Example proof

Lemma 4 *When* $\not{\mathbf{p}}_T = \mathbf{0}$ *and* $m_i^{(1,2)} = 0$ *then* $m_{T2} = m_<$.

Proof For $\not{\mathbf{p}}_T = \mathbf{0}$ there exists a trivial partition of the missing momentum with $\mathbf{q}_T^{(1)} = \mathbf{q}_T^{(2)} = \mathbf{0}$. For that partition, $m_T^{(1)} = m_<^{(1)}$ and $m_T^{(2)} = m_<^{(2)}$;

$$m_{T2}(v_1, v_2, \not{\mathbf{p}}_T, m_i^{(1)}, m_i^{(2)}) \equiv \min_{\sum \mathbf{q}_T = \not{\mathbf{p}}_T} \left\{ \max\left(m_T^{(1)}, m_T^{(2)} \right) \right\}$$

- So small p_T^{miss} ➔ small m_{T2}
- Do we *need* a separate p_T^{miss} cut? (no…)

NB the requirement that m_i=0 is on the *input* mass parameter not the *true* LSP mass