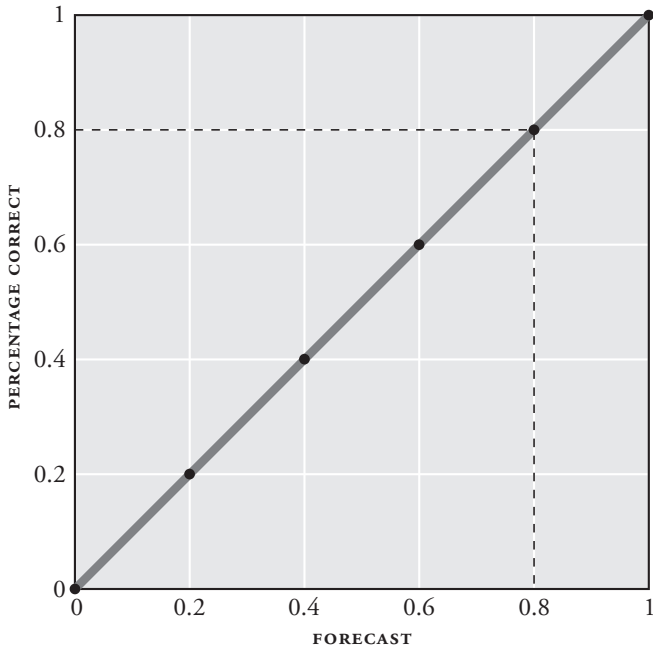
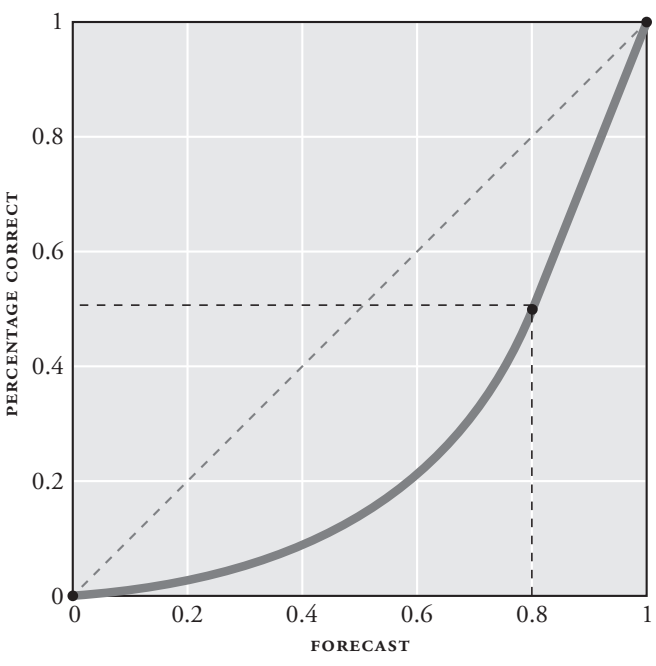
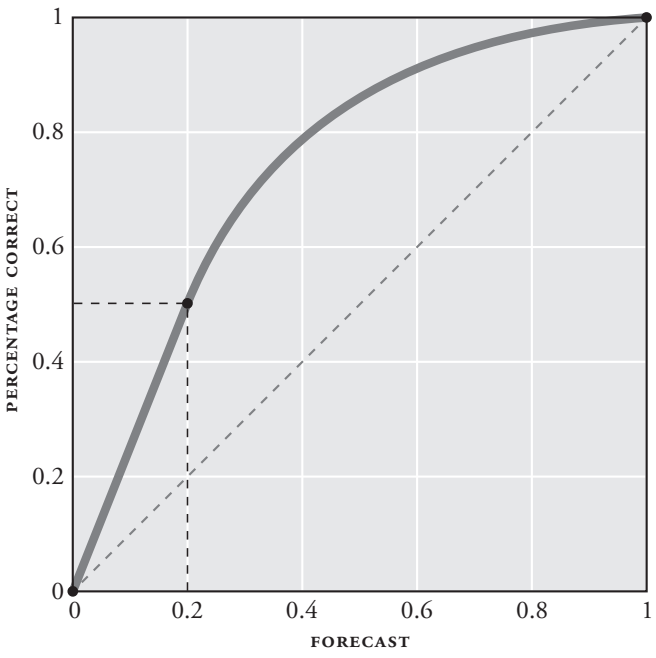


CERTAINTY	THE GENERAL AREA OF POSSIBILITY
100%	Certain
93% (give or take about 6%)	Almost certain
75% (give or take about 12%)	Probable
50% (give or take about 10%)	Chances about even
30% (give or take about 10%)	Probably not
7% (give or take about 5%)	Almost certainly not
0%	Impossible

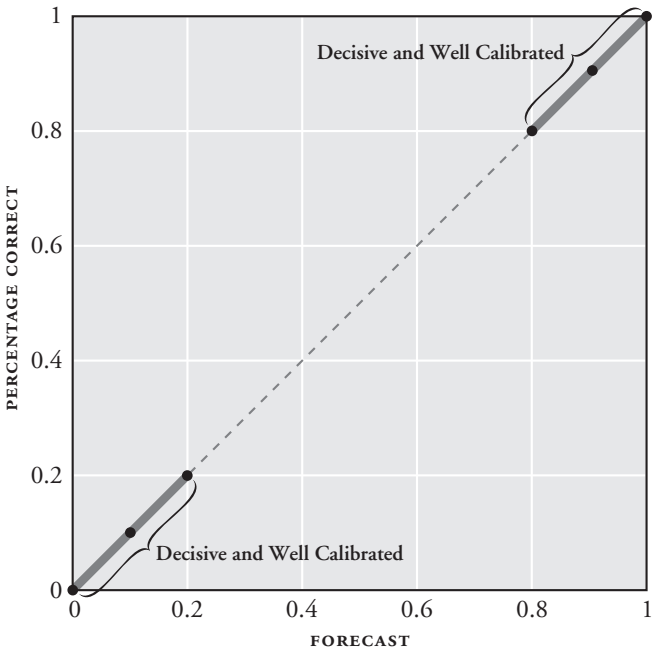
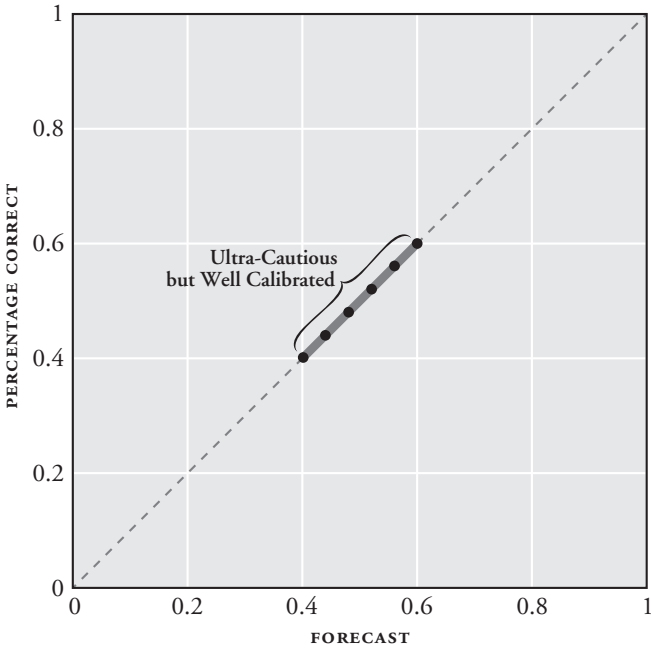


Picture-perfect calibration

Keeping Score



Two ways to be miscalibrated: underconfident (over the line) and overconfident (under the line)



Well-calibrated but cowardly (top); well-calibrated and brave (bottom)

20/100

E

1 20/200

F P

2 20/100

3 20/70

4 20/50

5 20/40

6 20/30

7 20/25

8 20/20

20/40

E

1 20/200

F P

2 20/100

T O Z

3 20/70

L P E D

4 20/50

P E C F D

5 20/40

6 20/30

7 20/25

8 20/20

20/20

E

1 20/200

F P

2 20/100

T O Z

3 20/70

L P E D

4 20/50

P E C F D

5 20/40

E D F C Z P

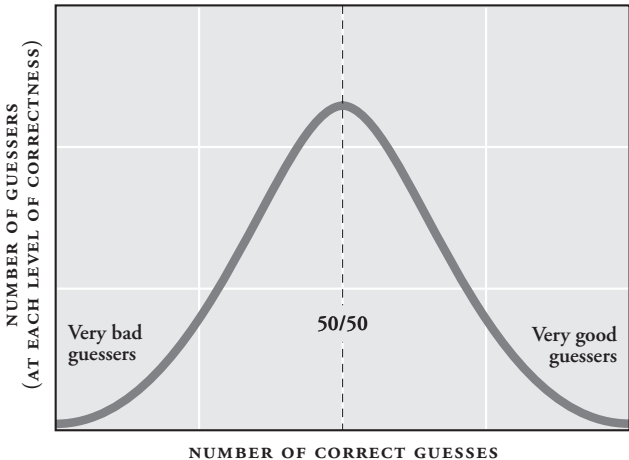
6 20/30

F E L O P Z D

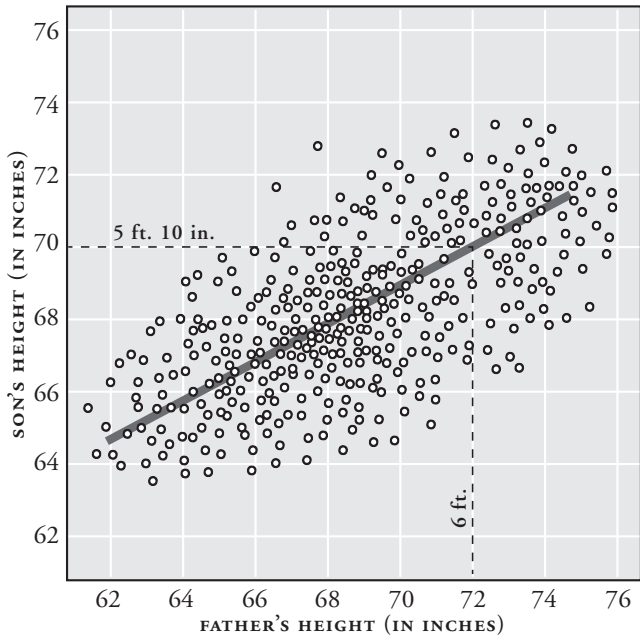
7 20/25

D E F P O T E C

8 20/20

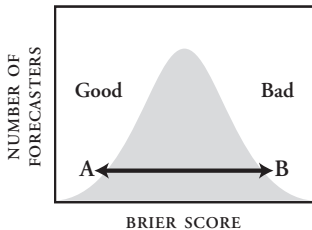


Coin-toss game

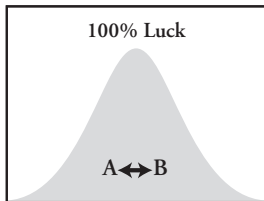
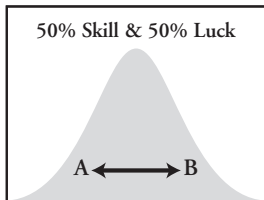
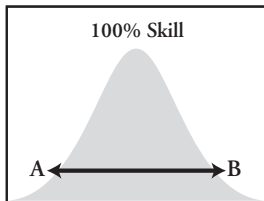


Best prediction of heights of sons from heights of fathers, assuming a 0.5 correlation between the two variables

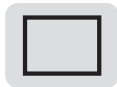
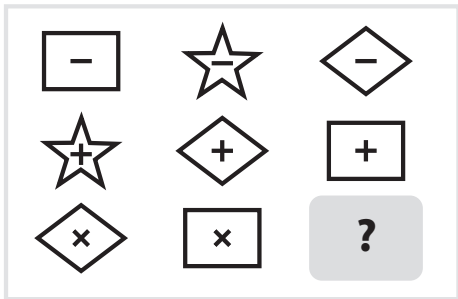
Year 1 Performance



Year 2 Expected Performance



Amount of luck in tournament determines amount of regression to the mean from one year to the next.



Fluid intelligence as inductive spatial reasoning

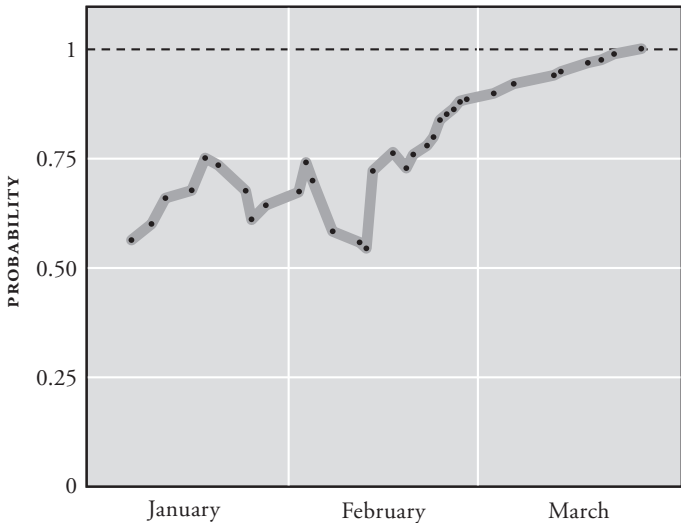
Remote Unlikely Even chance Probably, likely Almost certainly



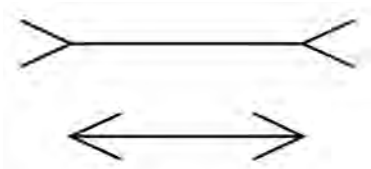
Remote Very unlikely Unlikely Even chance Probably, likely Very likely Almost certainly



Degree of granularity inside the intelligence community



The belief-updating style of a top superforecaster



Müller-Lyer illusion

LIN WELLS

CF: Andy

Thoughts for the 2001 Quadrennial Defense Review

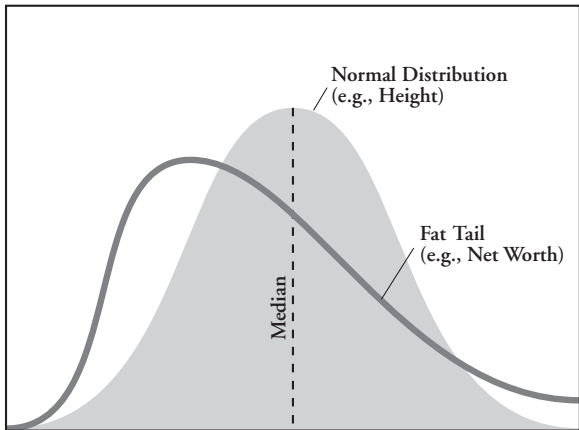
- If you had been a security policy-maker in the world's greatest power in 1900, you would have been a Brit, looking warily at your age-old enemy, France.
- By 1910, you would be allied with France and your enemy would be Germany.
- By 1920, World War I would have been fought and won, and you'd be engaged in a naval arms race with your erstwhile allies, the U.S. and Japan.
- By 1930, naval arms limitation treaties were in effect, the Great Depression was underway, and the defense planning standard said "no war for ten years."
- Nine years later World War II had begun.
- By 1950, Britain no longer was the world's greatest power, the Atomic Age had dawned, and a "police action" was underway in Korea.
- Ten years later the political focus was on the "missile gap," the strategic paradigm was shifting from massive retaliation to flexible response, and few people had heard of Vietnam.
- By 1970, the peak of our involvement in Vietnam had come and gone, we were beginning détente with the Soviets, and we were anointing the Shah as our protégé in the Gulf region.
- By 1980, the Soviets were in Afghanistan, Iran was in the throes of revolution, there was talk of our "hollow forces" and a "window of vulnerability," and the U.S. was the greatest creditor nation the world had ever seen.
- By 1990, the Soviet Union was within a year of dissolution, American forces in the Desert were on the verge of showing they were anything but hollow, the U.S. had become the greatest debtor nation the world had ever known, and almost no one had heard of the internet.
- Ten years later, Warsaw was the capital of a NATO nation, asymmetric threats transcended geography, and the parallel revolutions of information, biotechnology, robotics, nanotechnology, and high density energy sources foreshadowed changes almost beyond forecasting.
- All of which is to say that I'm not sure what 2010 will look like, but I'm sure that it will be very little like we expect, so we should plan accordingly.



Certified As Unclassified
January 9, 2009
IAW EO 12958, as amended
Chief, RDU, ESD, NIS

Lin Wells

NUMBER OF HOUSEHOLDS



Normal Distribution
(e.g., Height)

Fat Tail
(e.g., Net Worth)

Median

Big Question:

ANOTHER
KOREAN
WAR?

Smaller
Question:

MISSILE
LAUNCHES

NUCLEAR
TESTS

CYBER
ATTACKS

ARTILLERY
SHELLING

Question clustering to accelerate learning