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ATKINS AUTOMOTIVE COMPANY

PRICE INFORMATION

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Contents

- Aim
- Our Approach
- Summary of Outcome

Aim

To build an easy to use parametric costing model to assist forecourt staff in estimating the list price of their new forecourt cars.

Parametric Model Flow Chart

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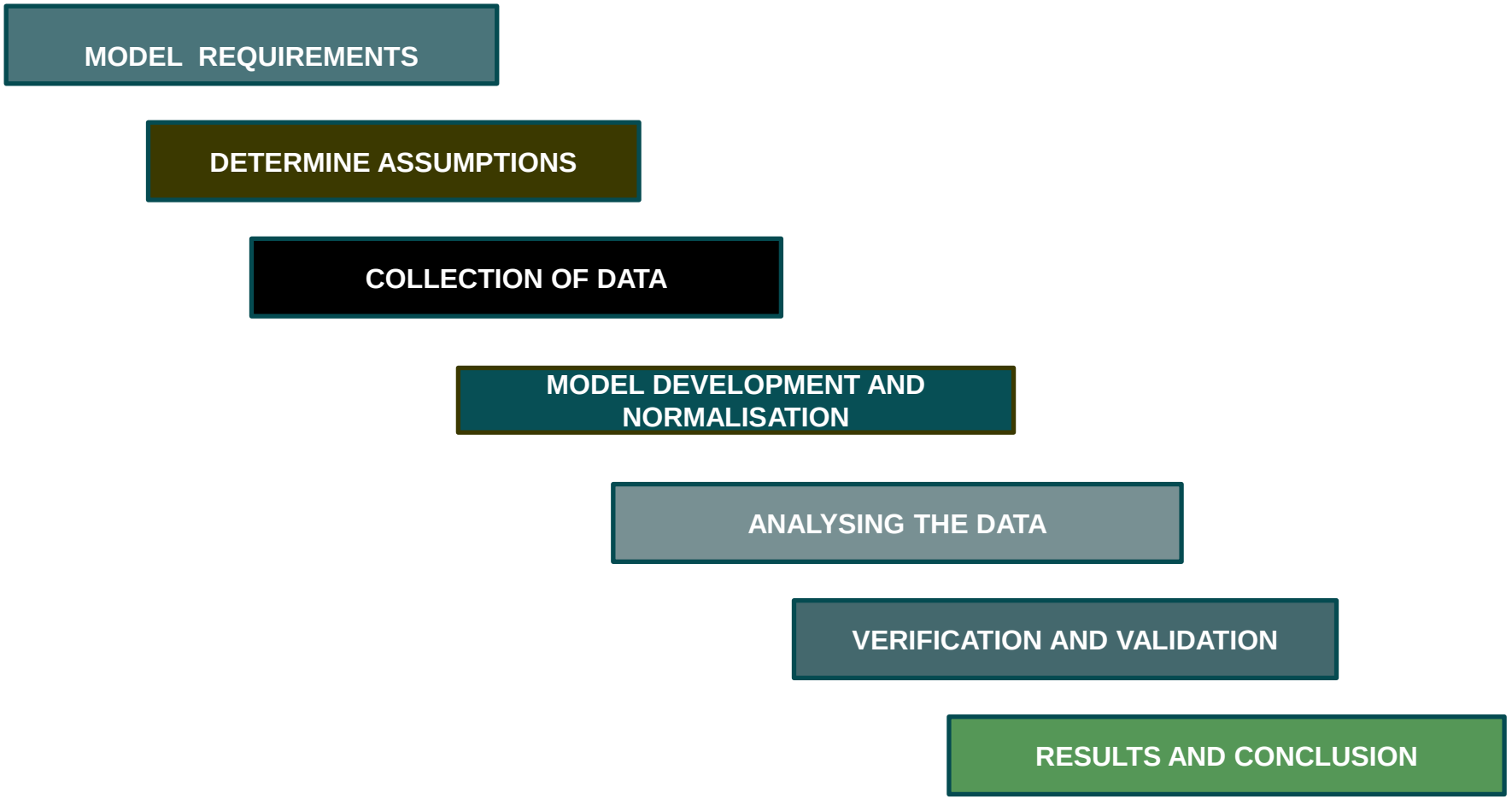

Model Requirements

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Effective, efficient and accurate pricing

To incorporate needs and wants of the customer

Easy to use for Forecourt Sale Staff

Longevity

Adaptable to Change

Determine Assumptions

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All list prices provided are for new cars

Powershift was treated as an extra feature

List Prices are the selling price

List Prices include Manufacturing Costs, Salaries and Mark Up.

Collection of Data

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Historical Data


Manufacturing Process Cost Impact


Market Research


Material/Component Costs


Inflation Rate

Taxes e.g. Import/Export & VAT

Analysis of Data

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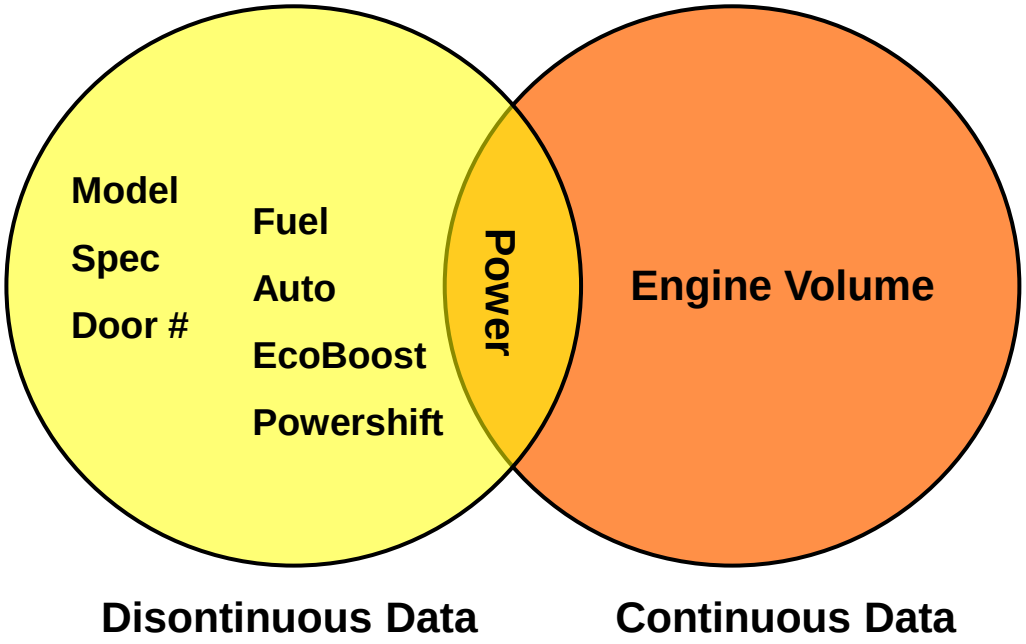
- Continuous and discontinuous data types
- The only discontinuous data type with more than 2 categories was specification type (e.g. “Zetec”)

- Engine volume and Engine Power may both be treated as continuous
- Engine Power is incomplete data



Analysis of Data

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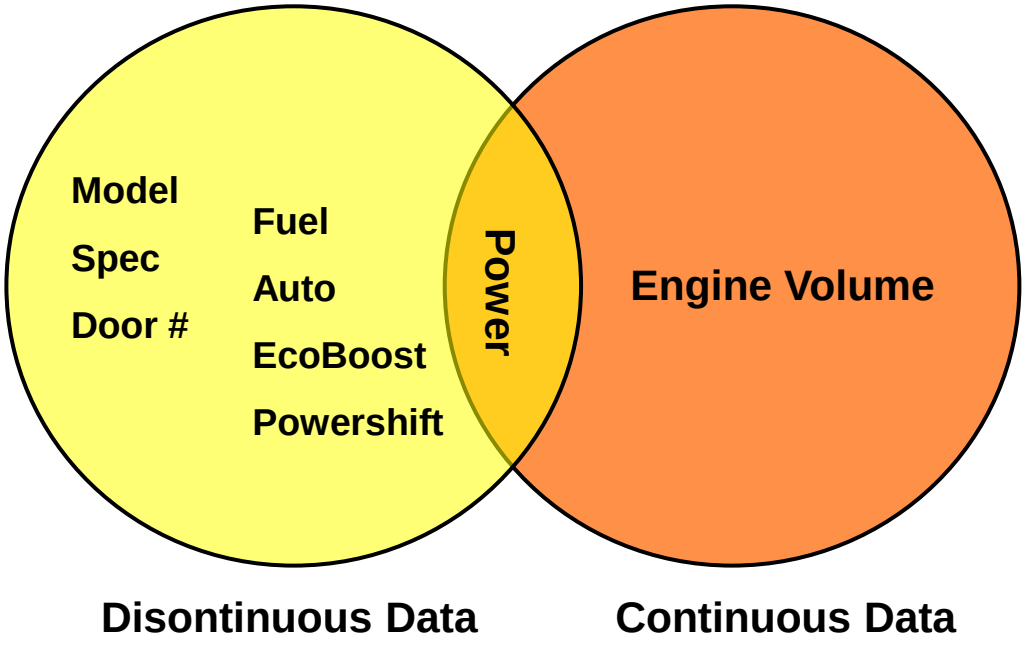
Analysis Approach

•Normalise data – remove price effect of discontinuous data types

•Seek Parametric Method to model the effect of Engine Power and Volume on List Price.



Normalisation of Data

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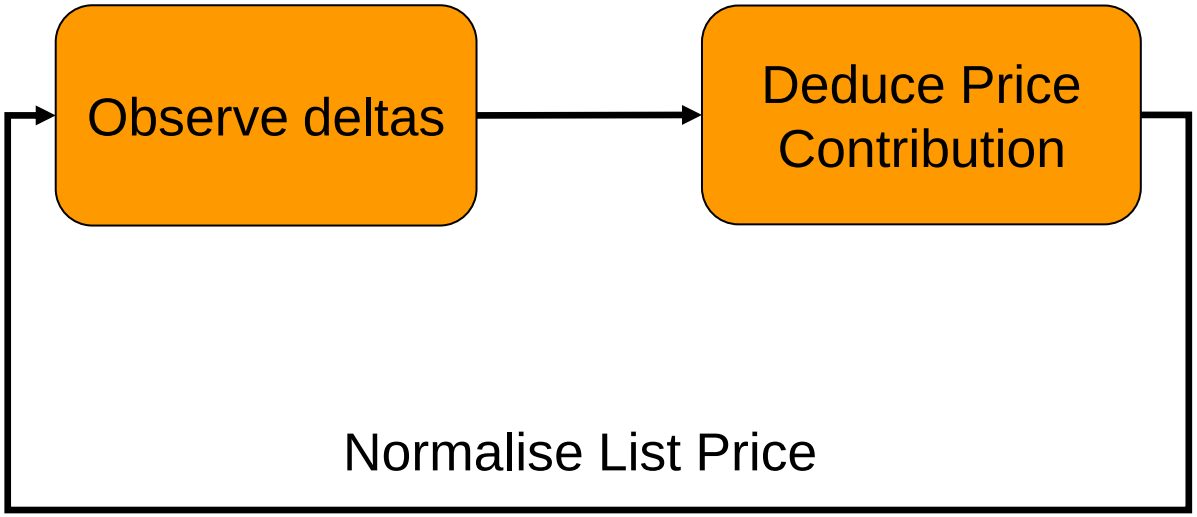
Analysis Approach

•Normalise data – remove price effect of discontinuous data types

•Seek Parametric Method to model the effect of Engine Power and Volume on List Price.



Parametric Approach

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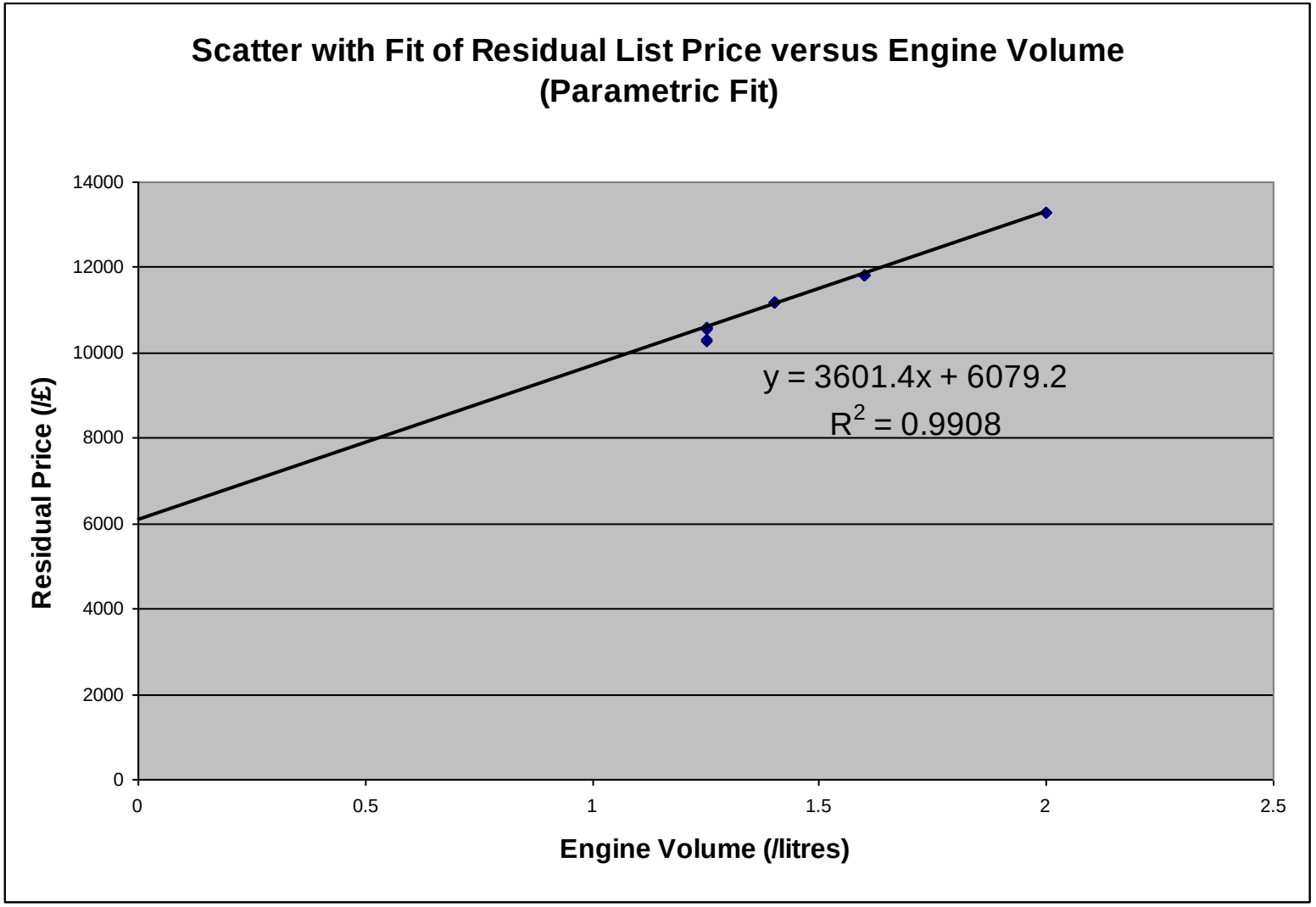

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Model

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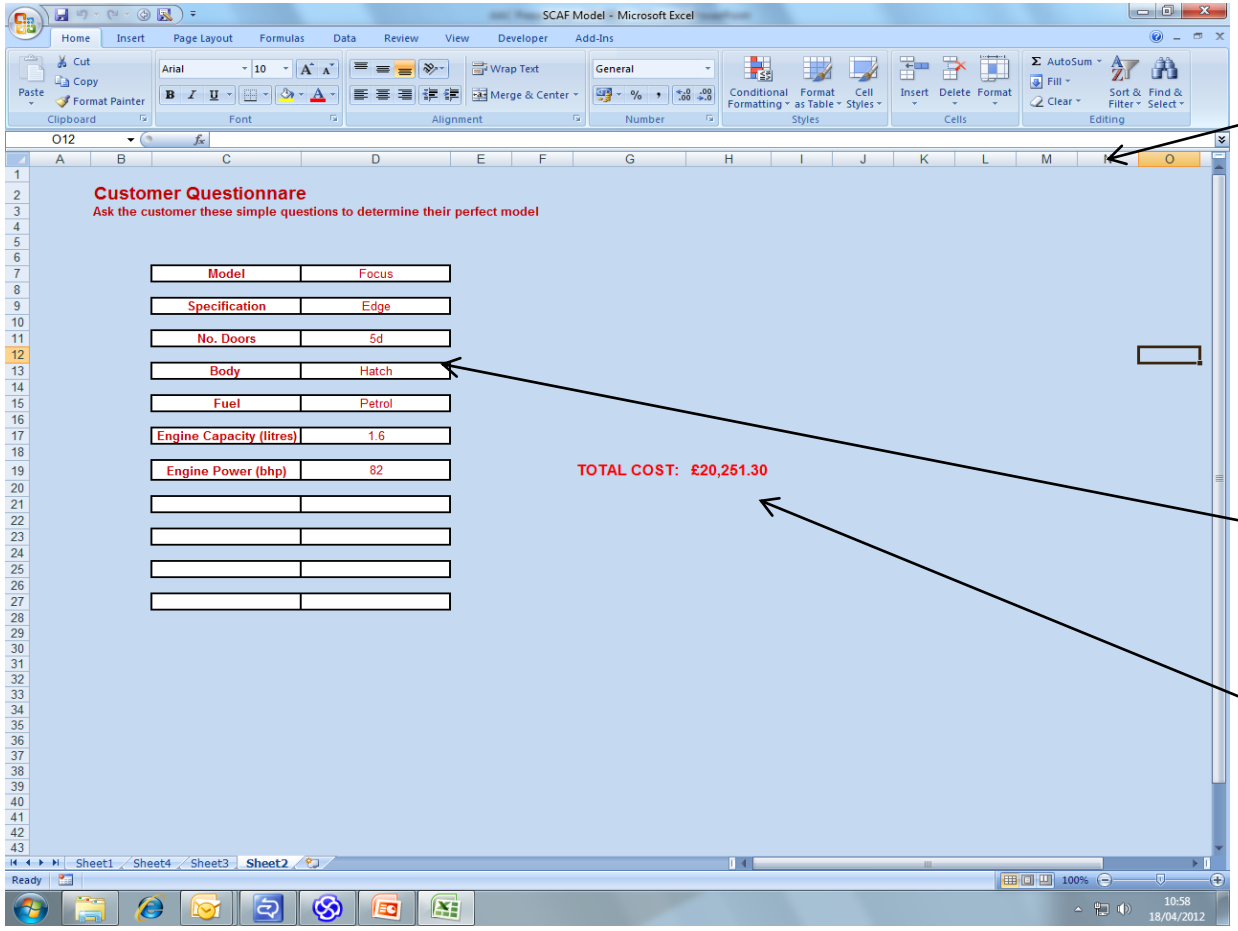

Single Screen

Simple Questions to ask Customer

Single Figure Total

Model Limitations

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Only for use on Focus & Fiesta

Does not apply for Fiesta S1600

No variations from the quantities given, only variations in combinations

Verification and Validation

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- Checked each model given using analysis spreadsheet and cost estimation tool (double check).
- Fractional error of List Price: < 2.7%
- Typically < 0.5%

Extra Example

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- **Ford Focus 1.6 125 Zetec 5dr Powershift hatchback**

List Price: £18,815
(source: www.parkers.co.uk)

Our Model Price: £18,796.44

If we had more time....

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- Use ‘Parkers’ as source data to complete bhp/ps source data, and seek a parametric function to determine the effect of bhp on list price.
- Include inflation rate to project future price.
- Model depreciation, and deliver a similar tool to assist with sales process, building ‘Longevity’ into the model.
- Indicate uncertainty of model as output (Fiesta was less accurately priced than the Focus)

Conclusion

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- Within the 40 hours of effort all factors affecting the list price were either normalised, or analysed parametrically.
- A strong correlation was achieved ($R^2 > 0.99$) for the parametric function determined for the effect of engine volume on list price (following the removal of price effect of all other variable).

- The S1600 had a significant deviation of estimated price from list price compared with the other cars. Hence this was treated as an outlier.

- Two successive orders of normalisation of factors were applied, the first with a poor outcome, hence the sequence of normalisation (based on confidence) is important.

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