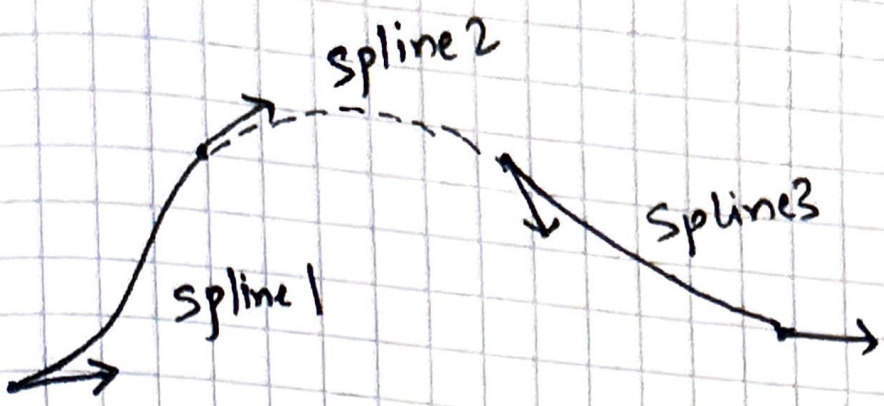
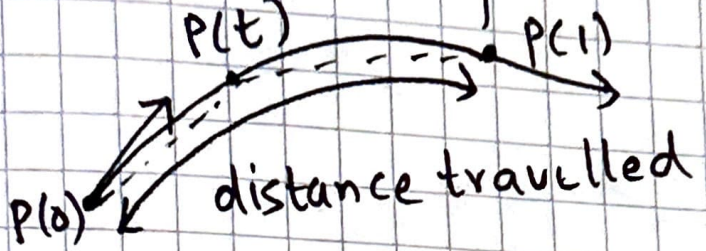


Motion Model → Spline params
+ speed on track

Calculating Speed from Spline params



$\overline{P_0 P_1} < \overline{P_0 P_t} + \overline{P_t P_1} <$ distance

At limit "=" with more points.

Formulating tracking as a factor graph

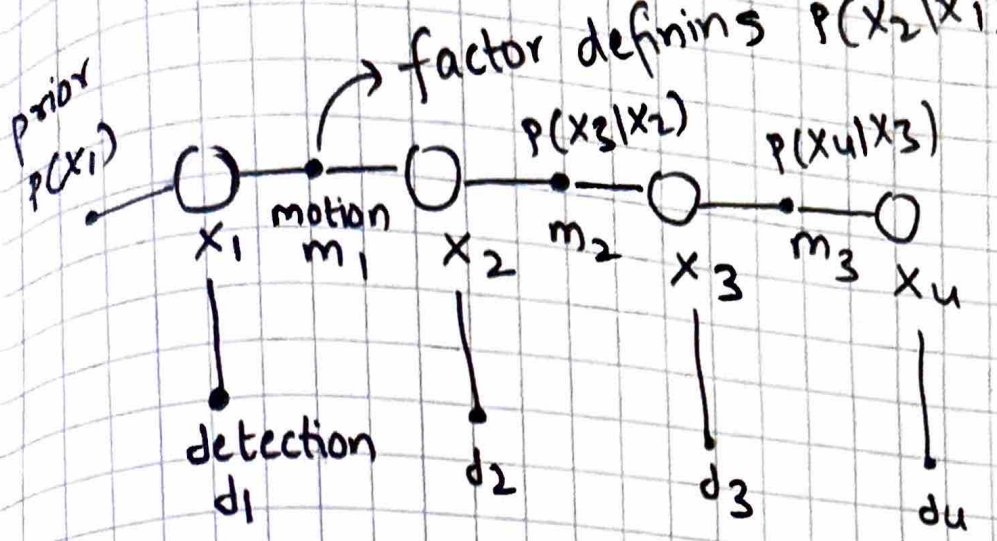
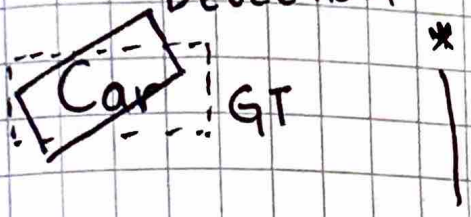


Figure 1

In figure 2, line β exists because, update of params depends on the newest observation



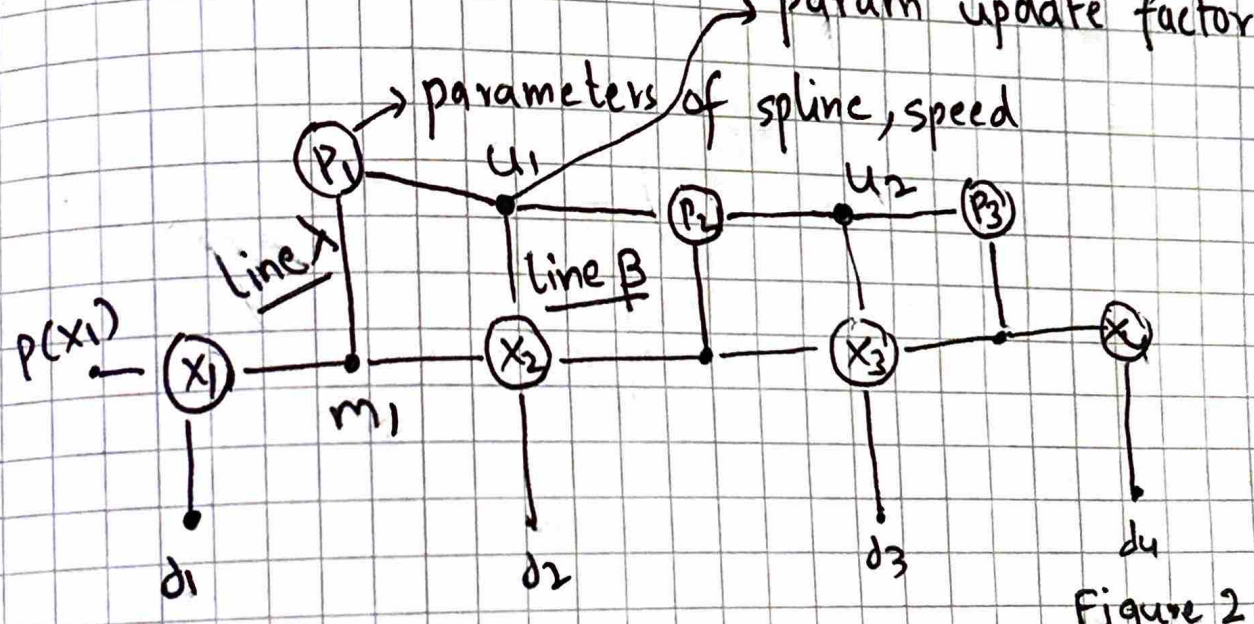
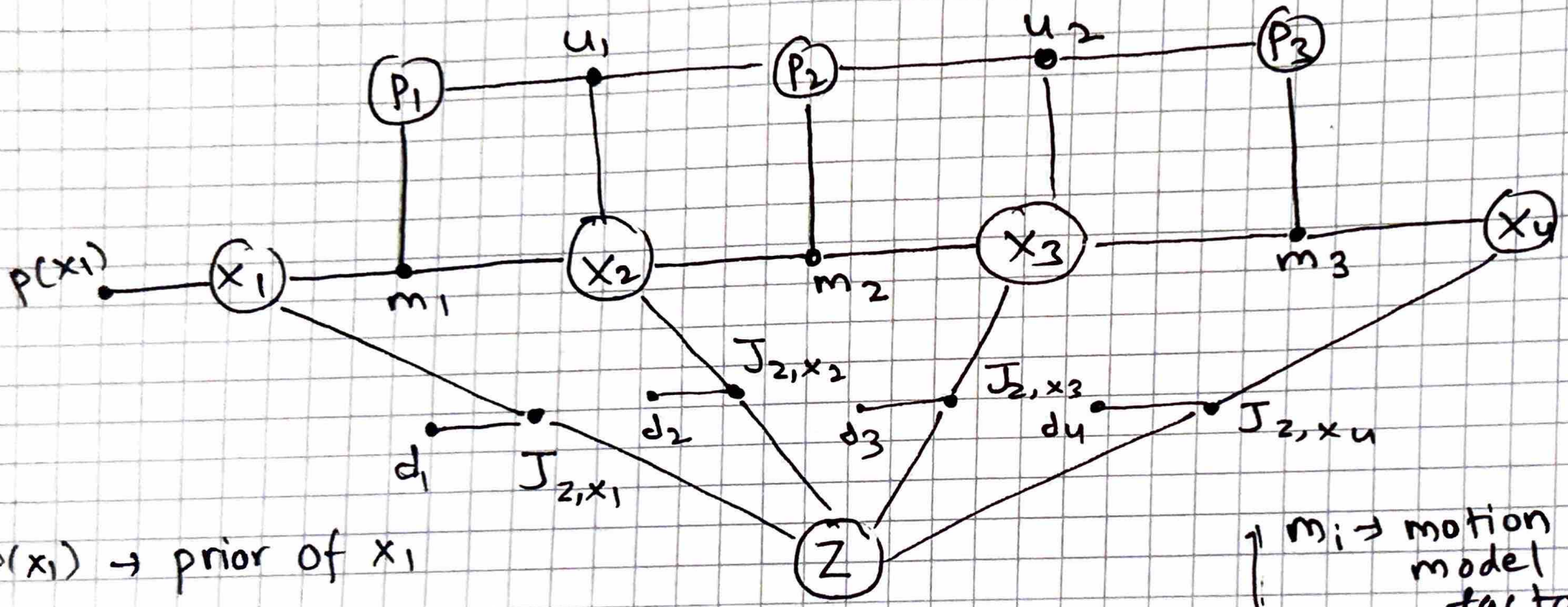


Figure 2

line λ → exists because motion model depends on the updated params of spline

Tracking problem in the language of factor graphs



$p(x_1)$ → prior of x_1

d_i → detection

x_i → random variable for pose

z → shape code

u_i → param update factor

m_i → motion model factor

J_{z,x_i} → Surface cost

P_i → params of motion