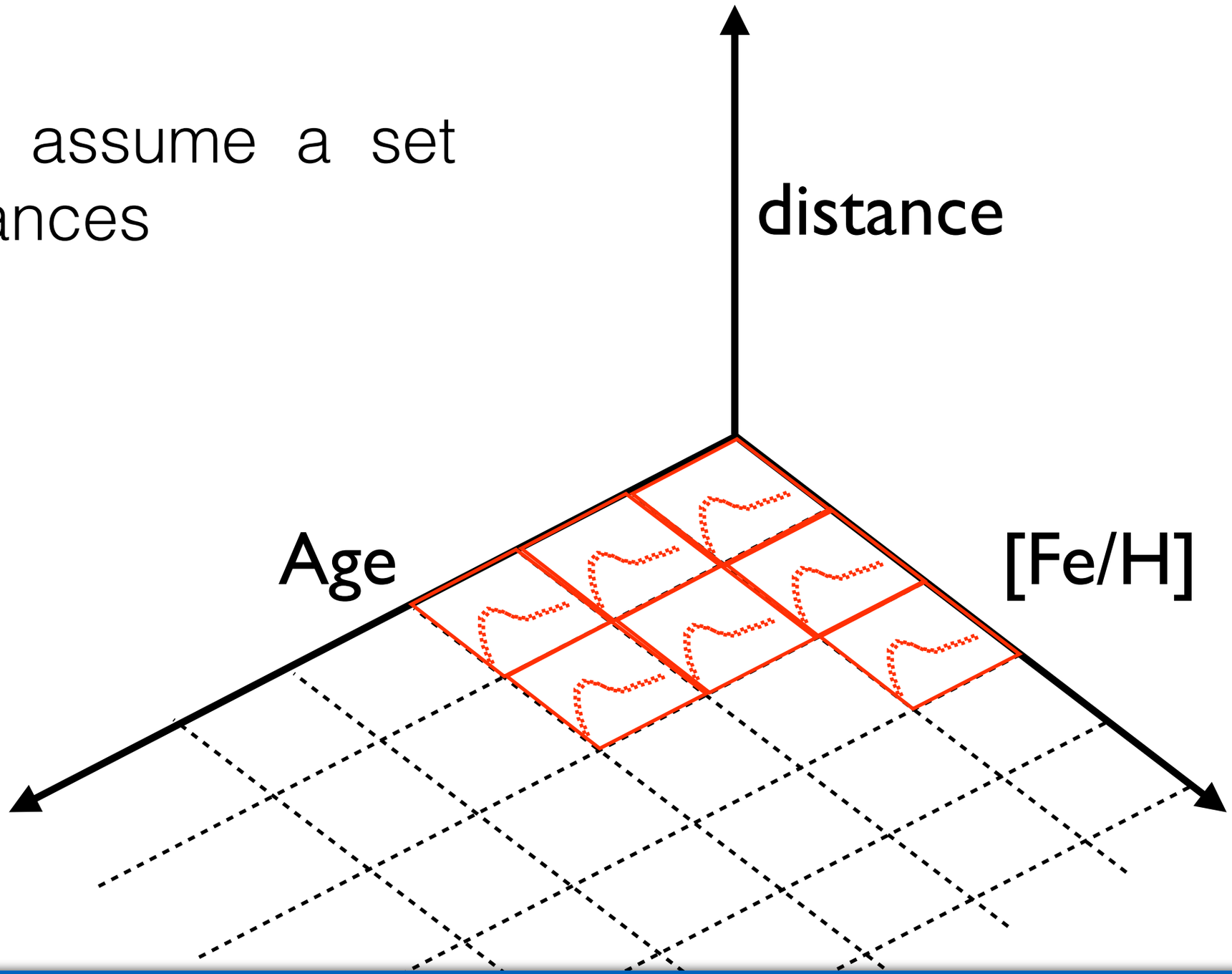
Target selection effects

at the end of Step 1-3, at each point on the grid we will have a synthetic population of stars described by absolute magnitudes (M_K) and colours (J-K)



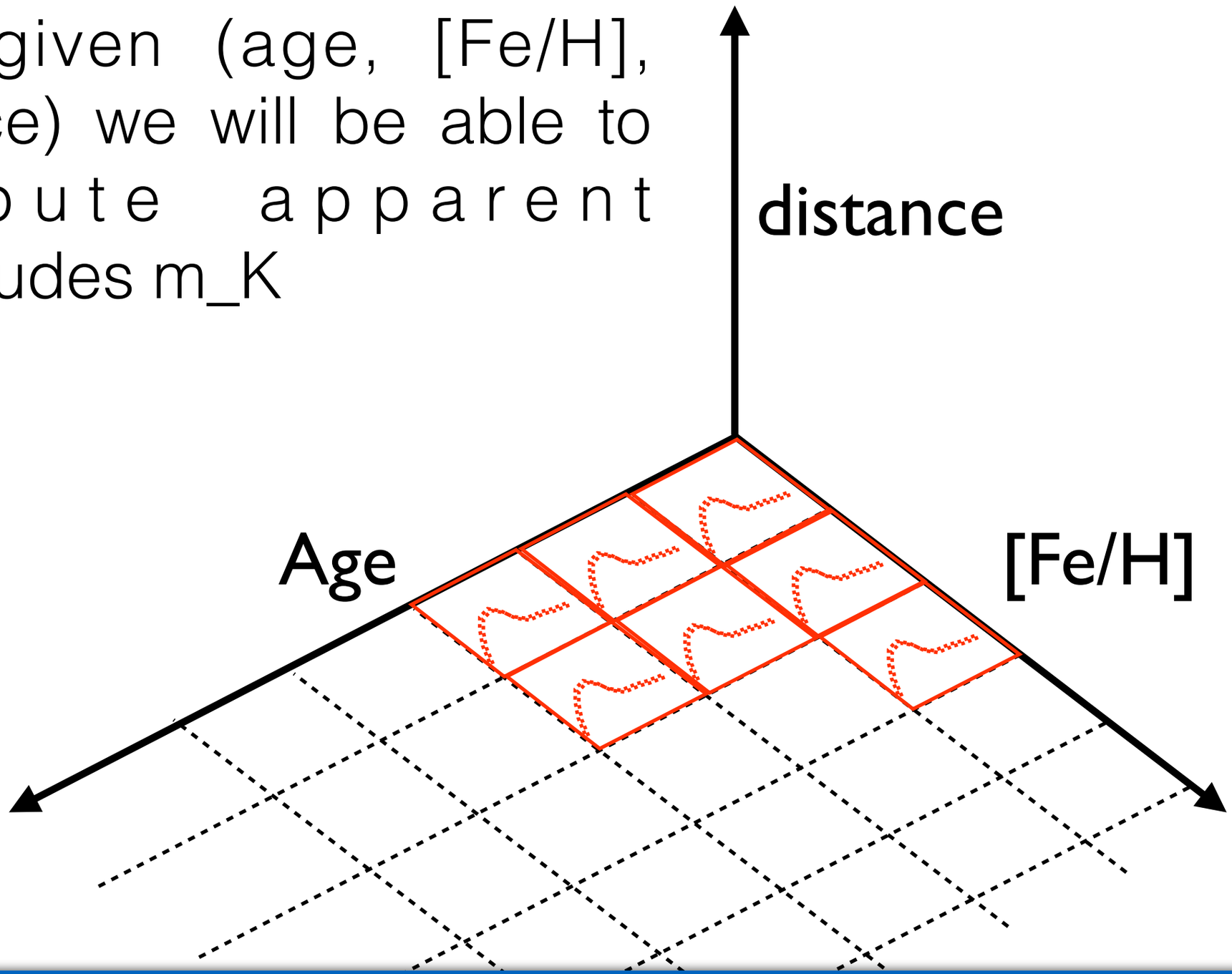
Target selection effects

Step4: assume a set of distances

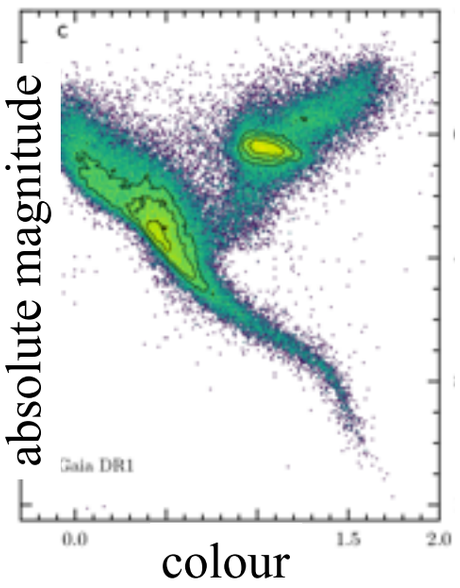


Target selection effects

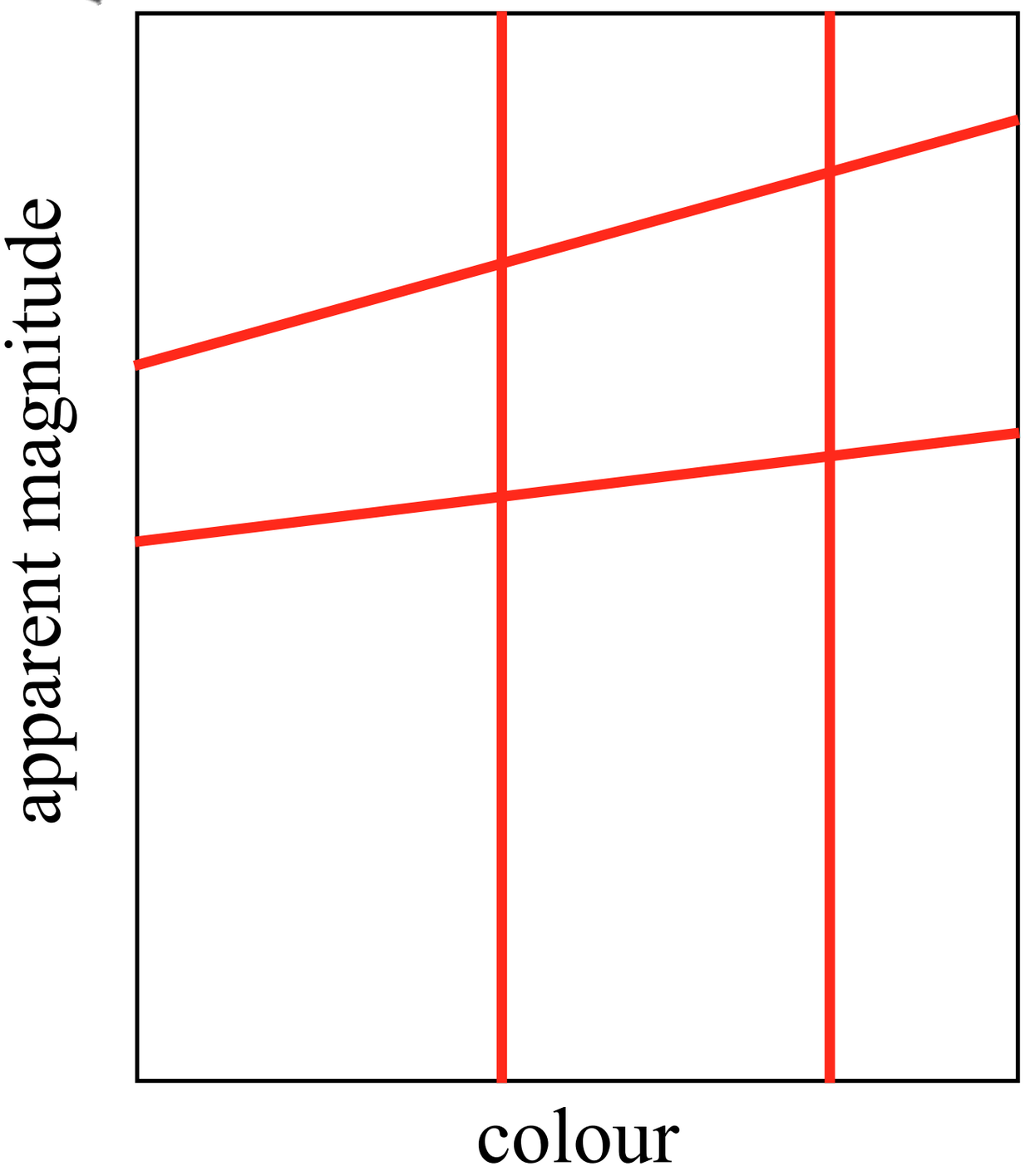
at a given (age, [Fe/H], distance) we will be able to compute apparent magnitudes m_K

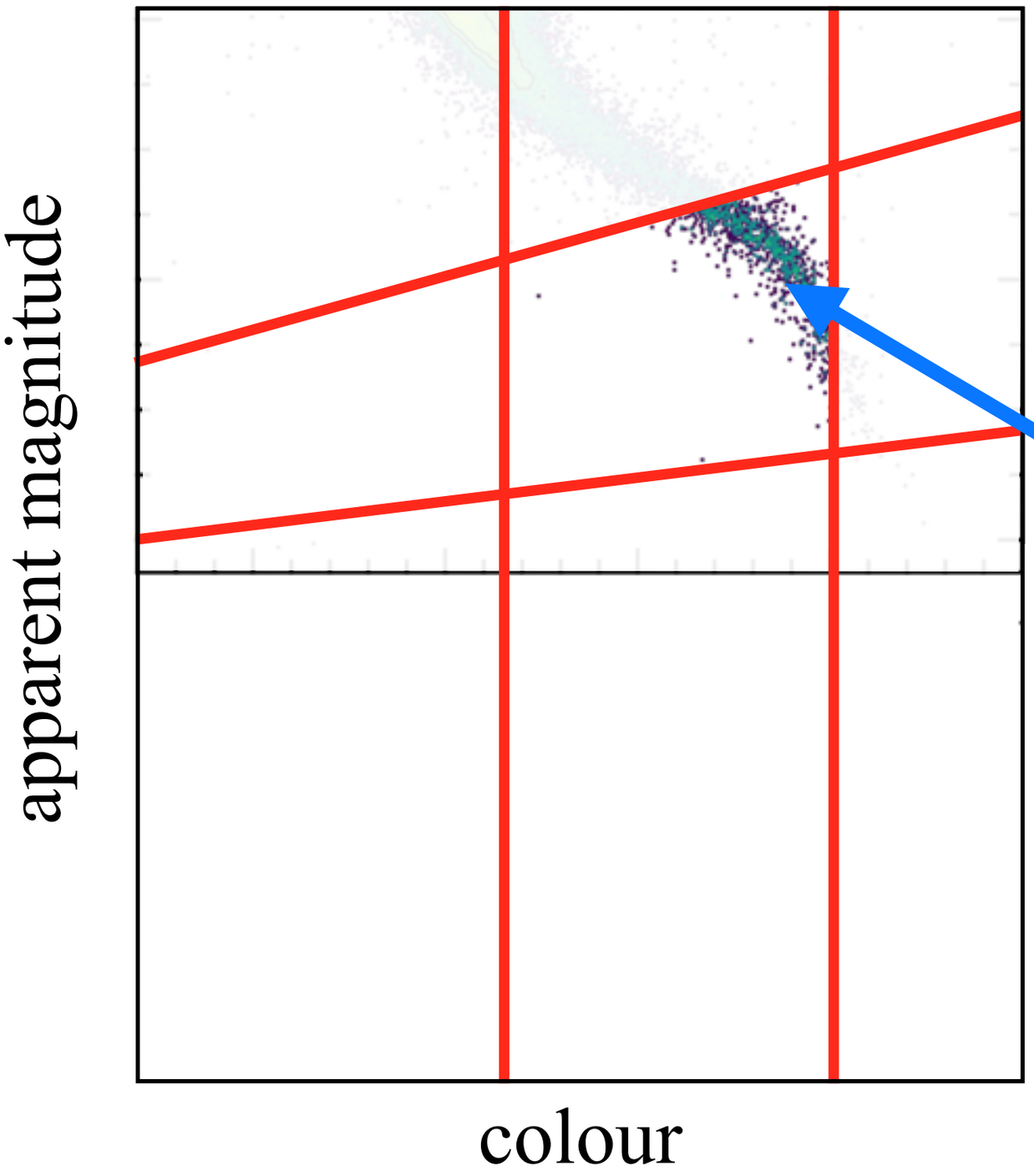


1) This is our synthetic HR diagram at a given age and [Fe/H]



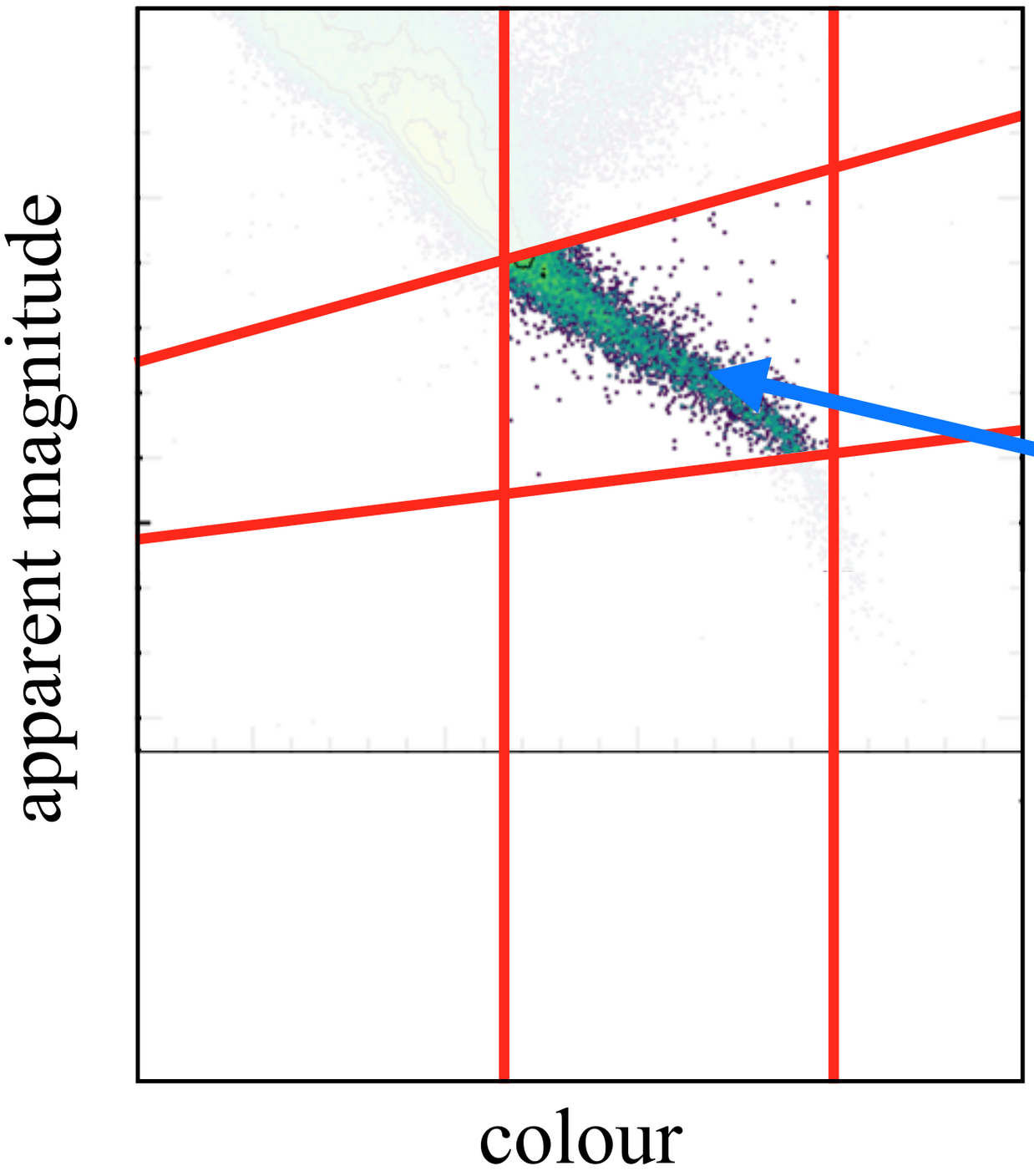
2) Now we apply a set of distances and at each distance use the same m_K and J_K selection of Galah





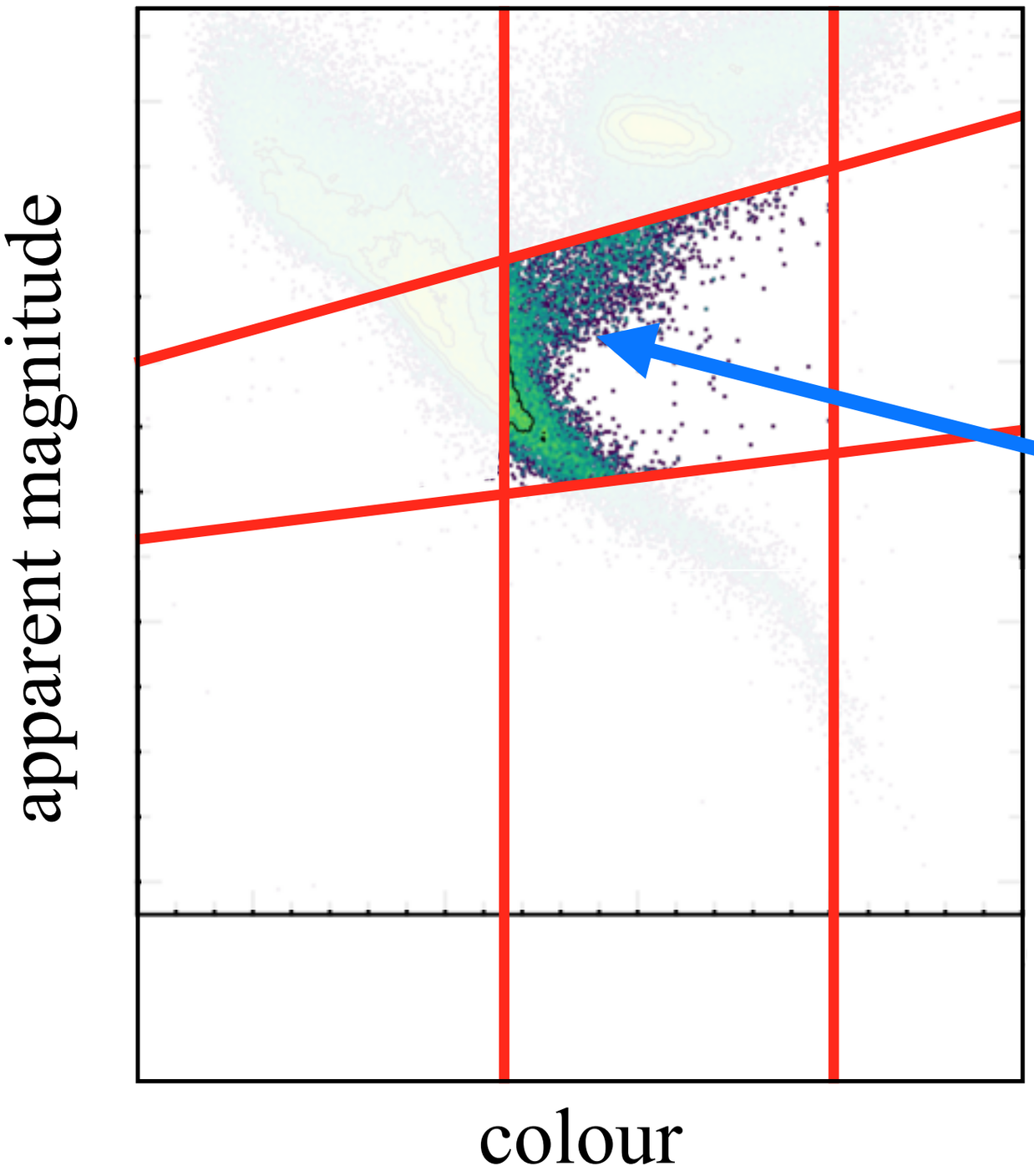
absolute —> apparent mag at distance d_1

only these out of all stars in the HR diagram pass the Galah section cut at distance d1



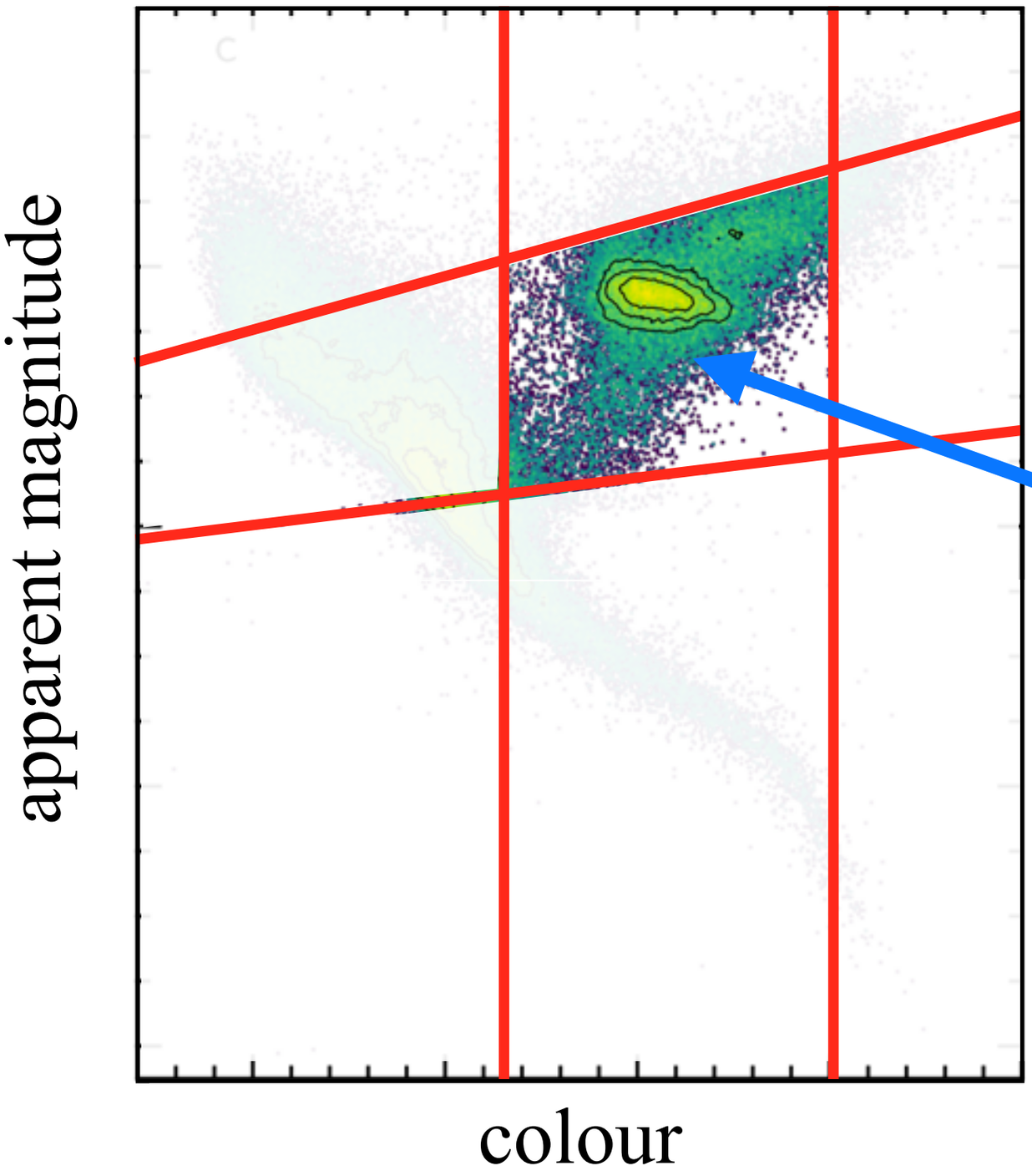
absolute —> apparent mag at distance $d_2 > d_1$

only these out of all stars in the HR diagram pass the Galah section cut at distance d2



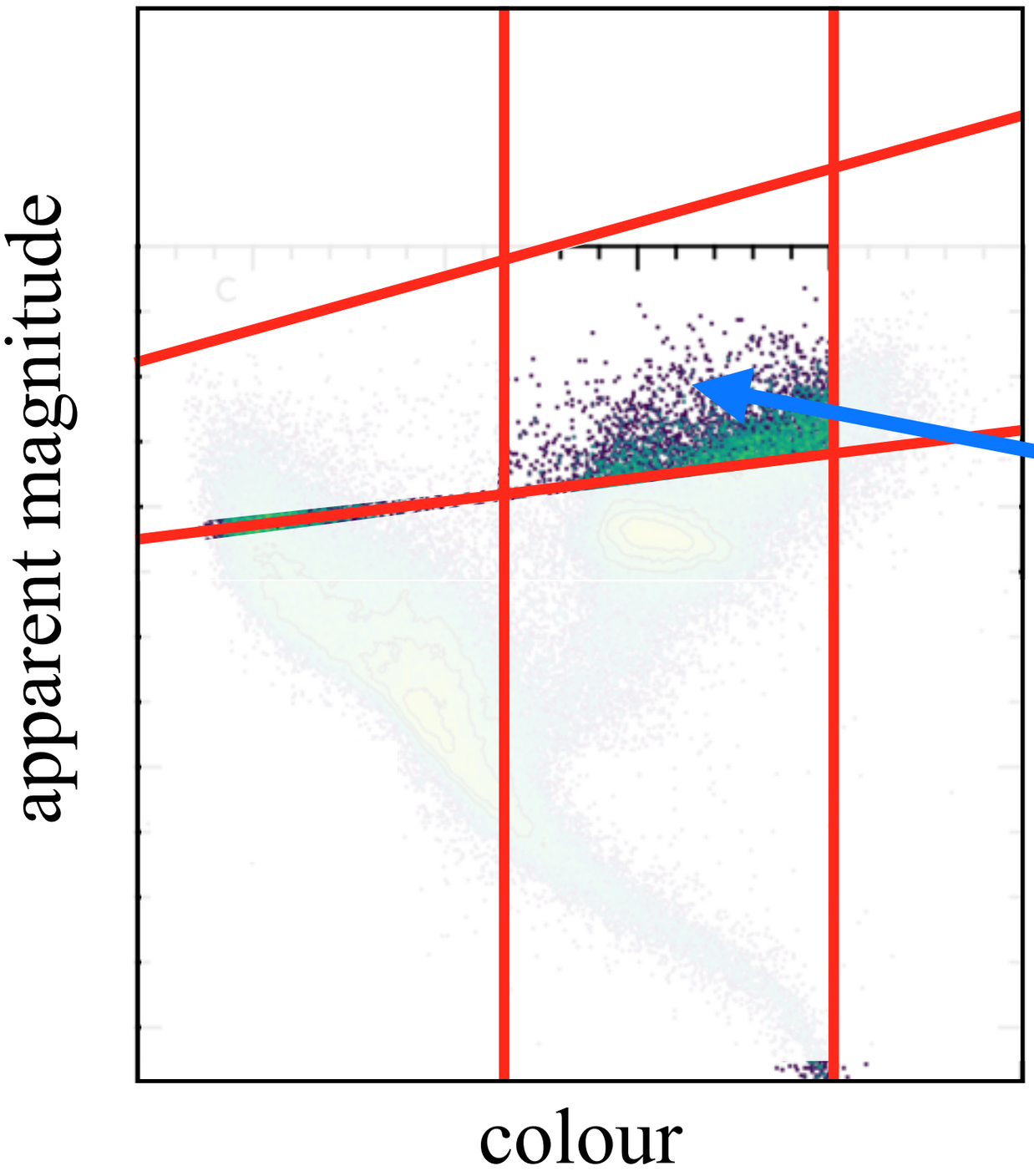
absolute —> apparent mag at distance $d_3 > d_2$

only these out of all stars in the HR diagram pass the Galah section cut at distance d3



absolute —> apparent mag at distance $d_4 > d_3$

only these out of all stars in the HR diagram pass the Galah section cut at distance d4



absolute —> apparent mag at distance $d_5 > d_4$

only these out of all stars in the HR diagram pass the Galah section cut at distance d5