

► Expanding on ①

$$T'(v_1)(e_1) = v_1.T(e_1) = v_1.T(1,0,0) = v_1(4|1) = 4$$

$$\text{Similarly } T'(v_1)(e_2) = v_1(5,8) = 5; T'(v_1)(e_3) = 6$$

$$\text{Thus } T'(v_1) = 4z_1 + 5z_2 + 6z_3$$

► Repeating the same procedure for ②,

$$T'(v_2) = 7z_1 + 8z_2 + 9z_3$$