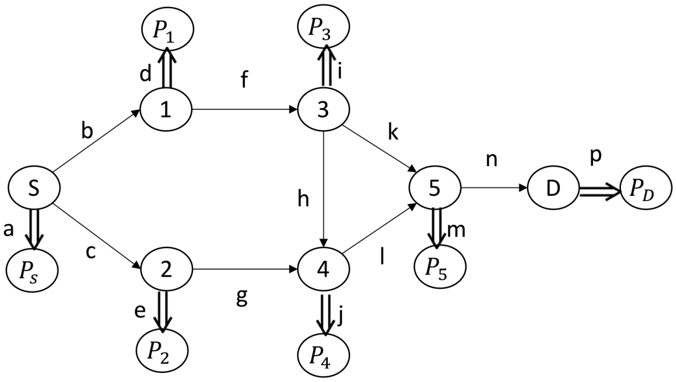

Fig. 3: Sample TN

TABLE VIII: RFT and HFT of Destination Node D

Time	DI_{ID}		ω^D_{P,RF_t}			ω^D_{P,HF_t}		
	LDB	UDB	b	d	u	b	d	u
t_1	0.1326	0.3406	0.6594	0.2366	0.1040	0.6594	0.2366	0.1040
t_2	0.4318	0.5651	0.4349	0.4985	0.0667	0.5471	0.3675	0.0853
t_3	0.3335	0.6189	0.3811	0.4762	0.1427	0.4641	0.4219	0.1140
t_4	0.3859	0.5008	0.4992	0.4434	0.0575	0.4817	0.4326	0.0857
t_5	0.3549	0.5759	0.4241	0.4654	0.1105	0.4529	0.4490	0.0981

E. Sample Trust Network

We demonstrate trust computations using our toy example and a sample trust network. Fig 3 shows the sample network. We introduced notation for trust network earlier in Section II-B. As an example, b is an opinion triplet, which represents the opinion of node S on the trustworthiness of node 1 providing recommendations. All P_is are for representing FT, i.e. opinions of nodes on trustworthiness of the measurement they collect. As explained earlier, we compute propagated trust on each path (tc) from node S to D and then aggregate those values to find OT_D. In our sample TN, we have the following paths:

$S-1-3-5-D-P_D$, $S-1-3-4-5-D-P_D$, $S-2-4-5-D-P_D$

We assume that Algorithm 1 is used to query the trust of water level measurement collected by the destination node D (OT_D). Table VIII shows LDB and UDB, associated real-time and historical opinion triplets of node D (ω^D_{P,RF_t} and ω^D_{P,HF_t}) at different times. LDB and UDB on the first row come from our earlier MADM formulation. We generate LDB and UDB for the following rows randomly from interval [0.30,0.45] and [0.50, 0.65], respectively. ω^D_{P,RF_t} and ω^D_{P,HF_t} are computed respectively using (5) and (6) (We set $\alpha = 0.5$). Note that the historical value on the last row of Table VIII (ω^D_{P,HF_t}) is used as the FT component of OT_D in Table IX, i.e. it is the label of the edge p in sample TN.

For other edges in the sample TN, we randomly generate trust intervals and obtain ω^A_{B,HR_t}. These opinion triplets of links are used to compute RT. Table IX shows ω^A_{B,HR_t} values we use. It also displays the propagated trust value for each tc, computed by visiting each link in the given order and by using (2). For demonstration purposes, we select $g(x) = x_b$ in $\boxtimes$ operation. For example, T_{tc} on the second row of path 2 is obtained by: $b \boxtimes f = \omega^S_{1,HR_t} \boxtimes \omega^1_{3,HR_t}$. At the end of the section for each path, OT_D is updated with final T_{tc} using (1). Finally, the table shows the $OT_D = (0.4529, 0.4491, 0.0980)$ as an aggregation of all T_{tc}s and ω^D_{P,HF_t}, highlighted as bold in the table. As seen from the table, when trust values are propagated through a tc, uncertainty increases. On the other hand, when we aggregate trust values from different tcs, uncertainty decreases, which means that more evidence is gathered by aggregation from alternative sources.

TABLE IX: OT Computation for the Sample TN

Path	Link	Historical Opinion			T_{tc}		
		b	d	u	b	d	u
1	b	0.5376	0.3298	0.1327	0.5376	0.3298	0.1327
1	f	0.4079	0.5604	0.0318	0.4508	0.2765	0.2727
1	k	0.1024	0.7793	0.1183	0.1330	0.0816	0.7855
1	n	0.0137	0.7873	0.1991	0.0023	0.0014	0.9963
				OT_D:	0.0023	0.0014	0.9963
2	b	0.5376	0.3298	0.1327	0.5376	0.3298	0.1327
2	f	0.4079	0.5604	0.0318	0.4508	0.2765	0.2727
2	h	0.6148	0.1927	0.1925	0.3850	0.2362	0.3788
2	l	0.2069	0.7065	0.0867	0.1570	0.0963	0.7467
2	n	0.0137	0.7873	0.1991	0.0029	0.0018	0.9954
				OT_D:	0.0052	0.0032	0.9917
3	c	0.0625	0.6019	0.3356	0.0625	0.6019	0.3356
3	g	0.4694	0.3330	0.1976	0.0453	0.4364	0.5183
3	l	0.2069	0.7065	0.0867	0.0152	0.1461	0.8387
3	n	0.0137	0.7873	0.1991	0.0002	0.0024	0.9974
				OT_D:	0.0054	0.0055	0.9891
				$\boldsymbol{\omega^D_{P,HF_t}}$	0.4529	0.4490	0.0981
				OT_D:	**0.4529**	**0.4491**	**0.0980**