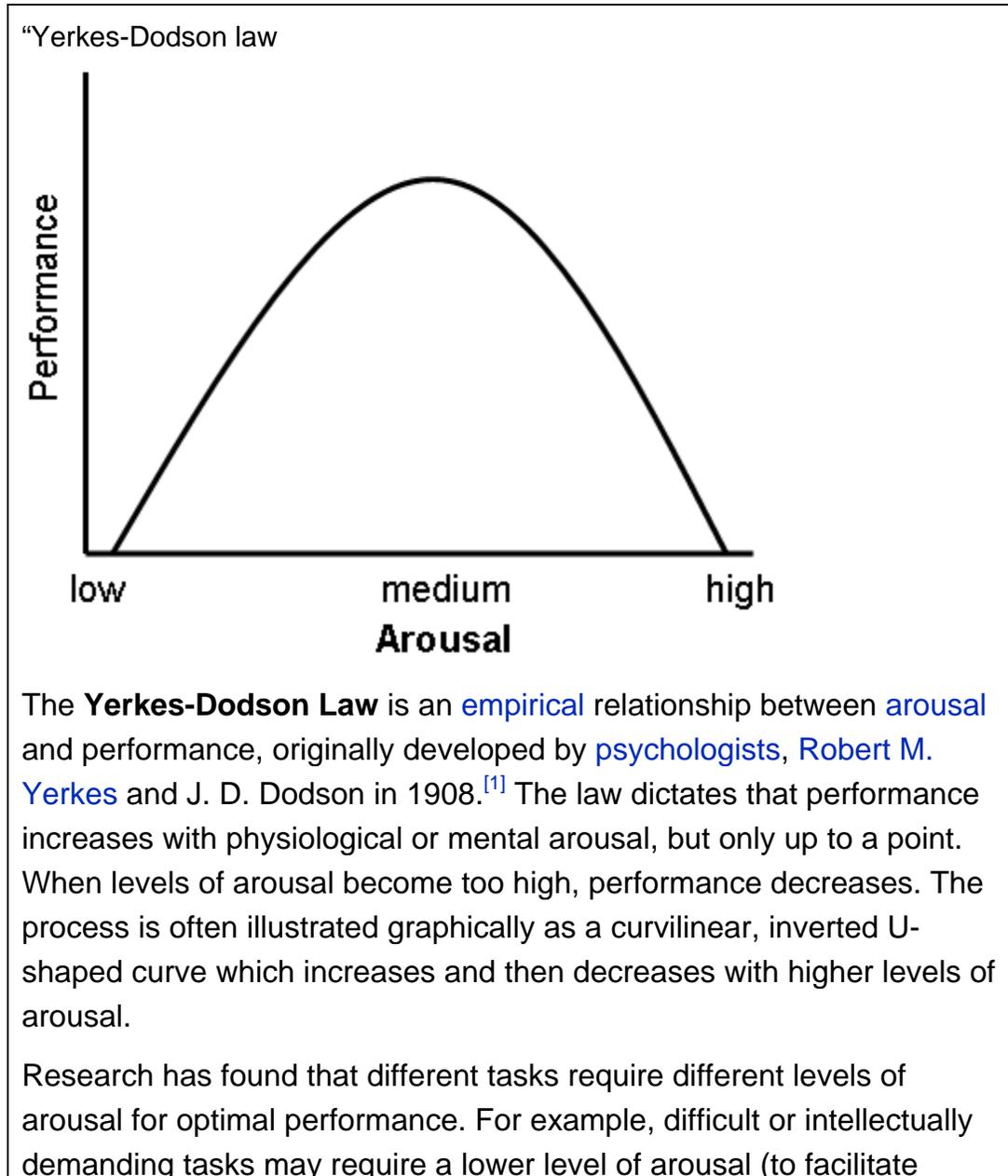


Yerkes-Dodson / KEEL Technology (Demo / Simulation)

From Wikipedia, the free encyclopedia: Yerkes-Dodson



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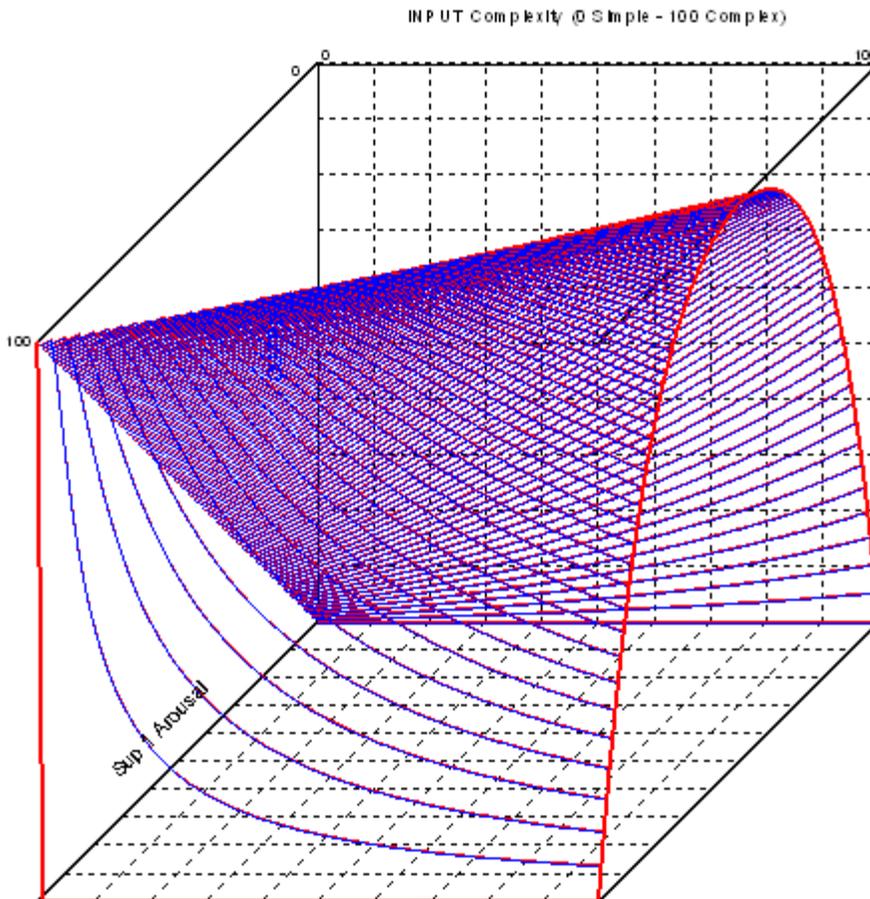
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concentration), whereas tasks demanding stamina or persistence may be performed better with higher levels of arousal (to increase motivation).

Because of task differences, the shape of the curve can be highly variable. For simple or well learned tasks, the relationship can be considered linear with improvements in performance as arousal increases. For complex, unfamiliar, or difficult tasks, the relationship between arousal and performance becomes inverse, with declines in performance as arousal increases.”

The KEEL Model:

Our interpretation of the above sentence modeled in KEEL shows the shape of the curve changing from linear (simple) to bell (complex).



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When we discussed Yerkes-Dodson with Dr. Dave Osmon (a neuropsychologist at UWM), he suggested we look into the work of Hans Eysenck relative to how introverts and extroverts might impact the model.

From Wikipedia, the free encyclopedia: Hans Eysenck

“The major strength of Eysenck's model was to provide detailed theory of the causes of personality. For example, Eysenck proposed that extraversion was caused by variability in cortical arousal: "introverts are characterized by higher levels of activity than extraverts and so are chronically more cortically aroused than extraverts".^[3] While it seems counterintuitive to suppose that introverts are *more* aroused than extraverts, the putative effect this has on behaviour is such that the introvert seeks lower levels of stimulation. Conversely, the extravert seeks to heighten his or her arousal to a more optimal level (as predicted by the [Yerkes-Dodson Law](#)) by increased activity, social engagement and other stimulation-seeking behaviors.”

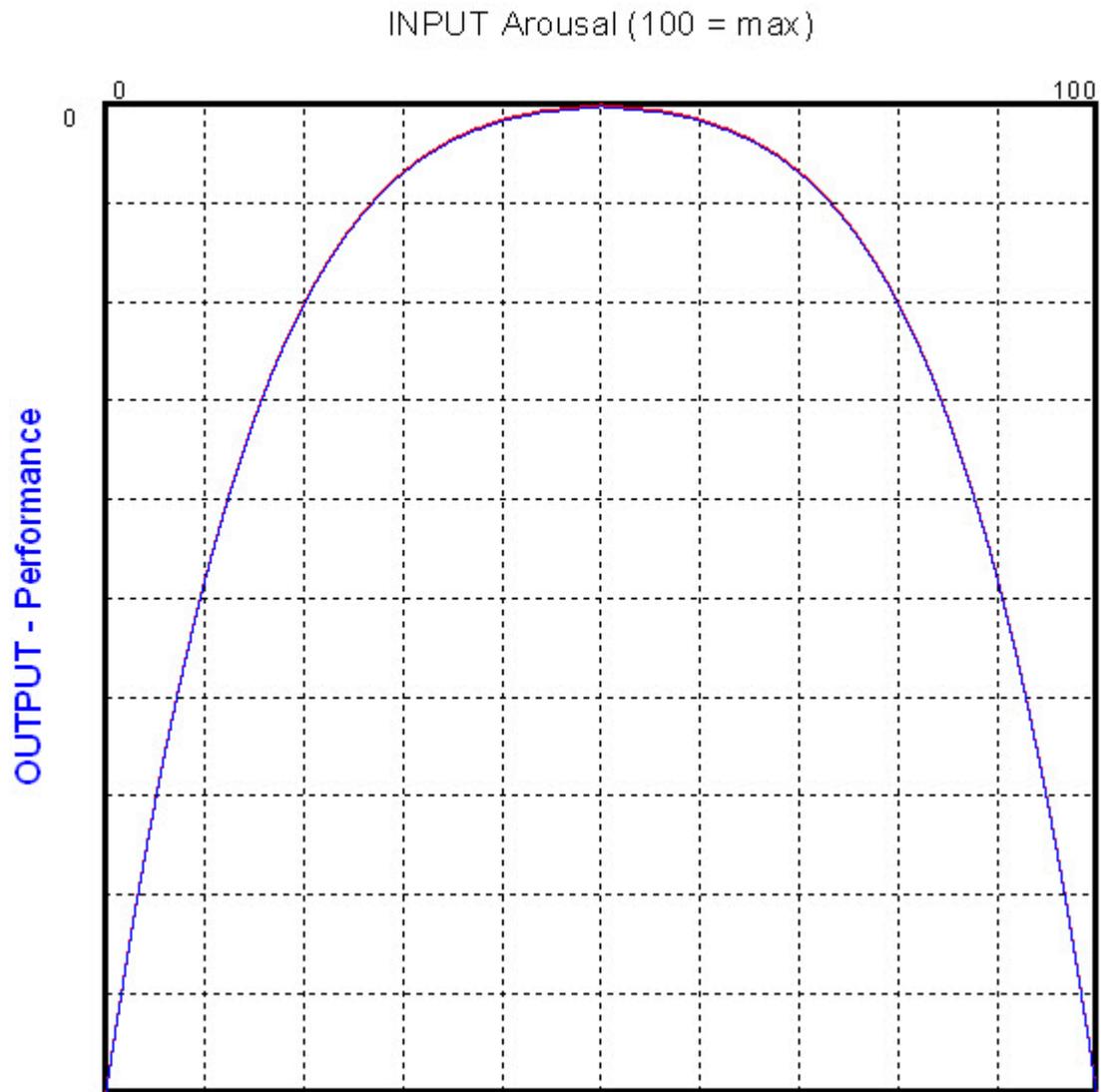
We took the bell shaped curve for complex models and “bent” it for introversion and extroversion.



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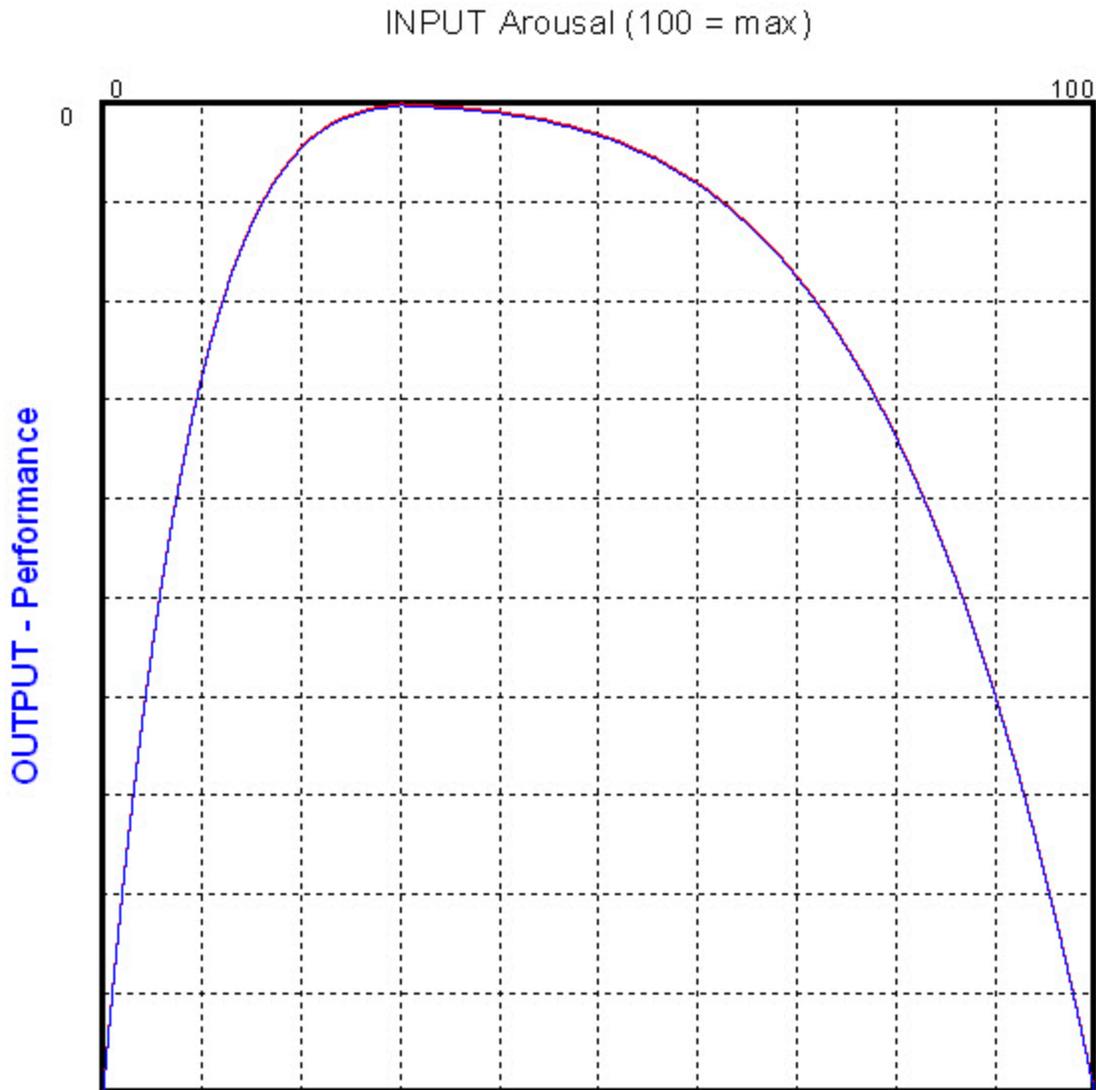
First the normal curve:



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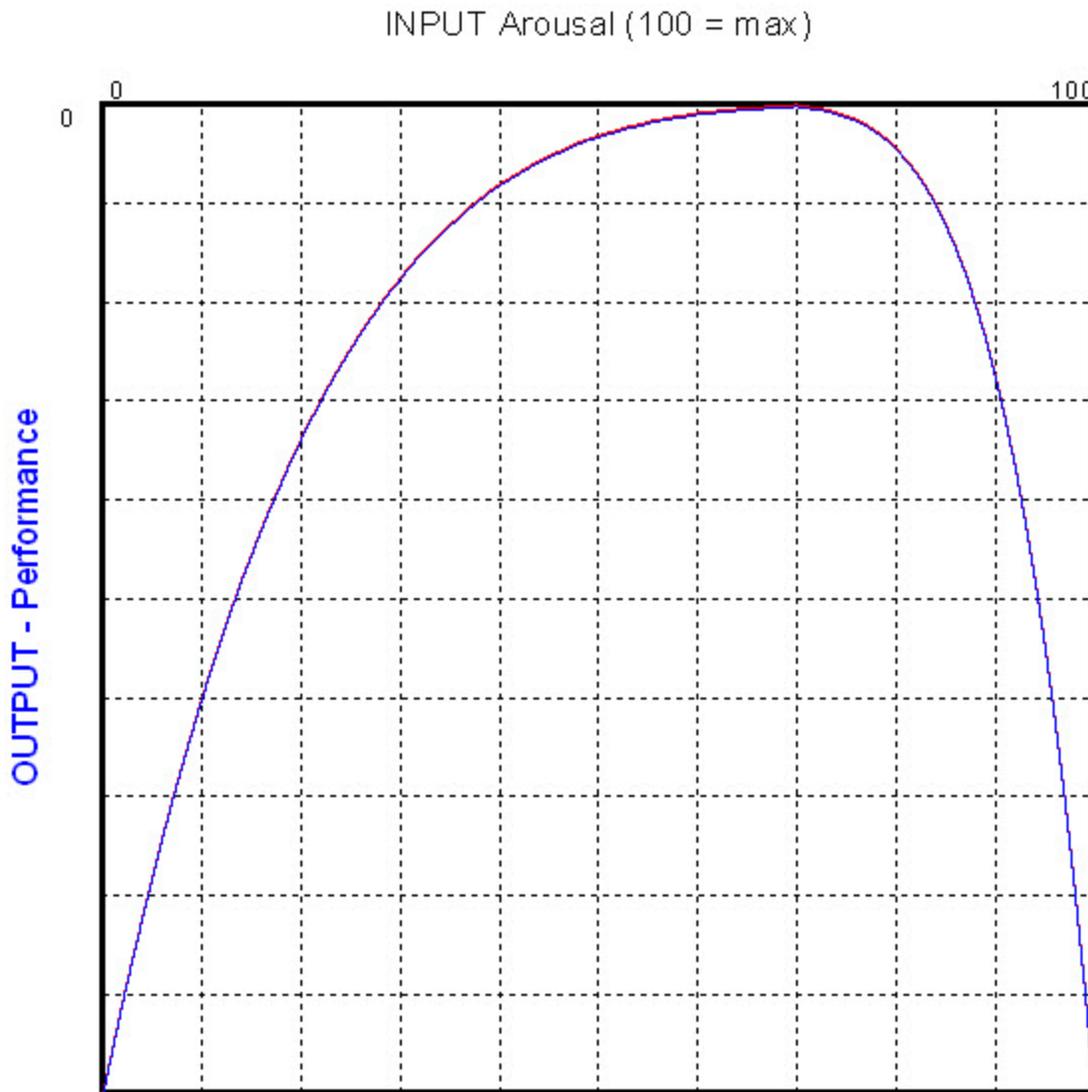
Now the curve shifted to the left for an **introvert** that needs less arousal to obtain maximum performance.



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Now the curve shifted to the right for an **extrovert** that needs more arousal to obtain maximum performance.



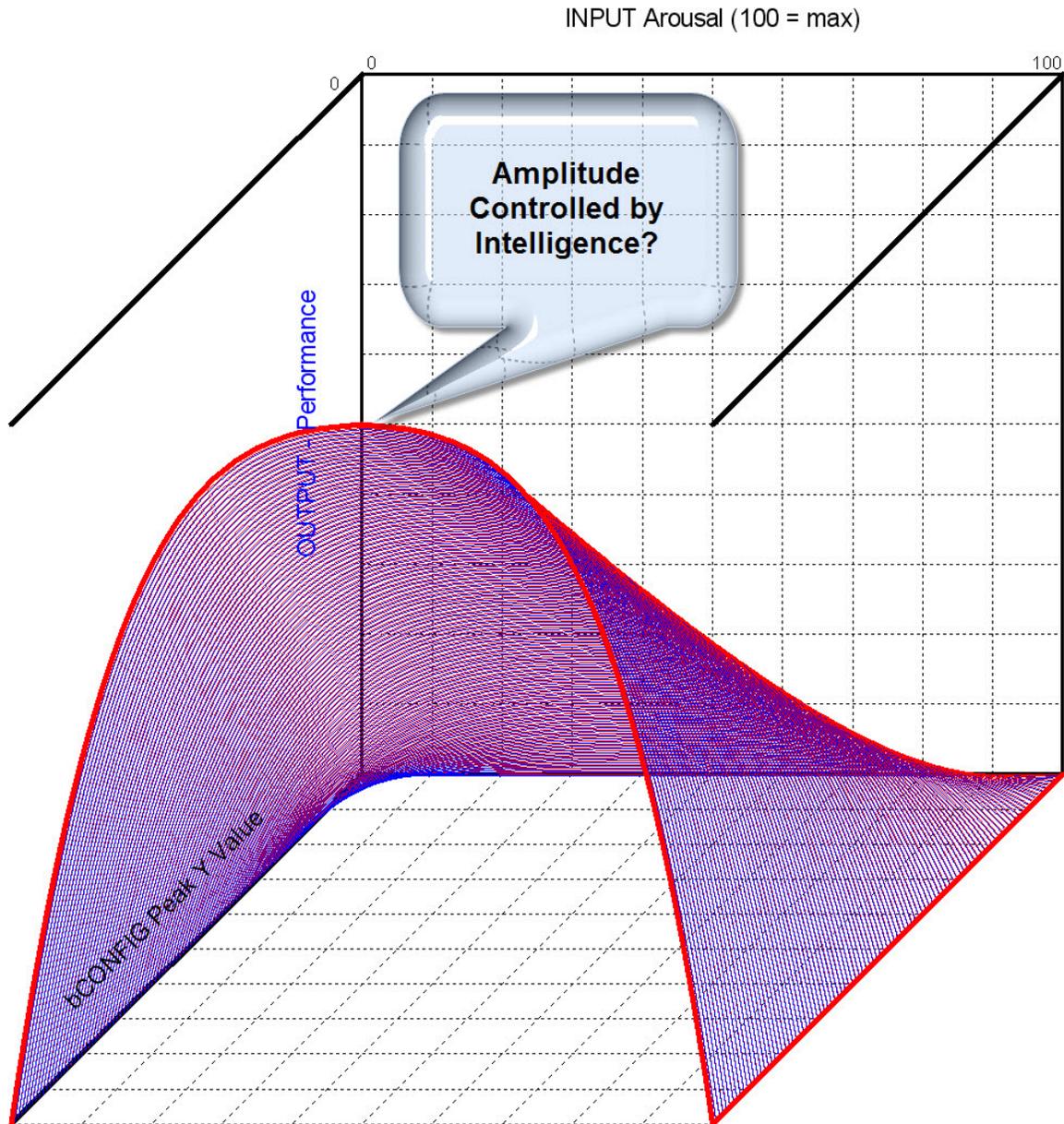
When we created the KEEL “engine” for this “Yerkes-Dodson” / “Eysenck” model we (with full lack of knowledge) decided how much the introvert / extrovert shift could be. We added a tuning adjustment so the shift could be more or less.



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While we don't know if the level of performance might be shifted up and down based on Intelligence, we thought it might be an interesting addition. Since this configuration setting was already built into the KEEL bell shaped curve imported into the design, we left it exposed.



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With KEEL, all variables (*the inputs*) are processed together, so one can feed it:

- The level of arousal
- The level of complexity of the task
- The measurement of introvert / extrovert
- The level of intelligence

And obtain the suggested level of performance (*the output*).

Disclaimer:

This is a demonstration of KEEL's capability and not any kind of suggestion about the relative merits of Yerkes-Dodson, Eysenck, or even the self assigned impact of intelligence.

Special Thanks:

- Thanks to Dr. Jeff Besser (Academic and Industry Liaison Office of the Chief Engineer - SPAWAR) who suggested investigating the model.
- Thanks to Dr. Dave Osmon (University of Wisconsin, Milwaukee) who highlighted errors with my first pass.



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