

# Exercise: $M \rightarrow (a_1 a_2) b$

For the three body decay  $M \rightarrow (a_1 a_2) b$  where  $a_1$  and  $a_2$  are visibles of known masses, while the  $b$  is invisible.

- (5) Satisfy yourself that, at the true value of the invisible mass, events can have  $M_T$  values that saturate the bound (i.e. have  $M = M_T$ ) regardless of the invariant mass “ $m_{\text{vis}}$ ” of the  $a_1 a_2$  system.
- (6) Sketch a proof of the statements made in the last two slides – in some limit if necessary.