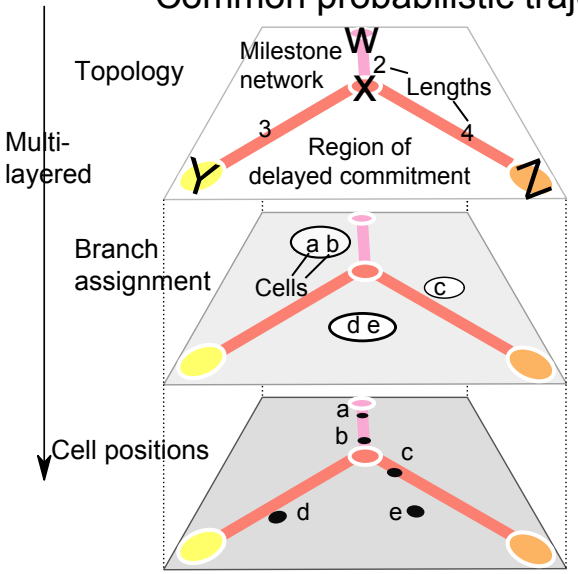
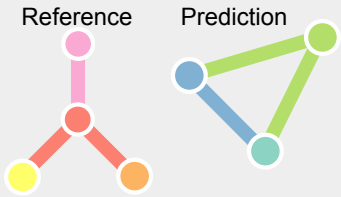
Common probabilistic trajectory model

A



B

Topology: *HIM*



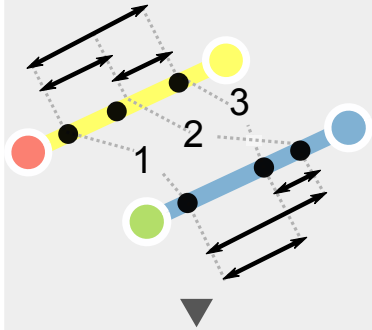
▶ Difference in relative edge lengths

▶ Difference in degree distributions

C

Cell positions: cor_{dist}

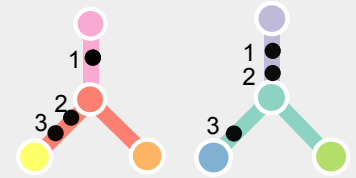
Geodesic distances between all pairs of cells



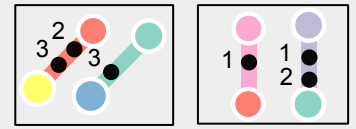
▼ Correlation of distances

D

Branch assignment: $F1_{branches}$



▼ Match branches



▼ Magnitude of overlap

$$\text{Jaccard}(c, c') = \frac{c \cup c'}{c \cap c'}$$

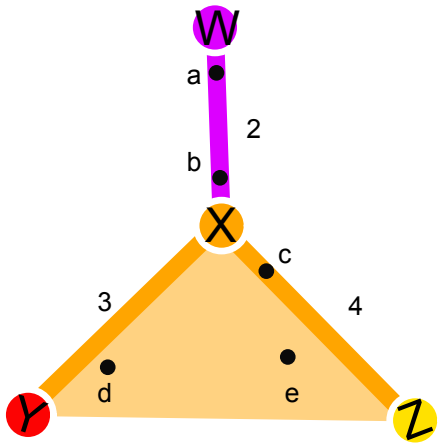
$$\text{Recovery} = \frac{1}{|C|} \sum_{c \in C} \max_{c' \in C'} \text{Jaccard}(c, c')$$

$$\text{Relevance} = \frac{1}{|C'|} \sum_{c' \in C'} \max_{c \in C} \text{Jaccard}(c, c')$$

E

Milestone percentages

region	to	is_begin
a	W	0.9
a	X	0.1
b	W	0.2
b	X	0.8
c	X	0.8
c	Z	0.2
d	X	0.2
d	Y	0.7
d	Z	0.1
e	X	0.3
e	Y	0.2
e	Z	0.5



Milestone network

from	to	length
W	X	2
X	Y	3
X	Z	4

Region of delayed commitment

region	to	is_begin
XYZ	X	TRUE
XYZ	Y	FALSE
XYZ	Z	FALSE

pairwise geodesic distances

d(a,b) = 2 x (0.9 - 0.2) = 1.4
d(a,c) = 2 x 0.9 + 4 x 0.2 = 2.6
d(b,c) = 2 x 0.2 + 4 x 0.2 = 1.2
d(a,d) = 2 x 0.9 + 3 x 0.7 + 4 x 0.1 = 4.3
d(b,d) = 2 x 0.2 + 3 x 0.7 + 4 x 0.1 = 2.9
d(c,d) = 3 x (0.7 - 0) + 4 x (0.2 - 0.1) = 2.5
d(a,e) = 2 x 0.9 + 3 x 0.2 + 4 x 0.5 = 4.4
d(b,e) = 2 x 0.2 + 3 x 0.2 + 4 x 0.5 = 3.0
d(c,e) = 3 x (0.7 - 0.2) + 4 x (0.5 - 0.2) = 1.8
d(d,e) = 3 x (0.7 - 0.2) + 4 x (0.5 - 0.1) = 3.1