

Table 1: Best hyperparameters on ICEWS14, ICEWS15 and GDELT.

Dataset	model	N3_weight	Lambda3_weight	cycle
ICEWS14	TComplEx	0.01	0.01	-
	TComplEx-dual	0.005	0.005	-
	TComplEx-split	0.005	0.03	-
	TComplEx-HGE	0.0005	0.1	-
	TNTComplEx	0.001	0.1	-
	TNTComplEx-tra	0.005	0.03	-
	TNTComplEx-dual	0.003	0.03	-
	TNTComplEx-split	0.005	0.03	-
	TNTComplEx-HGE	0.003	0.03	-
	TLT-KGE	0.001	0.1	120
	TLT-KGE-tra	0.003	0.03	120
	TLT-KGE-dual	0.003	0.03	120
	TLT-KGE-split	0.003	0.03	120
	TLT-KGE-HGE	0.003	0.03	120
ICEWS05-15	TComplEx	0.01	0.01	-
	TComplEx-dual	0.003	0.1	-
	TComplEx-split	0.005	0.1	-
	TComplEx-HGE	0.0005	0.03	-
	TNTComplEx	0.001	0.03	-
	TNTComplEx-tra	0.003	0.1	-
	TNTComplEx-tra-dual	0.003	0.1	-
	TNTComplEx-tra-split	0.003	0.1	-
	TNTComplEx-tra-HGE	0.003	0.1	-
	TLT-KGE	0.001	0.1	1440
	TLT-KGE-tra	0.001	0.1	1440
	TLT-KGE-tra-dual	0.001	0.1	1440
	TLT-KGE-tra-split	0.001	0.1	1440
	TLT-KGE-tra-HGE	0.001	0.1	120
GDELT	TComplEx	0.001	0.1	-
	TComplEx-dual	0.001	0.1	-
	TComplEx-split	0.001	0.1	-
	TComplEx-HGE	0.001	0.1	-
	TNTComplEx	0.001	0.1	-
	TNTComplEx-tra	0.001	0.1	-
	TNTComplEx-tra-dual	0.001	0.1	-
	TNTComplEx-tra-split	0.001	0.1	-
	TNTComplEx-tra-HGE	0.001	0.1	-
	TLT-KGE	0.001	0.1	120
	TLT-KGE-tra	0.001	0.1	120
	TLT-KGE-tra-dual	0.001	0.1	120
	TLT-KGE-tra-split	0.001	0.1	120
	TLT-KGE-tra-HGE	0.001	0.1	120