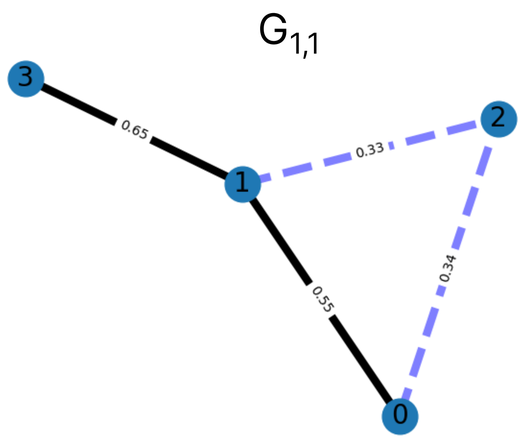
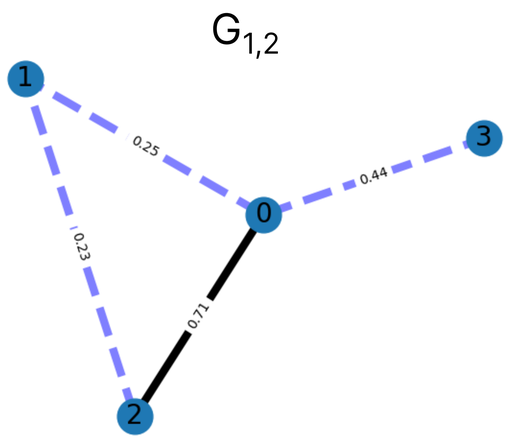
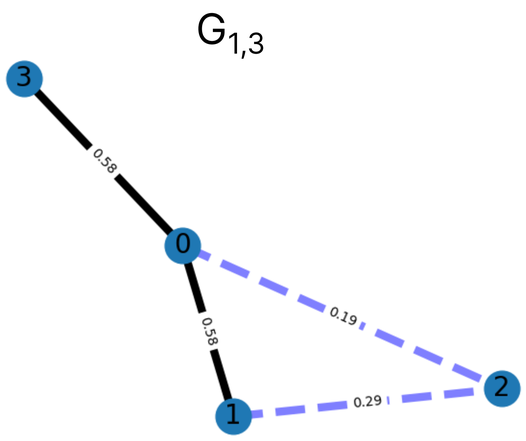
Timeline 1



t = 0

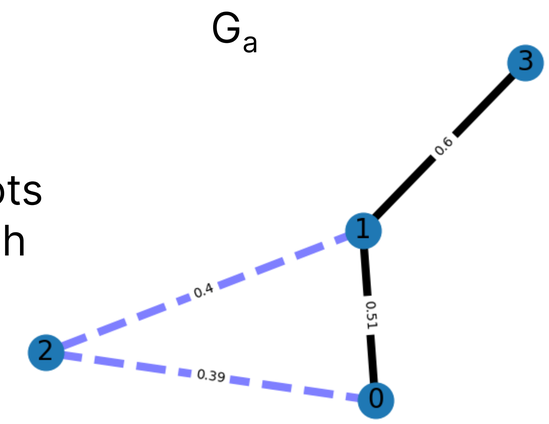


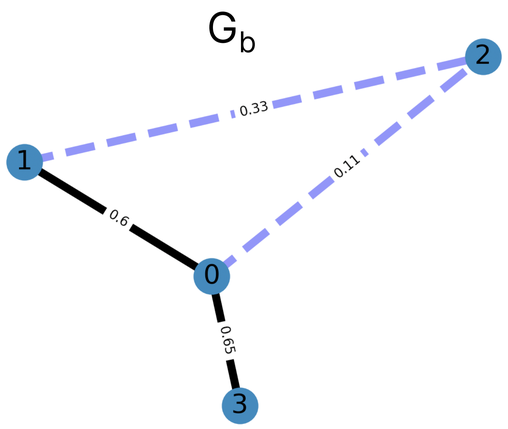
t = 1



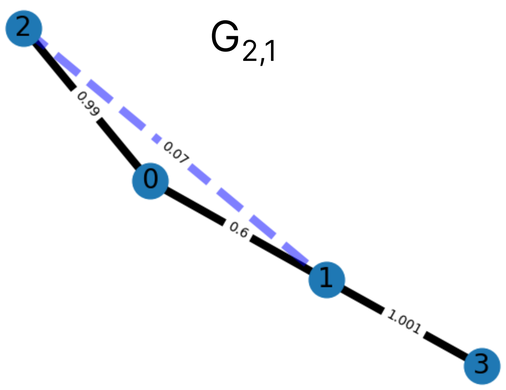
t = 2

Current Snapshots
we want to match

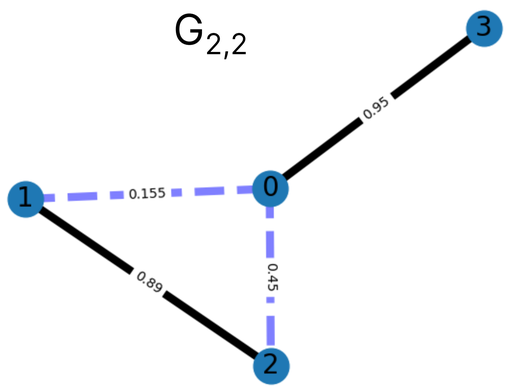




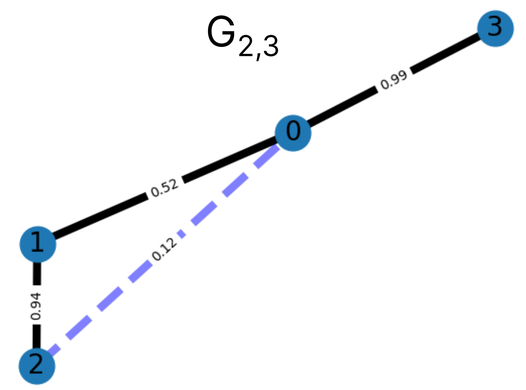
Timeline 2



t = 0

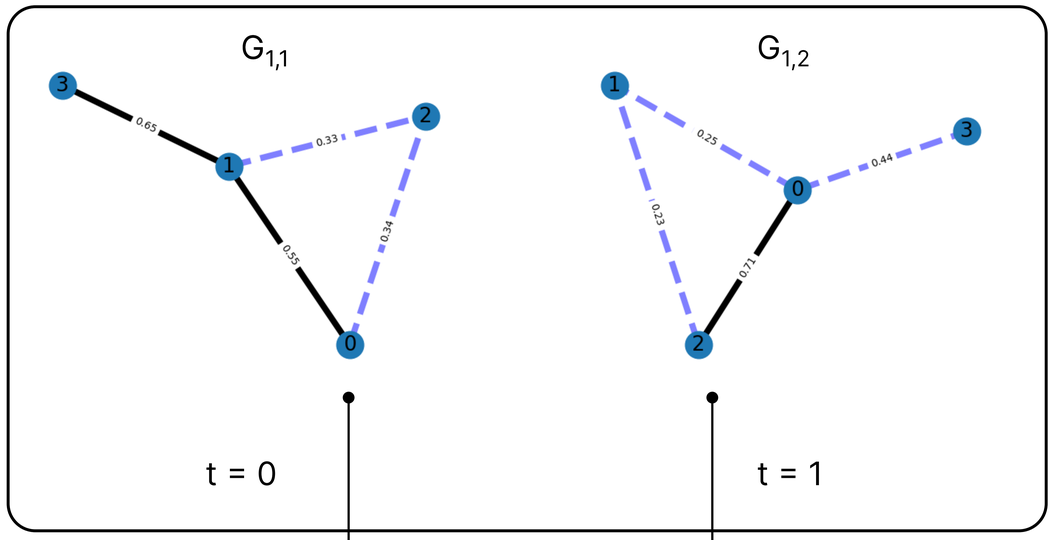


t = 1

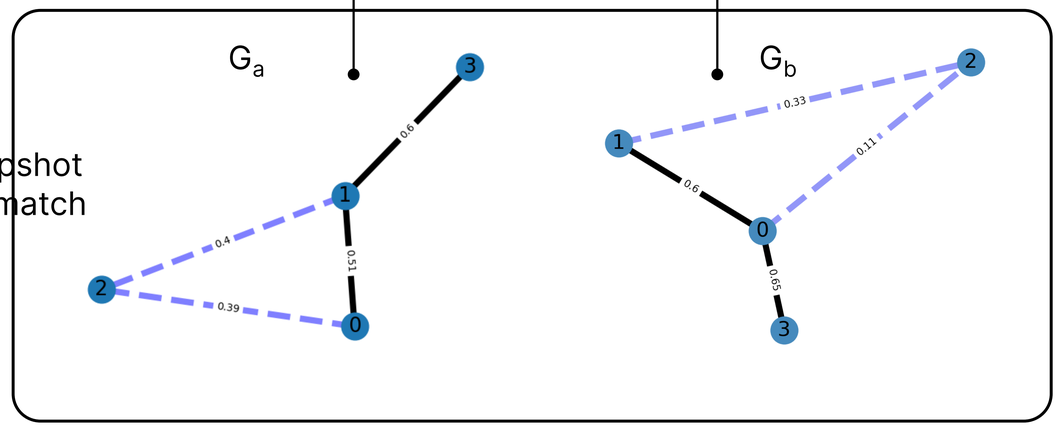


t = 2

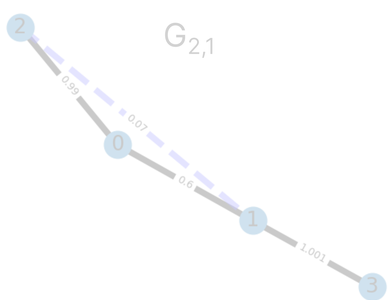
Timeline 1

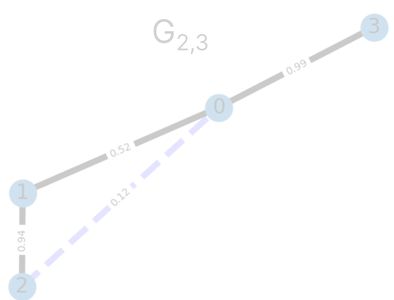


Current Snapshot
we want to match



Timeline 2





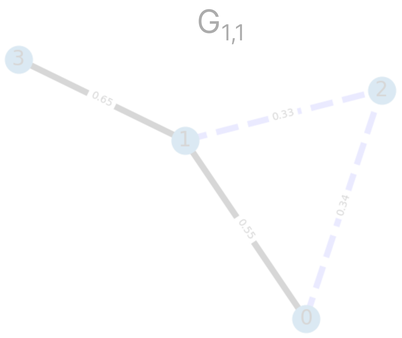
Initialize global_max_cos = -inf

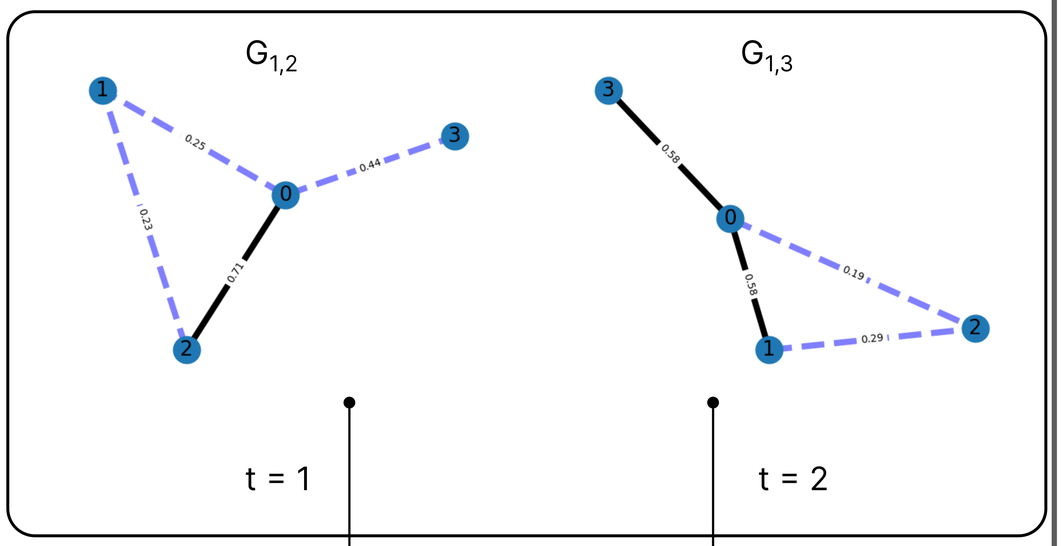
Initialize curr_timeline_max_cos = -inf

Calculate the cosine similarity as follows:
a = cos_sim(G_1,1 , G_a)
b= cos_sim(G_1,2 , G_b)

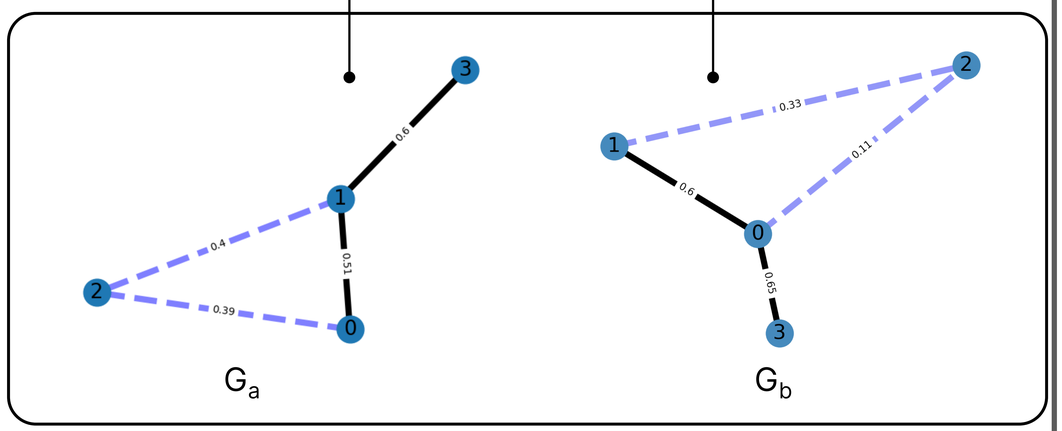
curr_timeline_max_cos =
max(curr_timeline_max_cos, a + b)

Timeline 1

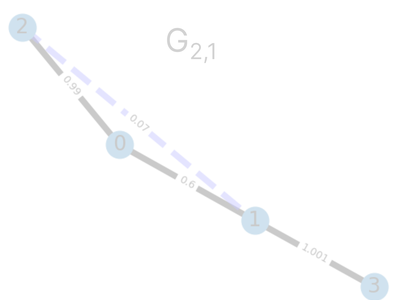


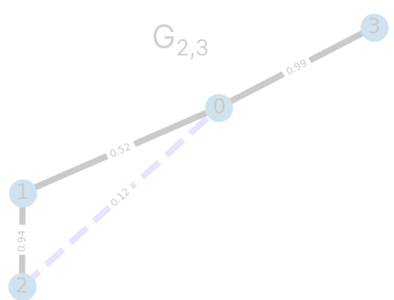


Current Snapshot
we want to match



Timeline 2





global_max_cos = -inf

curr_timeline_max_cos = previous cosine

Calculate the cosine similarity as follows:
a = cos_sim(G_1,2 , G_a)
b= cos_sim(G_1,3 , G_b)

curr_timeline_max_cos =
max(curr_timeline_max_cos, a + b)

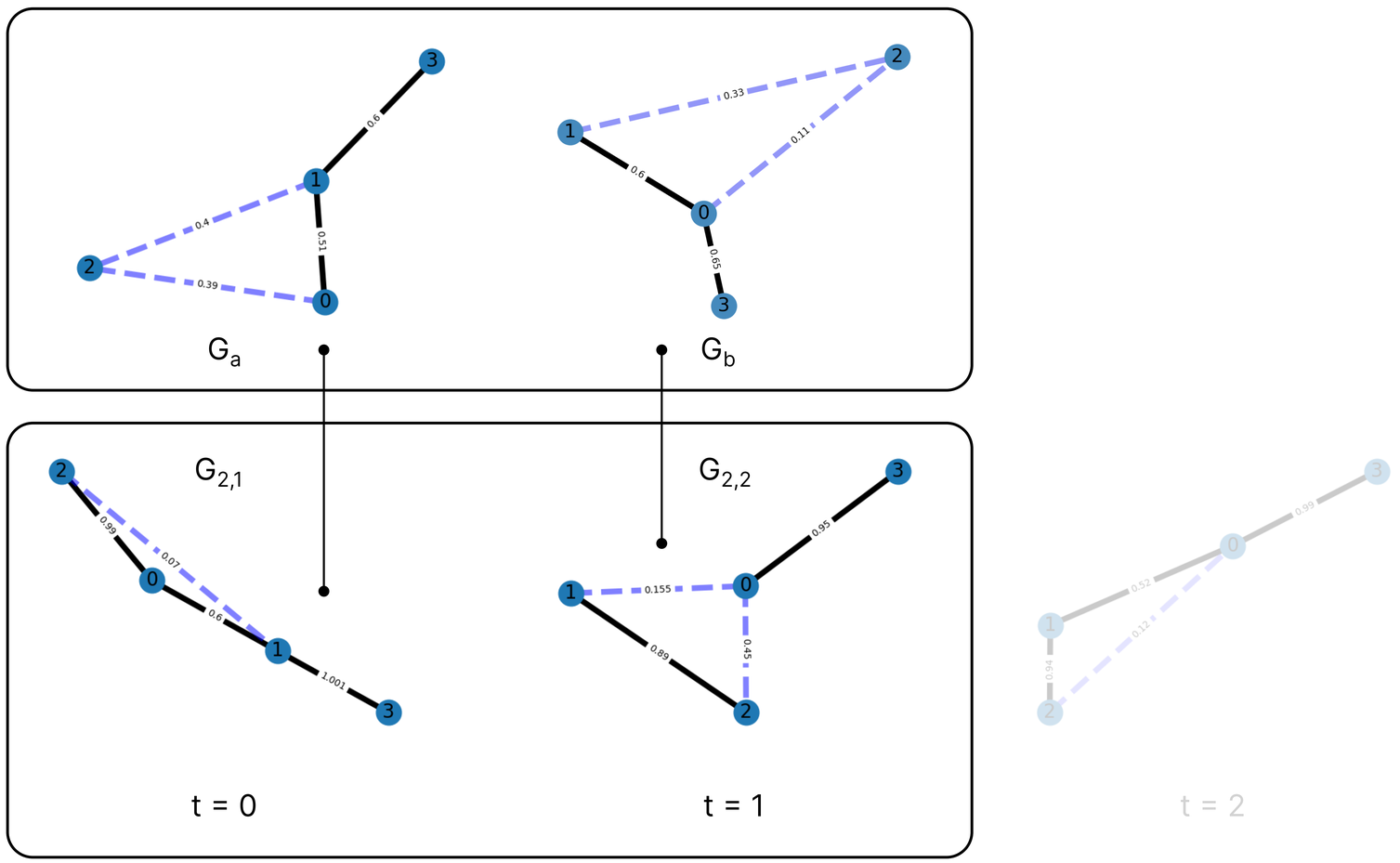
End of timeline 1:

global_max_cos =
max(global_max_cos, curr_timeline_max_cos)

Timeline 1

Current Snapshot we want to match

Timeline 2



global_max_cos = max cosine of timeline 1

Initialize curr_timeline_max_cos = -inf

Calculate the cosine similarity as follows:
a = cos_sim(G_2,1 , G_a)
b= cos_sim(G_2,2 , G_b)

curr_timeline_max_cos = max(curr_timeline_max_cos, a + b)

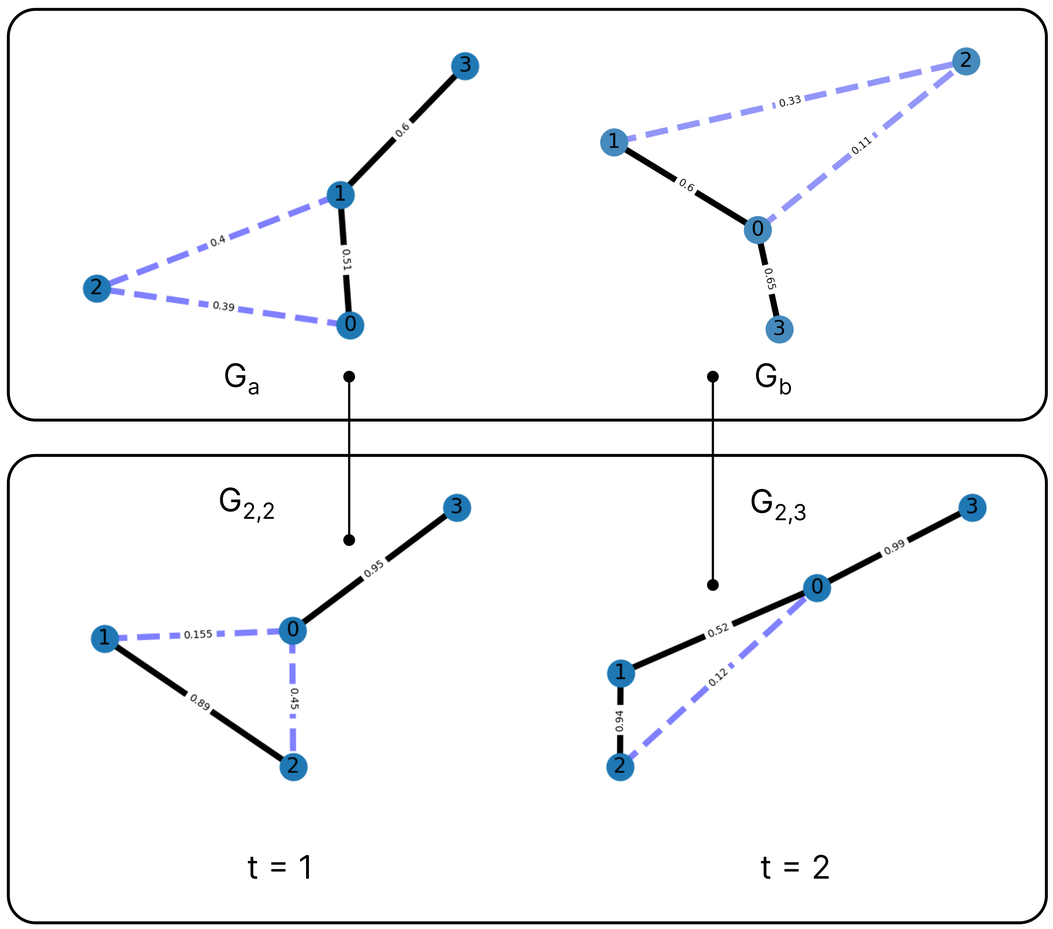
Initialize global_max_cos = max cosine of timeline 1

curr_timeline_max_cos = previous cosine

Calculate the cosine similarity as follows:
a = cos_sim(G_2,2 , G_a)
b= cos_sim(G_2,3 , G_b)

curr_timeline_max_cos = max(curr_timeline_max_cos, a + b)

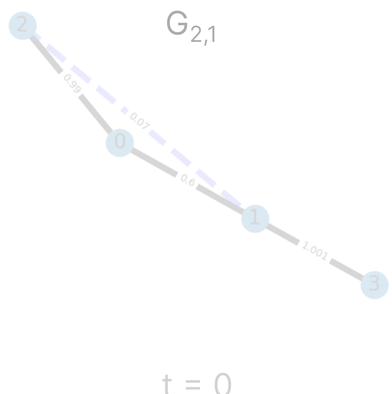
Current Snapshot we want to match



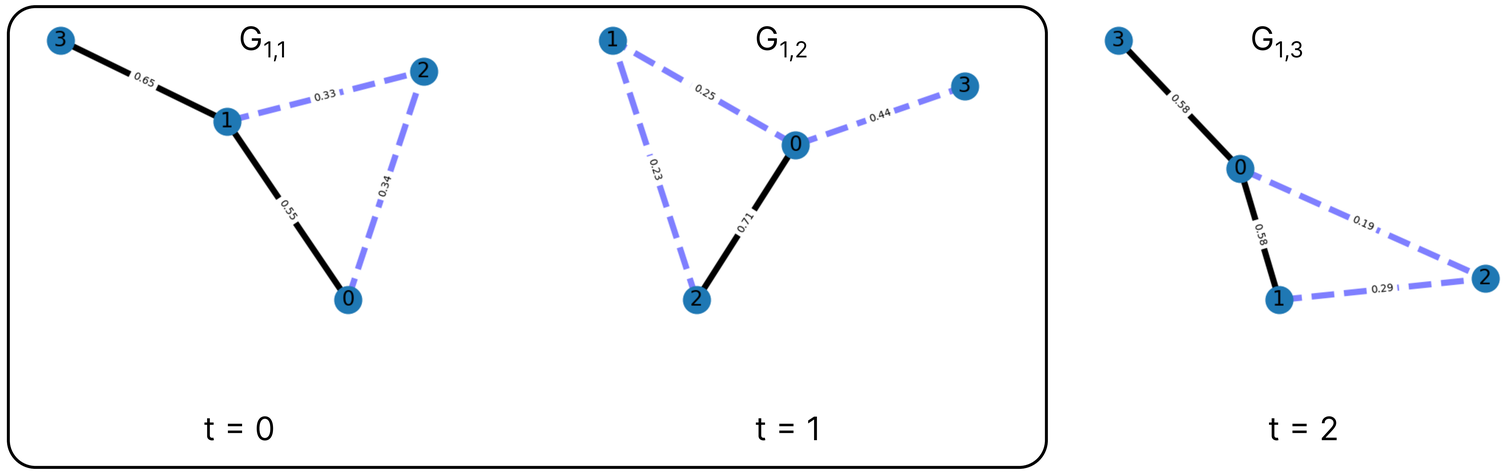
End of timeline 2:

global_max_cos = max(global_max_cos, curr_timeline_max_cos)

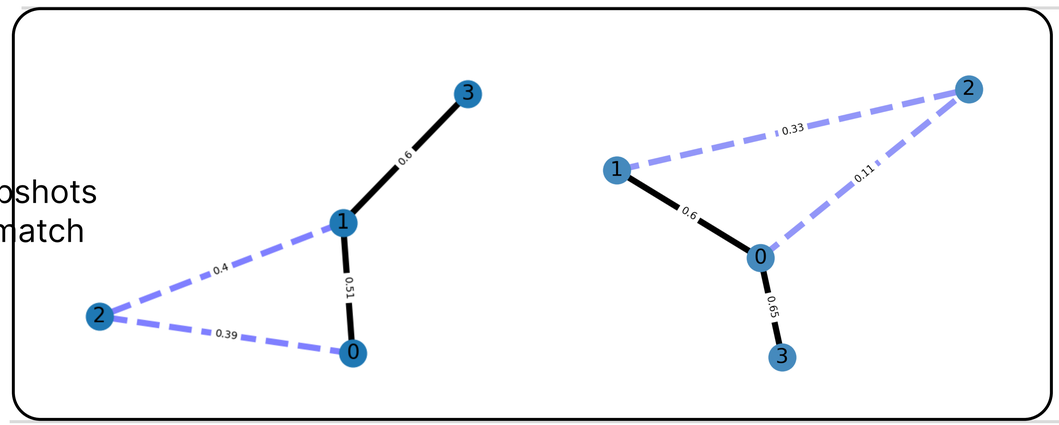
Timeline 2



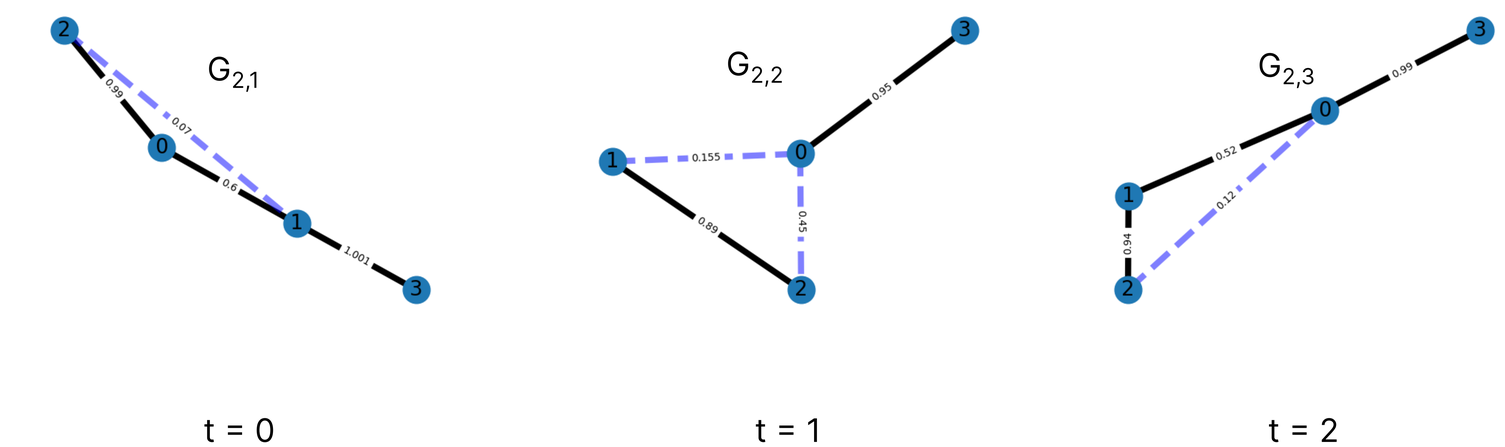
Timeline 1



Current Snapshots we want to match



Timeline 2



The output of demo run will be the graph G_1,3 because the max cosine similarity happens with G_1,1 and G_1,2, and that the next graph is G_1,3.