

# Temporal Alignment via Event Boundary for Few-shot Action Recognition: Supplementary Material

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## 1 Additional Implement Details

For the event boundaries in GEBD, we remove all boundaries of ‘ShotChangeGradual-Range’. We train our models by SGD optimizer with learning rate of  $1e-3$ . Learning rate decays by 0.5 every 10 epochs on HMDB51 and 0.8 every 10 epochs on Kinetics-GEBD. On Kinetics-GEBD, additional weight decay of  $1e-3$  is applied. We train our models for 100 epochs and each epoch has 200 episodes. For other hyper-parameters, we use  $m = 10$  and  $\tau = 0.25$  or  $0.1$ .

## 2 Additional Experimental Results

### 2.1 The use of boundary prior

Dataset	m				
	0.1	1	5	<b>10</b>	50
HMDB51	57.11	57.72	57.84	<b>58.60</b>	56.54
Kinetics-GEBD	66.34	66.22	66.69	<b>67.01</b>	66.78

Table 1: Accuracy under 5-way 1-shot setting w.r.t dependency degree of boundary prior. Settings is the same with Tab. 1 of the main text.  $m = 10$  is the setting used in experiments of the main text.

We change the degree of using boundary prior to explore the effect of boundary prior, which is represented by the margin  $m$  used in Eq. (6). If we do not use boundary prior totally, we do not mask predicted probability according to the boundary, which is  $m = 0$ . And using strong boundary prior equals setting  $m = +\infty$ . We list the results under different degree of using prior by changing the value of  $m$  in Table 1. It is clear that by proper using the boundary prior can achieve the best accuracy, while not using prior or too dependent on the prior is harmful.

To better observe the trend, we plot the accuracy w.r.t the margin  $m$  in logarithmic scale in Figure 1.

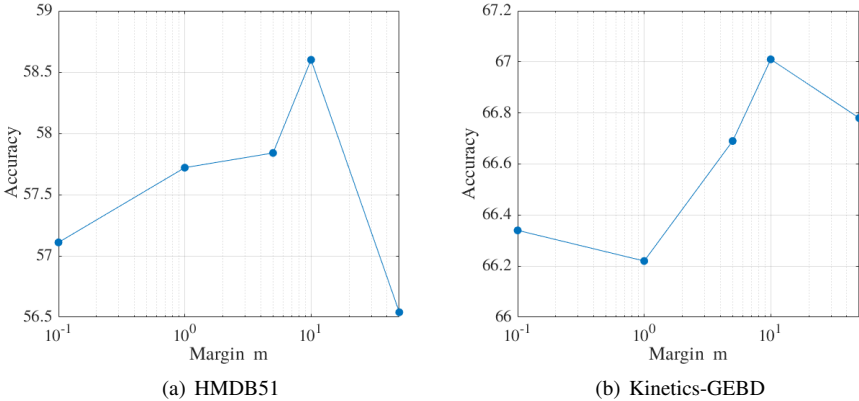


Figure 1: Accuracy w.r.t the margin value  $m$  on HMDB51 and Kinetics-GEBD.

It is worth noting that we have tuned some hyper-parameters like  $\tau = 1$  in Eq. (7) for ‘TA + BoundSample + BoundSelection w/o prior’ (i.e.  $m = 0$ ) to find the upper-bound of accuracy without prior. We also report similar results under different value of  $m$  in Table 2 using the same hyper-parameters. From Table 2,

Dataset	m						
	0	0.1	0.5	1	5	10	50
HMDB51	58.05	58.04	57.56	56.04	<b>58.48</b>	58.12	57.48
Kinetics-GEBD	66.85	66.51	66.47	66.41	66.42	66.54	<b>66.96</b>

Table 2: Accuracy under 5-way 1-shot setting w.r.t dependency degree of boundary prior.



