



SOME THOUGHTS ON THE PROLIFERATION OF NEURODIVERSITY AND IMPLICATIONS FOR CREDIT RISK

Why weird matters



CONTENTS

What is Neurodiversity?

How does it affect people?

Why credit risk?

What about the analytics?

WHAT IS NEURODIVERSITY?

We are all neurodiverse in that way that we are physically diverse. The term refers to the fact that there are variances in how people experience and process experience neurologically.

However, some people are different enough from the usual spectrum of neurological processes as to be considered NEURODIVERGENT or NEURO-ATYPICAL.

Is anyone here neuro-atypical?

WHAT IS NEURODIVERSITY?

Examples of neurodivergent conditions:

Attention Deficit Hyperactivity Disorder (ADHD)

Dyslexia

Tourette's Syndrome

Autism/aspergers syndrome

Acquired brain injury issues

Colour blindness

Dyspraxia

Sensory disabilities

Synaesthesia

Dyscalculia

Left-handedness

Migraine

Is anyone here neuro-atypical?

HOW DOES IT IMPACT PEOPLE?

As well as covering a number of different conditions neuro-atypicality can manifest itself in a multitude of ways. It is important to consider that neurological difference does not only effect the ways in which people will react to stimulus but that the stimulus itself will be experienced differently.

The unusual behaviours which may be distinctive to neuro-atypical people are a learned reaction to the stimuli which are experienced. People develop habits in order to avoid unpleasant situations

Examples: repetitive noises can be distracting, smells can cause nausea, patterns can have a hypnotic effect or cause headaches.

HOW DOES IT IMPACT PEOPLE?

Some symptomatic behaviours and preferences of neuro-divergent people:

Dimmed/directed lighting

Excitability

Lack of reaction to non-verbal cues such as expression or body language

Repetitive or habitual activity e.g. eat the same thing or sit in the same place

Use of Earphones

Tics or verbal peculiarities

Literal interpretation of language

Inventiveness

Lack of eye contact

Avoidance of social situations or crowds

Distractibility/excitability

Anxiety

Difficulty in reading social cues

Clumsiness

Casual or more comfortable clothing

Aversion to physical contact e.g. hand shaking

Excessive interest in specific topics

Lack of visible reactions where you might expect them e.g. smiles, laughter

The reactions of other people are often the most difficult aspect of being neuro-atypical

Who here thinks they have more than one neurodivergent colleague?

WHY CREDIT RISK?

There is evidence to suggest that STEM industries and finance are particularly attractive to neurodivergent people* the likelihood is that we as risk professionals have a neurodivergent population amongst us at least 5* higher than the general population.

The Estimated prevalence of just autism worldwide is about 1%-2% (rising) so we can prove this rather unscientifically with a show of hands!

The inherent and learned skills of these people lend themselves to quantitative and systematic disciplines but there may be other abilities which are unusually diminished or expressed in an esoteric form.

*M. Roelfsema, R. Hoekstra, C. Allison, S. Wheelwright, C. Brayne, F. Matthews, S. Baron-Cohen (2012)

Are Autism Spectrum Conditions More Prevalent in an Information-Technology Region? A School-Based Study of Three Regions in the Netherlands

Journal of Autism and Developmental Disorders 42:734-739;

E. Ruzich, C. Allison, B. Chakrabarti, P. Smith, H. Musto, H. Ring, S. Baron-Cohen (2015)

Sex and STEM Occupation Predict Autism Spectrum Quotient (AQ) Scores in Half a Million People

PLoS ONE 10(10):e0141229

Students with Autism Gravitate Toward STEM Majors - Anna Kuchment - Scientific American February 1, 2013)

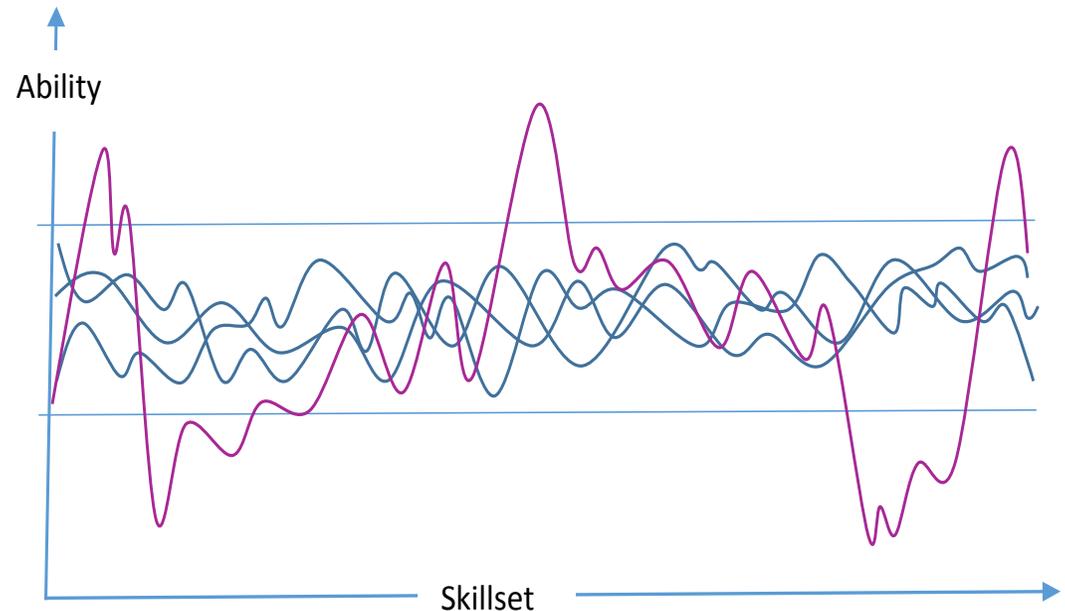
WHY CREDIT RISK?

Collaborative working can fill the gaps but isn't easy due to the expectations of "normality" from the neurotypical and the failures to thrive in group situations on the part of the neurologically unusual people – of whom there may be more than one in any team!

Solution – balance your skillsets!

Solution – articulate expectations explicitly!

Story about mould



WHAT ABOUT THE ANALYTICS?

Credit Risk analysis is becoming more sophisticated and there are also more pressures to allow for diversity within consumer credit.

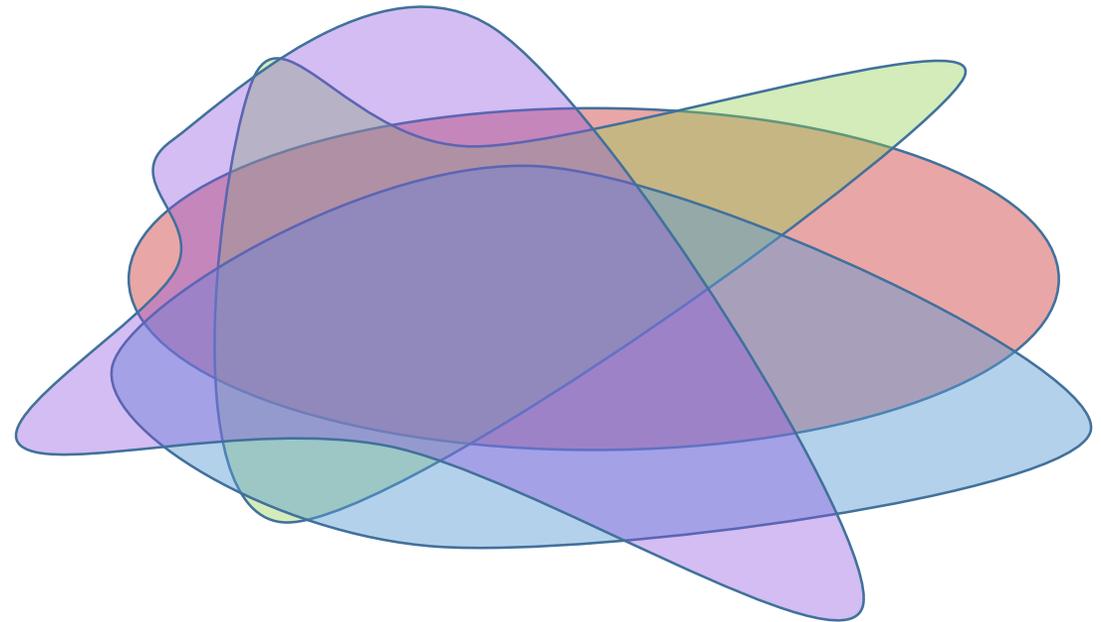
There are a number of areas in which neurodiversity may be relevant to Credit Risk analysis:

- 1) Affordability calculations – average spending and assessments based on indebtedness often do not apply to the non typical population. -Sporadic spend
- 2) Use of imprecise language in credit application questionnaires or interviews may introduce bias or inaccurate responses. – e.g. long pauses do not indicate inaccuracy
- 3) Past credit history may be particularly irrelevant to future performance. – Behaviour is more likely to be situational than innate or attitude based
- 4) Beware of rejecting on the basis of “weird” results. Natural language processing may be particularly difficult.

WHAT ABOUT THE ANALYTICS?

Outliers may not always be indicative of an undefinable or “off” situation. In the case of credit risk scoring and analysis you may find that within a N dimensional space a outlier in one dimension may be compensated for by other extreme (or unexpectedly normal) data. It may be the case that a very extreme result has positive connotations whereas a less extreme one is indicative of a negative outcome.

Therefore, we should consider, when there are counter intuitive or inverted results if there may be valid pockets of populations being mistaken for rogue results. This may be particularly relevant when a population appears to be shifting on a particular dimension. You may be better off aiming for the extreme than trying to maintain static.



Combinations are key - also discuss the significance of first differentials and rapid variance



QUESTIONS?

Ned – Eleanor Demuth on linkedin