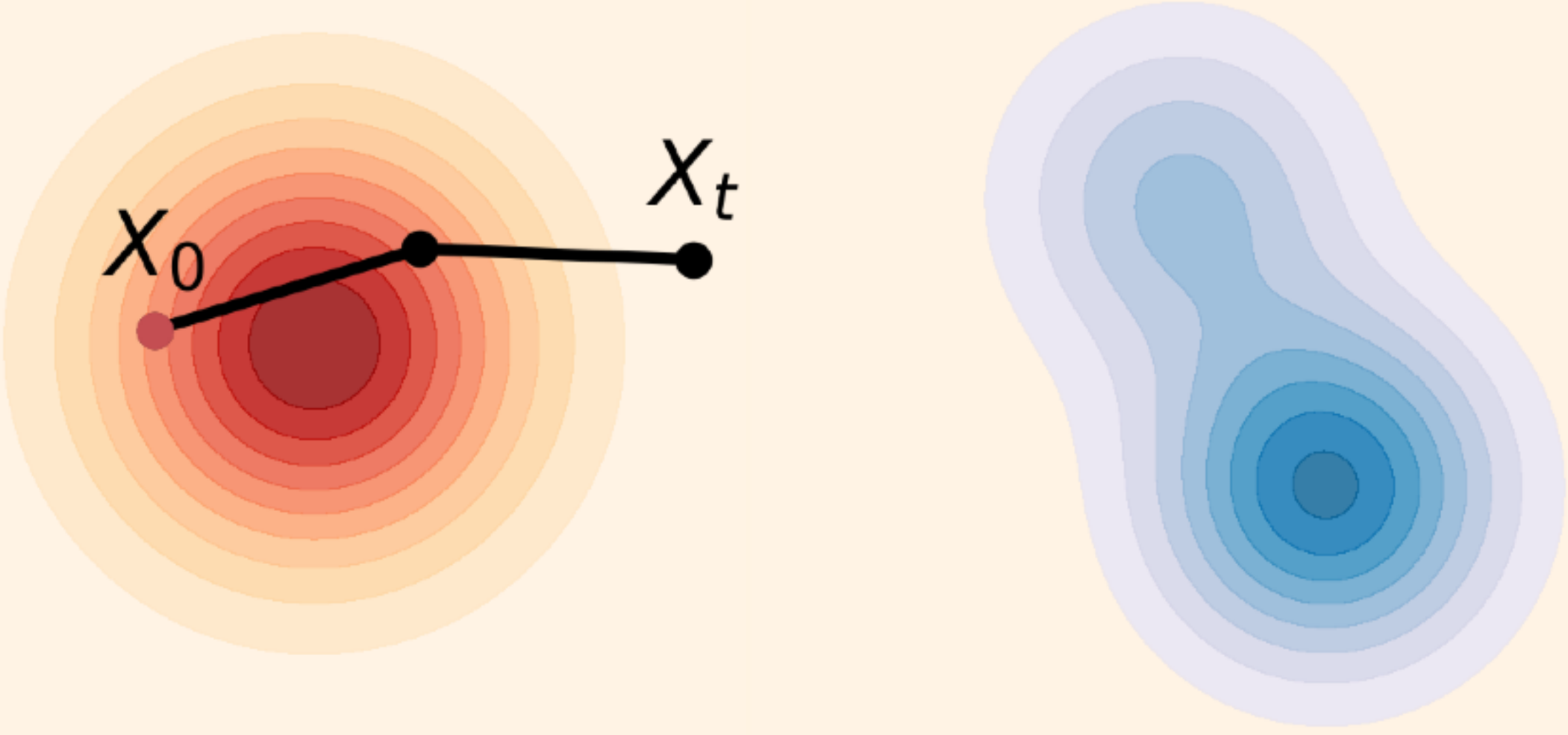
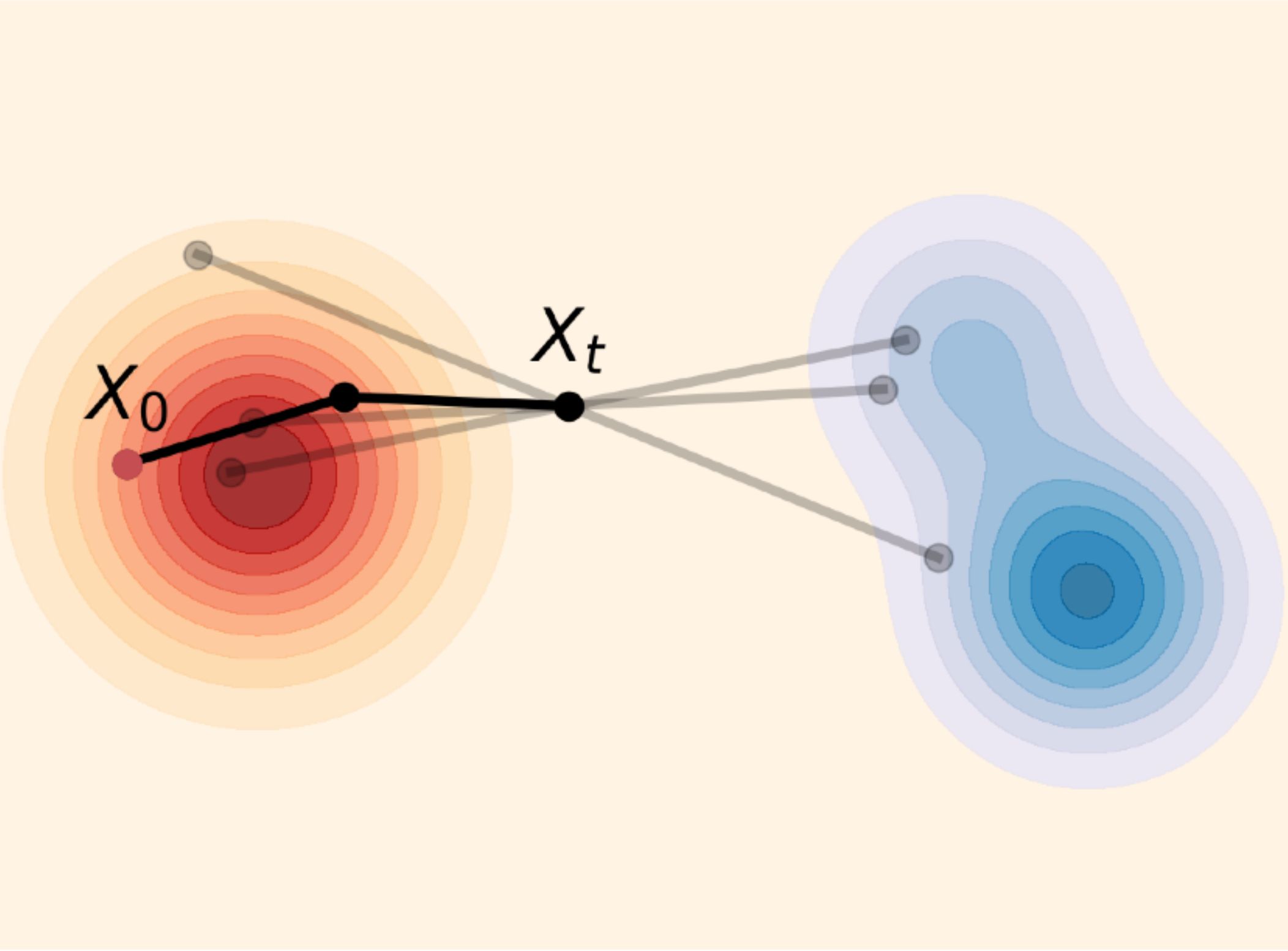
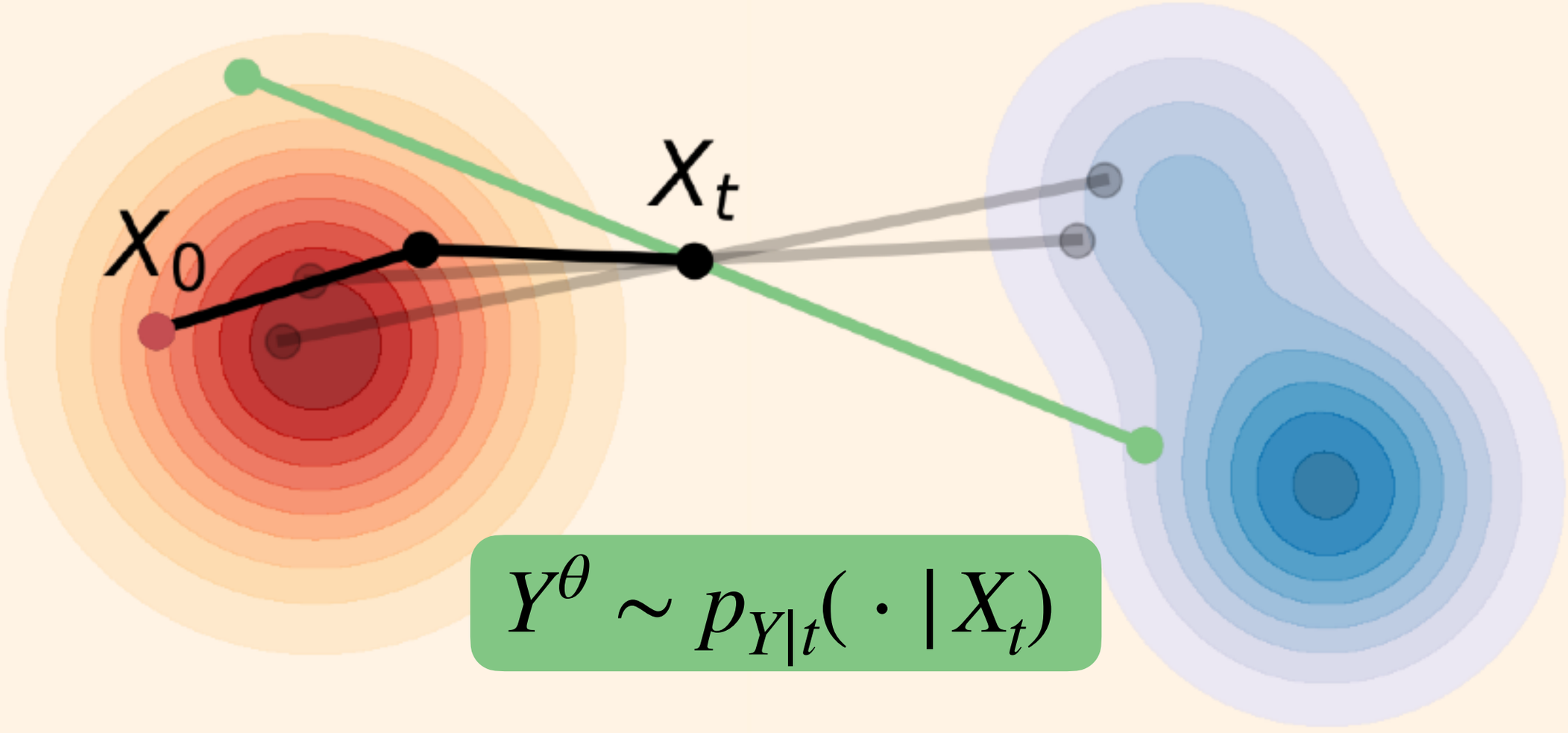
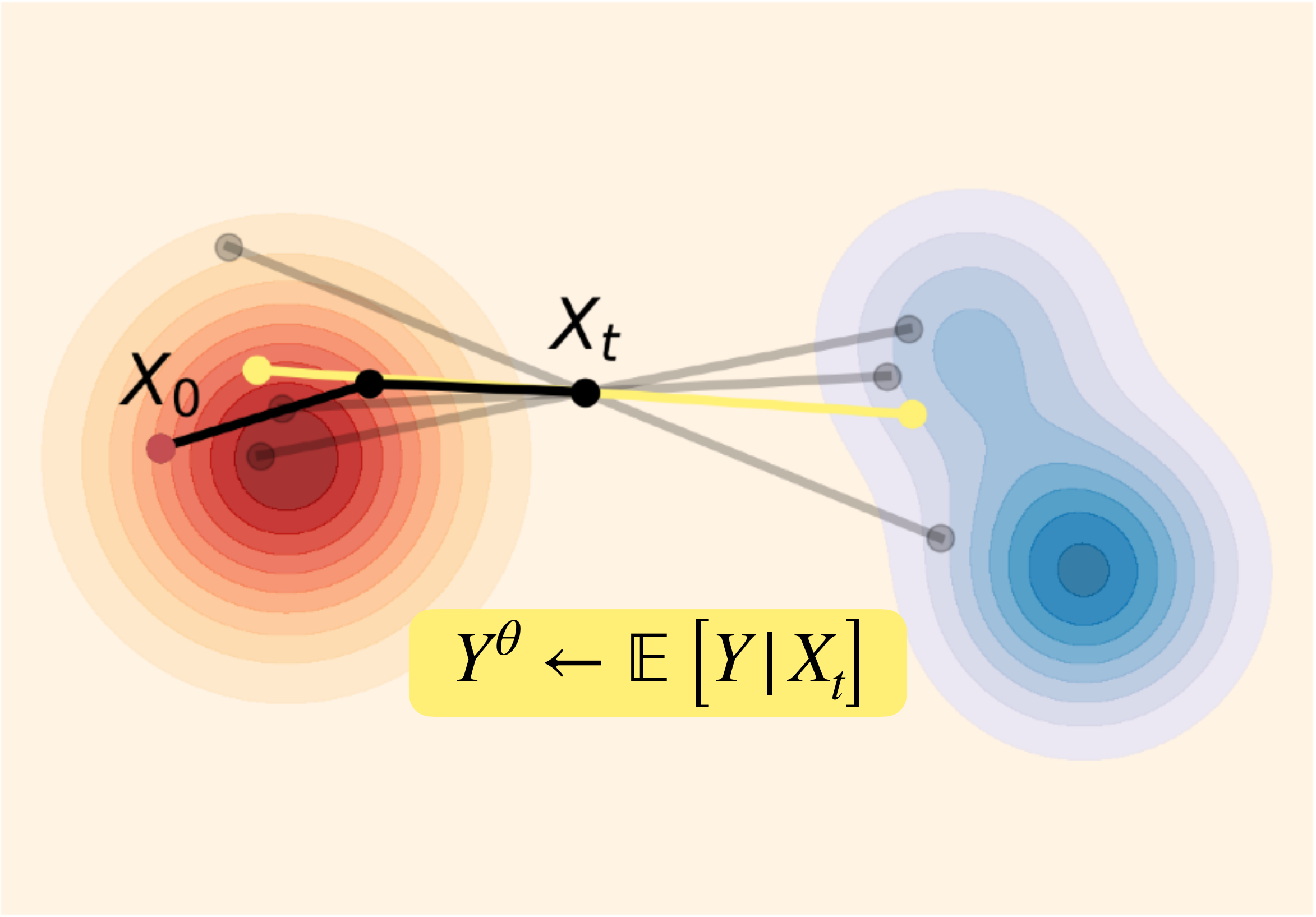
DTM vs. FM


X_0
X_t


X_0
X_t


X_0
X_t
$Y^\theta \sim p_{Y|t}(\cdot \mid X_t)$

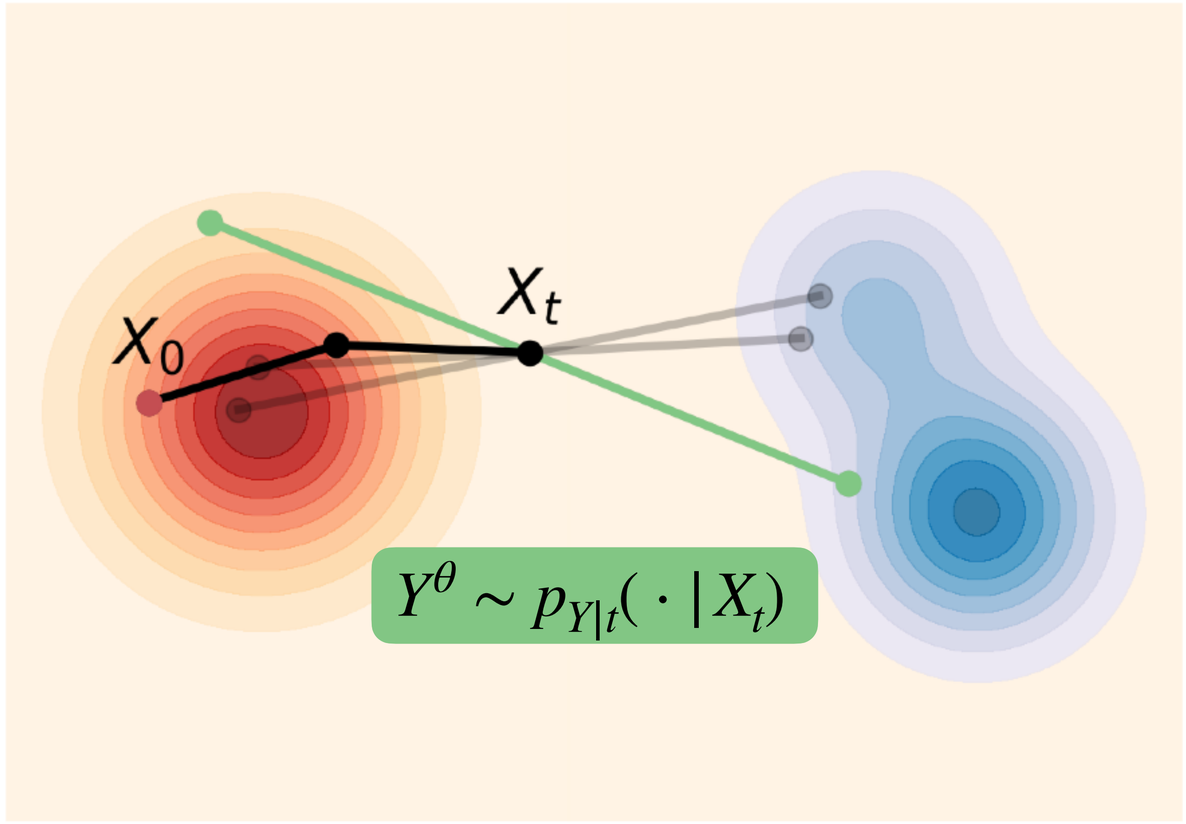
FM



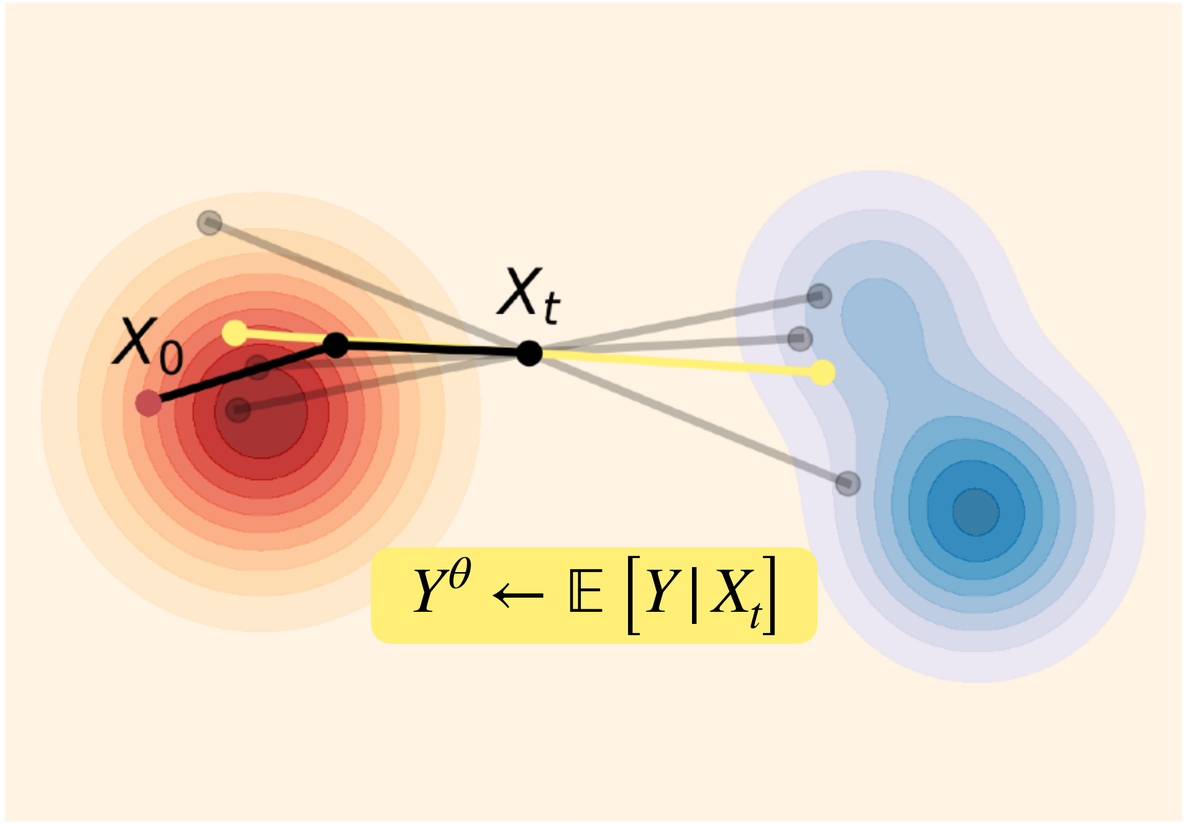

DTM

DTM vs. FM

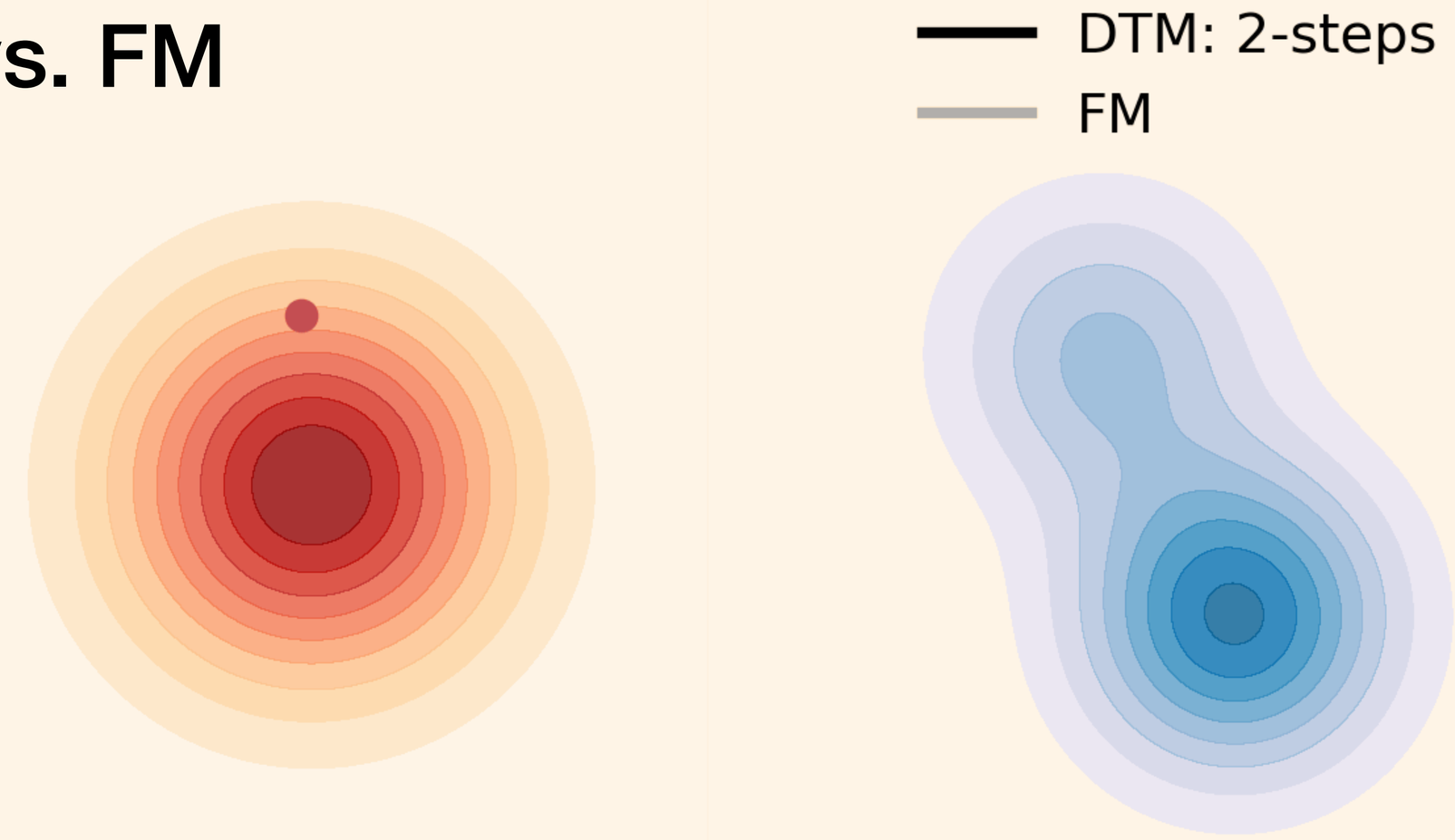
DTM



FM



DTM vs. FM



Theorem 1: (informal) As the number of steps increases, $T \to \infty$, DTM converges to Euler step FM. Given a state $X_t = x_t$,

$$X_{t+k} \approx x_t + \frac{k}{T}\mathbb{E}\left[X_T - X_0 \,|\, X_t = x_t\right], \quad \text{as } k/T \to 0,\ k \to \infty.$$