

Decreasing Complexity by Increasing Numbers

Part 1: The Law of Large Numbers

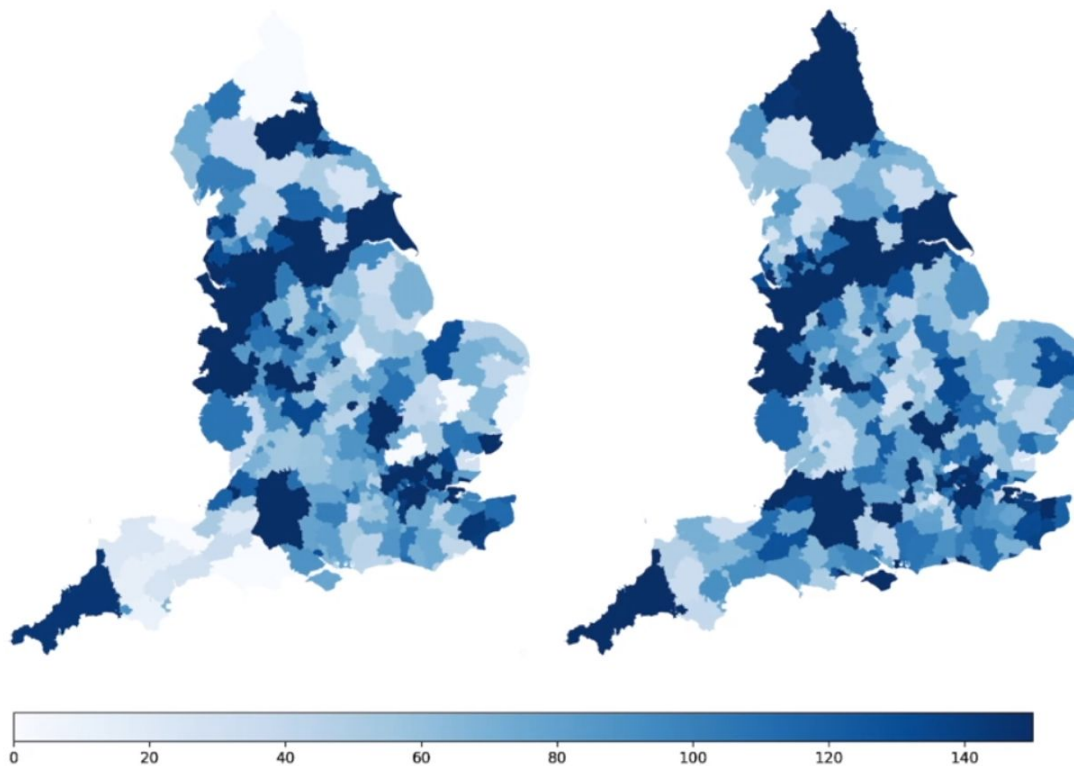
Christoph Becker



Who am I

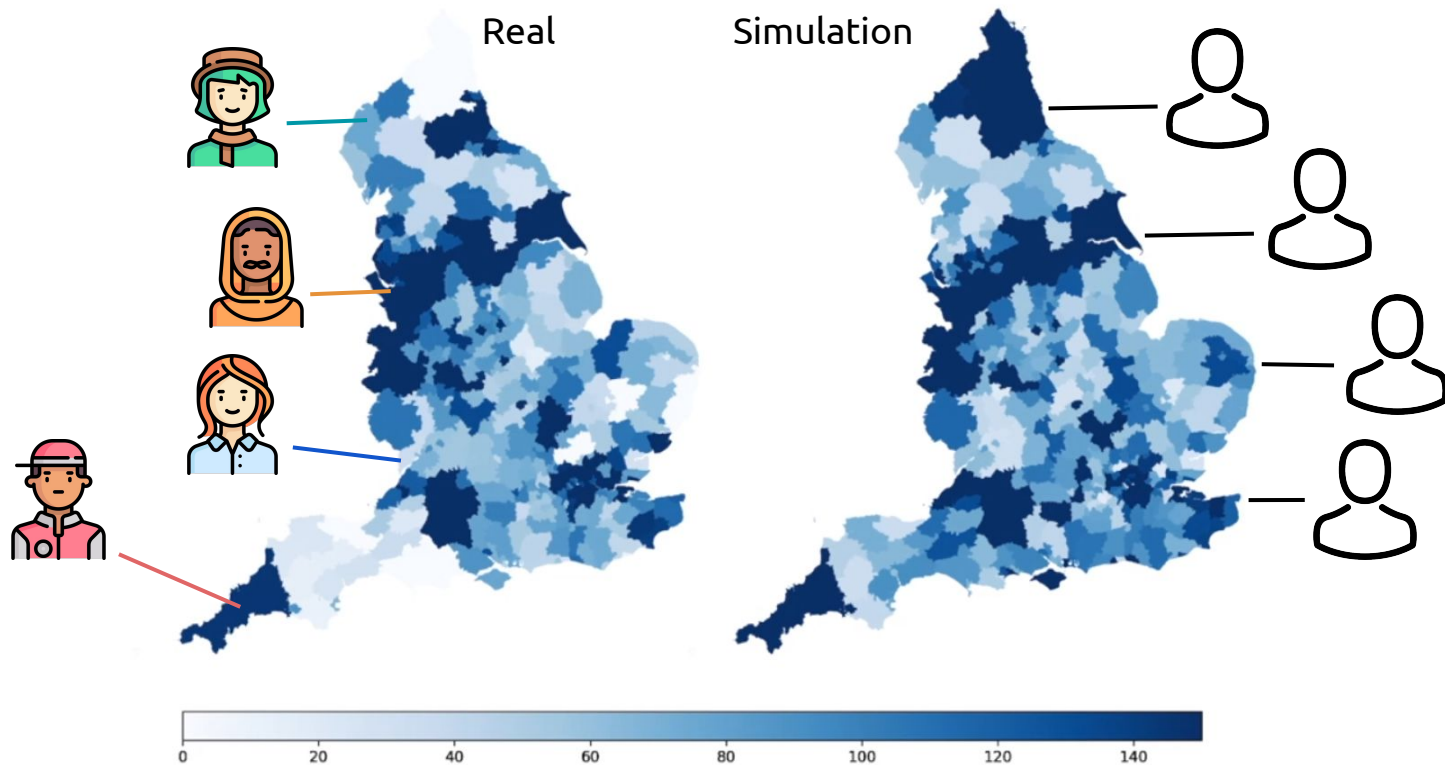
... Give a little introduction about yourself ...

The Covid-19 Pandemic in England



Covid-19 deaths from March to October

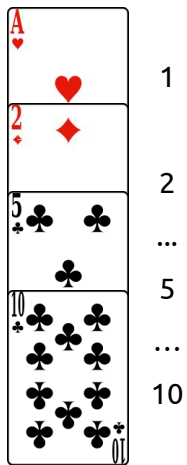
The Covid-19 Pandemic in England



Covid-19 deaths from March to October

The Law of Large Numbers — Kruskal Count

Card Value



1

2

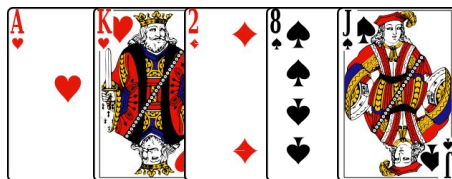
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5

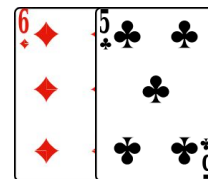
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10

5



...



Card number, $n =$

1

2

3

4

5

...

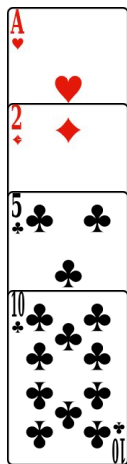
51

52

The Law of Large Numbers — Kruskal Count

Card Value

Spectator



1

2

...

5

...

10

5

10



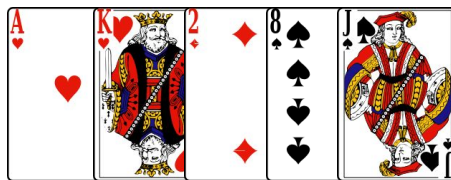
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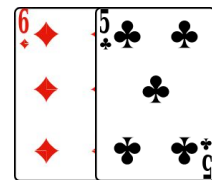
3



1



. . .



Card number, $n =$

1

2

3

4

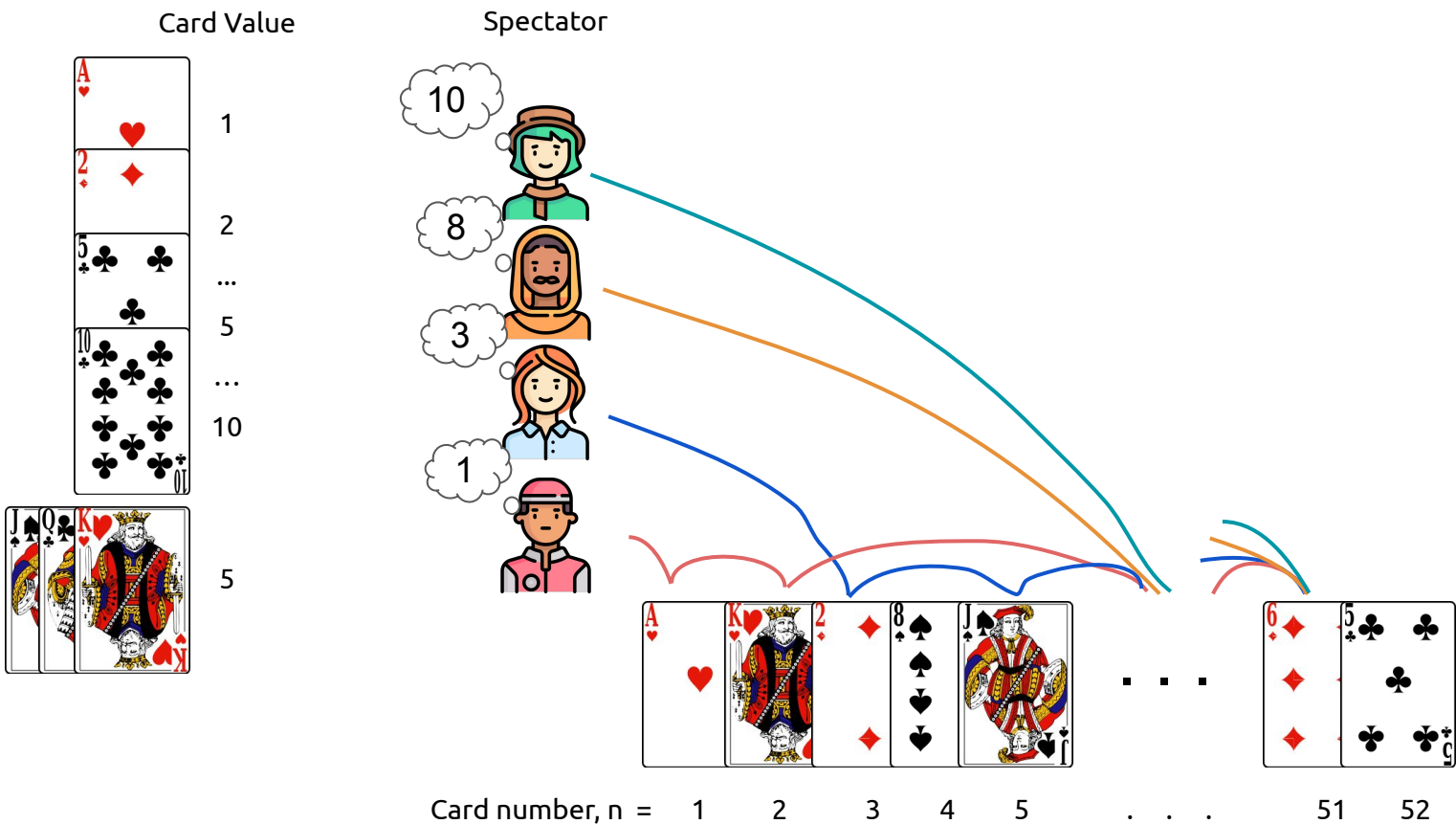
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. . .

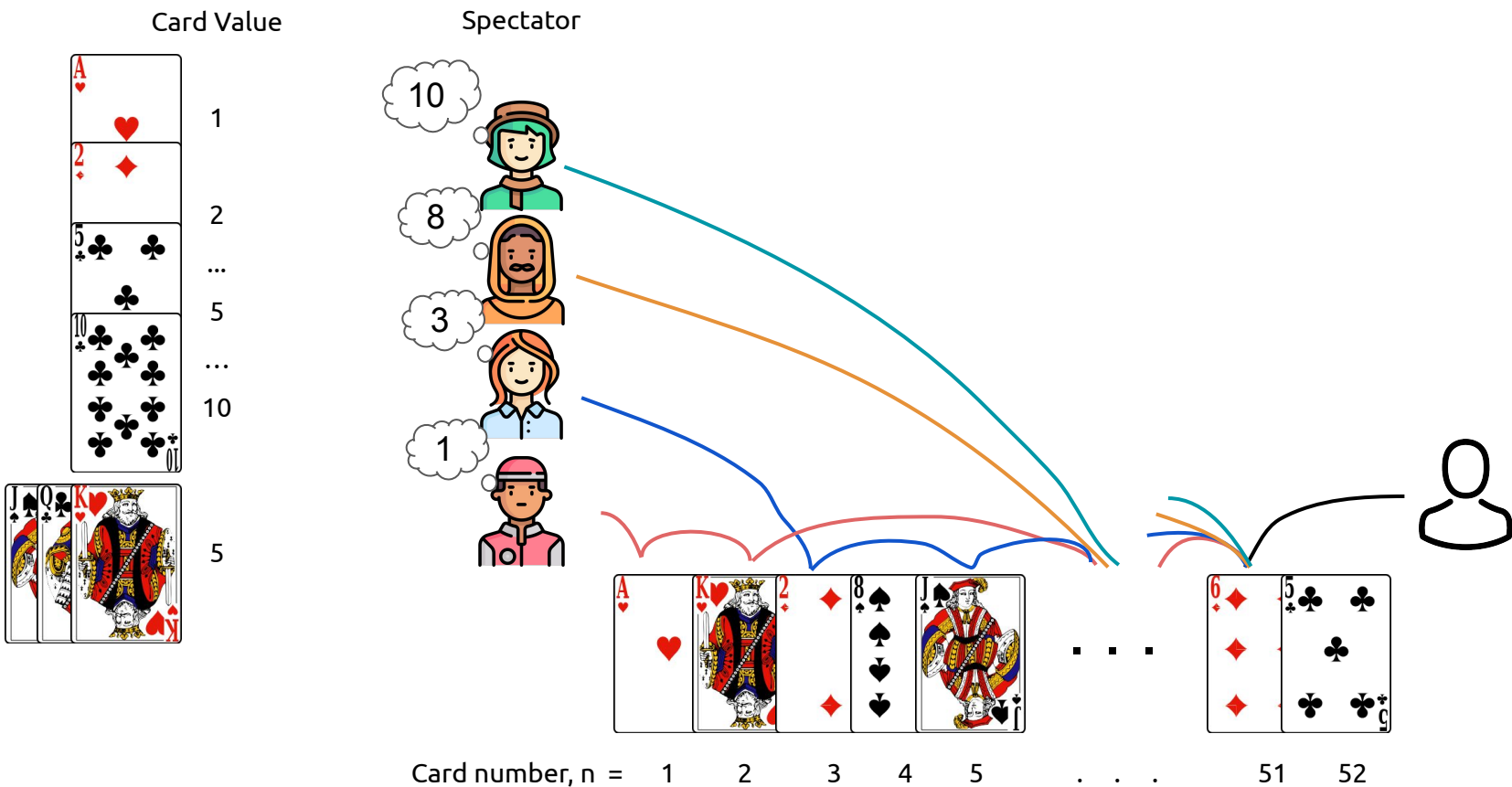
51

52

The Law of Large Numbers — Kruskal Count



The Law of Large Numbers — Kruskal Count



The Law of Large Numbers

Observation:

The larger the number of cards we use,
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The larger the number of trials ($\lim_{n \rightarrow \infty}$), the more likely it is that their sample average (\bar{X}) is equal to the expectation (μ).

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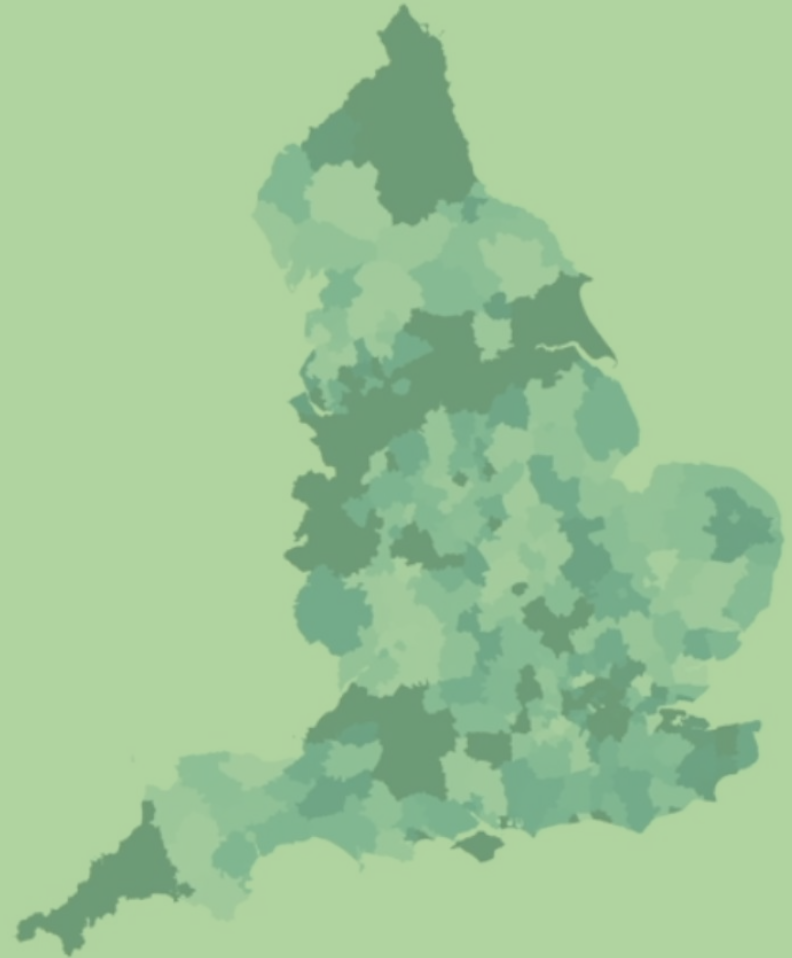
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— The End —

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Part 2: The Central Limit Theorem

Christoph Becker



Central Limit Theorem

... Coming soon ...