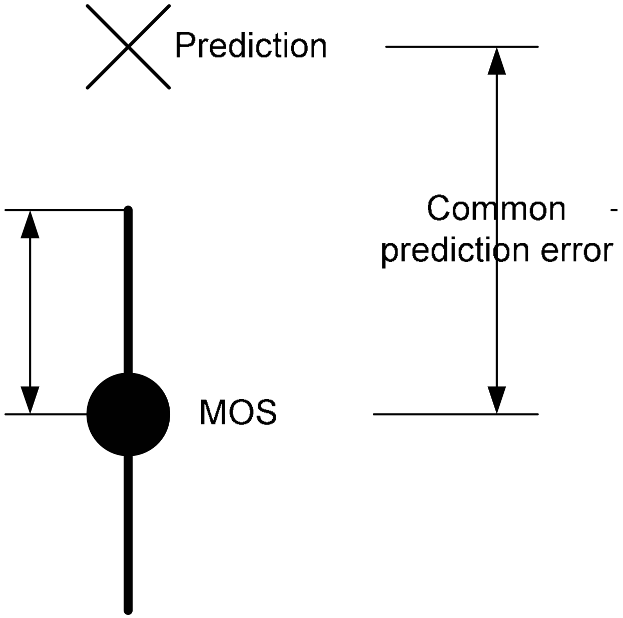
Epsilon-insensitive r.m.s.e

- **Basic idea: Taking into account the ci95 confidence interval for calculating prediction erros and resulting rmse**



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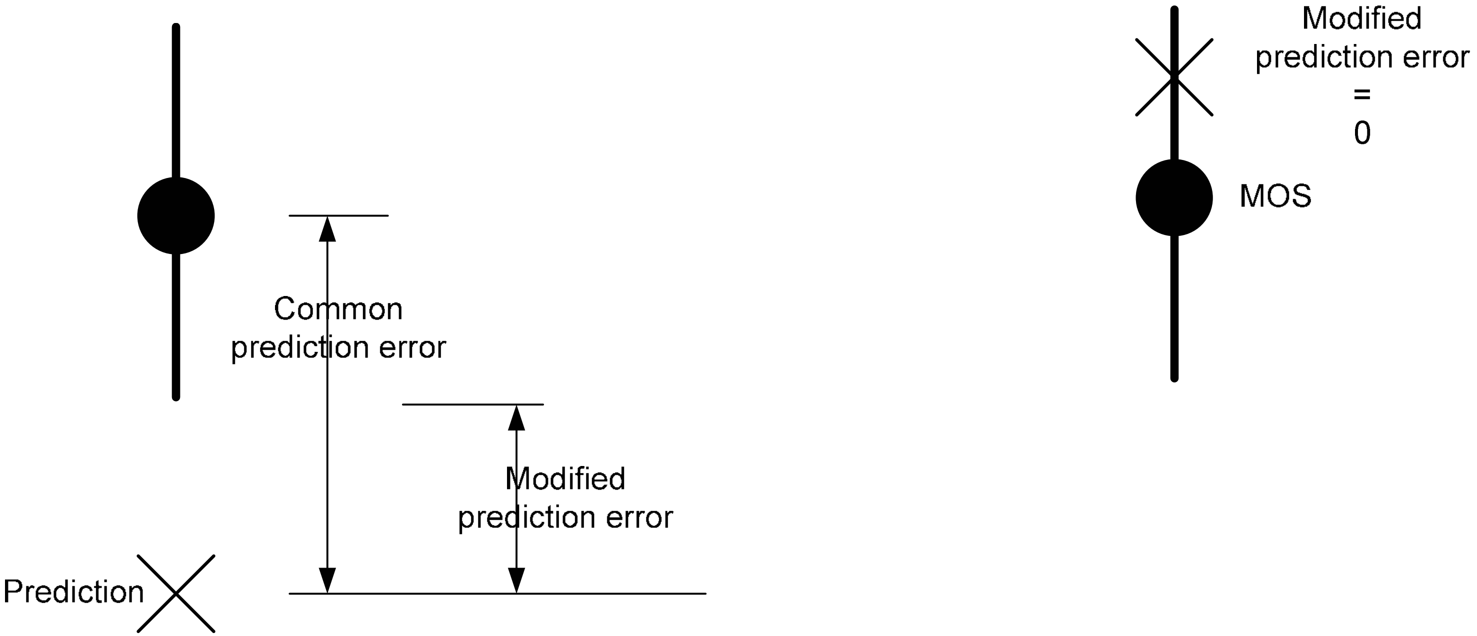

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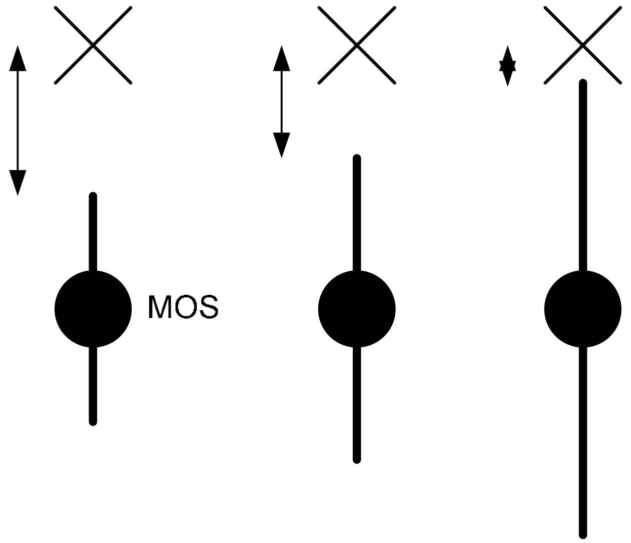
The Prediction Error becomes reduced in case the MOS is more inconfident (i.e. due to less votes or wide distribution of votes)



How to calculate rmse*?

$$Perror(i) = \max(0, \left|MOSLQS(i) - MOSLQO(i)\right| - ci_{95}(i))$$

$$rmse^* = \sqrt{\left(\frac{1}{N-d}\sum_{N} Perror(i)^2\right)}$$

Remark: There are some worth special rules in case the ci95 ➔0 at the scale boundaries.

How to compare models?

For each data set and model a Distance *d* between the best performing model and the others are calculated. It considers statistical significance too.

$$d_{k,v} = \max(0, rmse*_{k,v}{}^{2} - rmse*_{k,b}{}^{2} \times \mathrm{F}(0.05, N_k, N_k))$$

How to compare models?

The Distances for each model are averaged across the datasets. If desired the data sets can be weigthed.

Finally, models can be selected those are the best and statistically equivalent.

$$p_v = \sum_{k=1}^{M} w_k \times d_{k,v}$$

$$t_v = \max(0, \frac{p_v}{\left(p_{\min} + c\right)} - \mathrm{F}(0.05, K\ , K\ ))$$