

Vote of Thanks on  
“Testing by betting: A strategy for statistical and  
scientific communication”  
by Glenn Shafer

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## Single $P$

- ▶ How to select the bet  $S$ ?
- ▶ Use a family of bets – look at maximum
- ▶ Can this be used unadjusted?

# Parametric family

- ▶ Harder to motivate?
- ▶ Implied alternative, target?
- ▶ How to tie together bets for different parameter values?

## Reformulation of Protocol 7

$\mathcal{K}_0 := 1$ .

Reality announces  $\mu \in \mathbb{R}$ .

FOR  $n = 1, 2, \dots$ :

Sceptic announces  $a_n \in [-\mathcal{K}_{n-1}, \mathcal{K}_{n-1}]$ .

Reality announces  $y_n \in [\mu - 1, \mu + 1]$ .

$\mathcal{K}_n := \mathcal{K}_{n-1} + a_n(y_n - \mu)$ .

Strategy for Protocol 6:  $a_n = \phi_n(e_1, \dots, e_{n-1})$ .

Statistician instructs Sceptic to play

$$a_n = \phi_n(y_1 - \mu, \dots, y_{n-1} - \mu).$$

- ▶ Links immediate payoff functions,  $a_n(y_n - \mu)$ , for different values of  $\mu$
- ▶ Extends to group-structured models
- ▶ What about other models? Exponential families? UMP?

# Sequential inference

- ▶ Incomplete specification
- ▶ Optional stopping
- ▶ What about biased reporting?—*e.g.*, random walk reported at maximum?
- ▶ Likelihood inference: apply “correction factor” to face-value likelihood
- ▶ Analogue for betting?