THOUGHTS ON THE "MORE LIKELY" APPROACH TO PROBABILITY ASSESSMENT
Warren R Hughes of *hugheseconomics.com* – August 2024

The table below illustrates the "more likely" range judgments and resulting probabilities. Four events are ranked as follows:

- Base: Least likely event in the assessment.
- Sli   : A slightly more likely event than Base.
- Mod : A moderately more likely event than Sli.
- Sig   : A significantly more likely event than Mod.

PAIRWISE RANGES AND RESULTING PROBABILITIES ILLUSTRATING THE "MORE LIKELY" APPROACH

Event	Pairwise Range		Probabilities				More Likely Values	
	Low	High	Low	High	Average	Percent	Average	Percent
Base	1.00	1.00	0.184	0.113	0.149	15	Base	Base
Sli	1.00	1.25	0.184	0.142	0.163	16	1.09	1.07
Mod	1.25	1.75	0.230	0.248	0.239	24	1.47	1.50
Sig	1.75	2.00	0.402	0.496	0.449	45	1.88	1.88
			1.000	**0.999**	**1.000**	**100**		

Note that the Low distribution increases the probabilities of the low chance events at the expense of the high chance events. The High distribution does the opposite. Using the calculations offered by the three distributions, the decision-maker (DM) has plenty of options to consider in deciding on the final distribution.

To illustrate an aspect of the methodology, we now introduce a fifth event (Ext) which is extremely more likely than event Sig at say 4 to 5 times "more likely". When events in the likelihood ranking are judged this much "more likely" the DM possibly has little logical reasoning to justify these numbers other than this more likely event is substantially greater in likelihood than its alternative (think recent UK election). Integer ranges are then preferred at a level the DM judges appropriate. For a 4 – 5 times "more likely" judgment, calculations are shown below.

PROBABILITIES FOR 5 EVENTS INCLUDING A NEW EXTREMELY "MORE LIKELY" EVENT (Ext)

Event	Pairwise Range		Probabilities				More Likely Values	
	Low	High	Low	High	Average	Percent	Average	Percent
Base	1.00	1.00	0.070	0.032	0.051	5	Base	Base
Sli	1.00	1.25	0.070	0.041	0.056	6	1.10	1.20
Mod	1.25	1.75	0.088	0.071	0.080	8	1.43	1.33
Sig	1.75	2.00	0.154	0.142	0.148	15	1.85	1.88
Ext	4.00	5.00	0.617	0.713	0.665	**66**	4.49	4.40
			0.999	**0.999**	**1.000**	**100**		

The new event Ext captures two thirds of the total likelihood with the four lower chance events reflecting the same pattern as previously at approximately one third of their initial levels. Looking at the results, the DM may consider the 66% probability for P(Ext) too high, resulting from the (possibly arbitrary ?) 4 – 5 times "more likely" judgment. Halving the range to say 2 – 3 results in a 7%, 8%, 12%, 21%, 52% distribution. This basic methodology facilitates "thinking probabilistically" with easy probability calculations.

(Word count 442, 28.7.24).