

Tetraplot displays of UK General Election results

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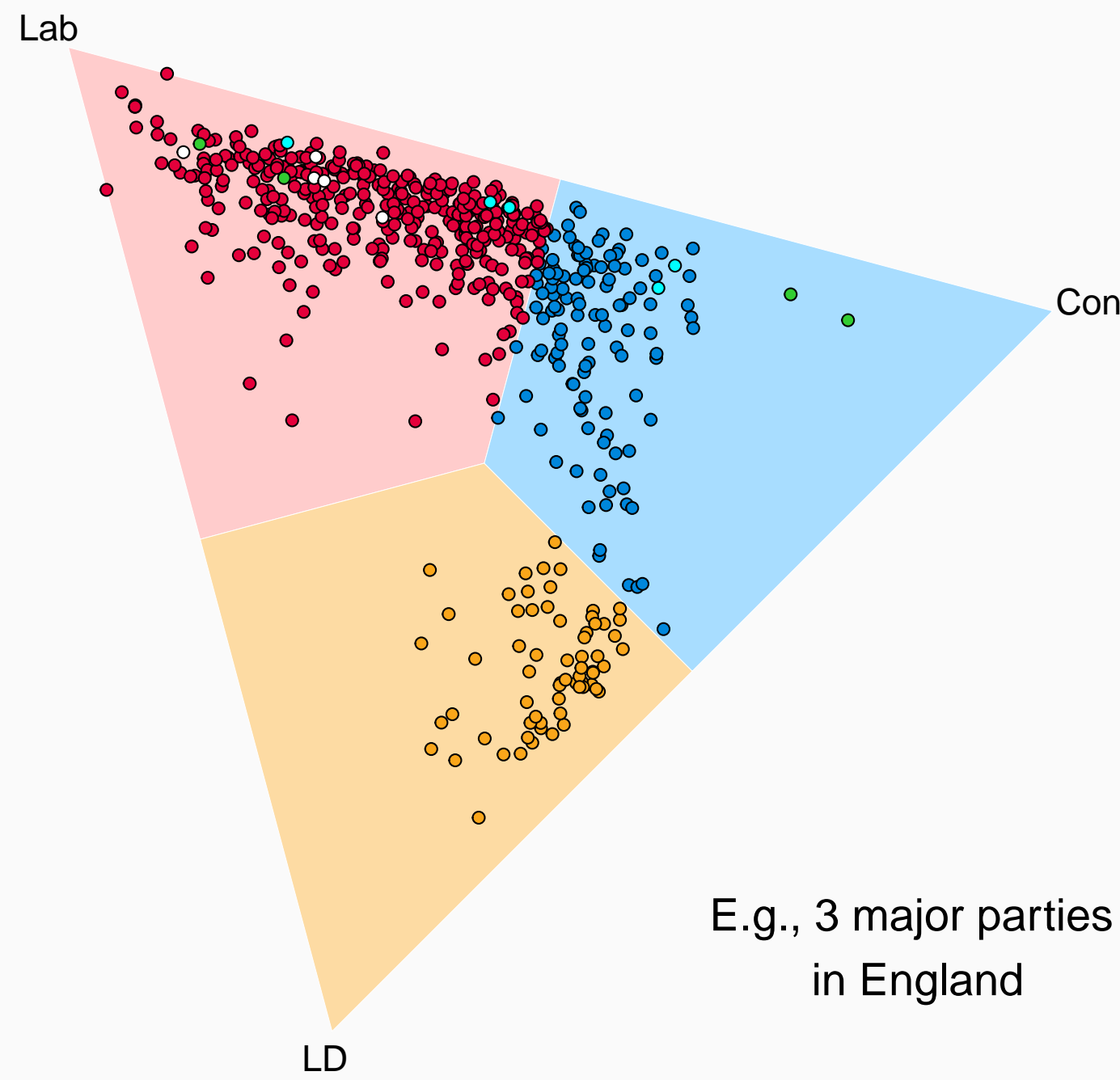
- A traditional *ternary plot* can show only 3 parties
- **Tetraplots** generalize ternary plots to **4 parties**
- A **top-3 tetraplot** is the most helpful for visualization

National vote shares (%) at GE 2024

	Con	Lab	LD	RUK	Green	others
England	27	36	14	16	8	0
Scotland	13	36	10	7	4	30
Wales	19	38	7	17	5	15
Northern Ireland	0				1	99

In Scotland and Wales the main 'other' parties were SNP and PC respectively. (N Ireland has its own politics!)

Usual ternary plot *masks patterns*



Too many points here: the plot includes the many seats where Con, Lab, LD were **not** the 3 most relevant parties.

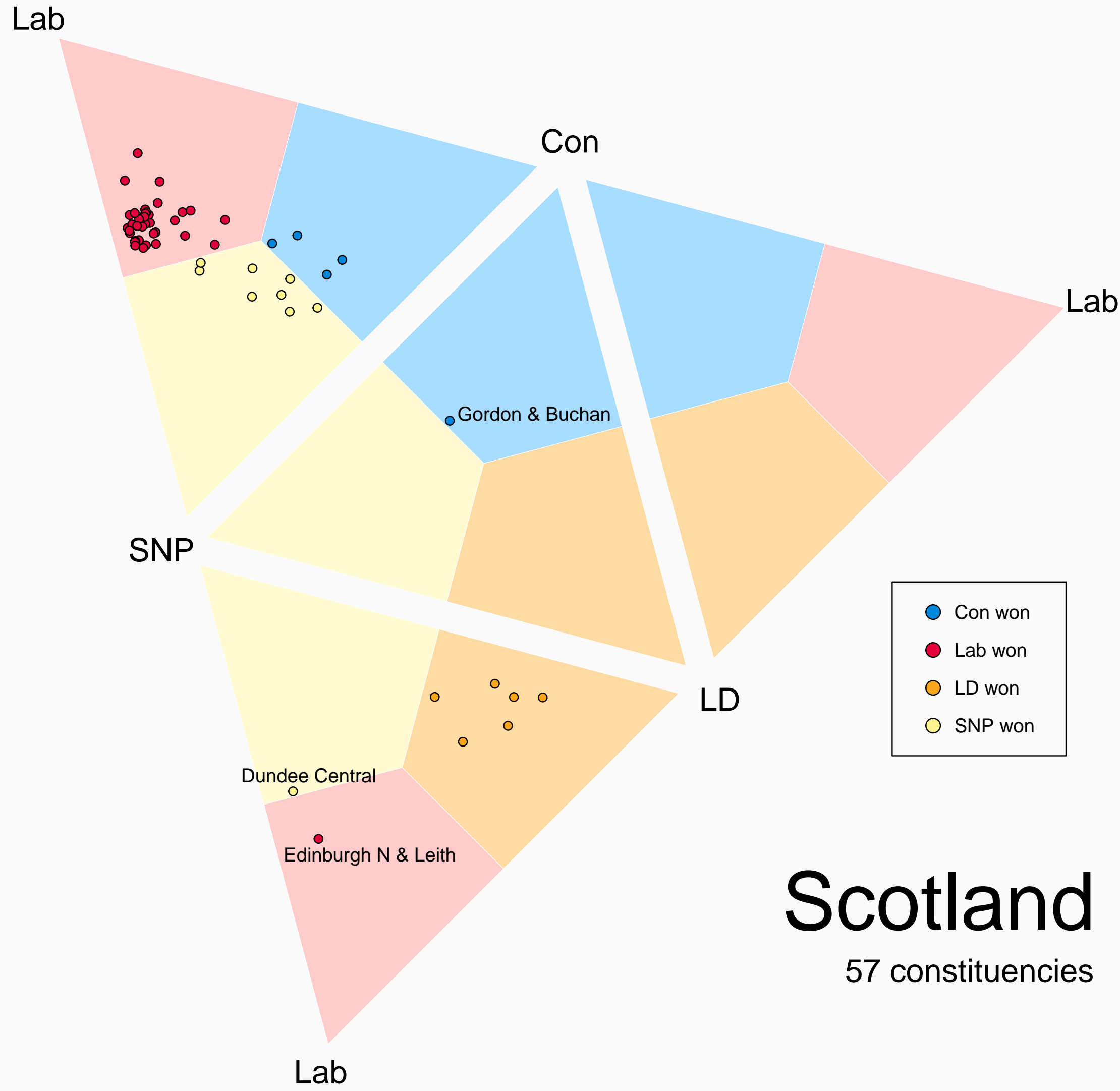
The *top-3 tetraplot* device

The 4-party vote shares are points in a *tetrahedron*. A **tetraplot** shows views through each of the four faces of the tetrahedron. Instead of showing *all* the points through each face (i.e., each point 4 times), the **top-3 tetraplot shows each point only through the face to which it is closest**. This is intuitive (each constituency appears once), and it reveals voting patterns much more clearly.

R package

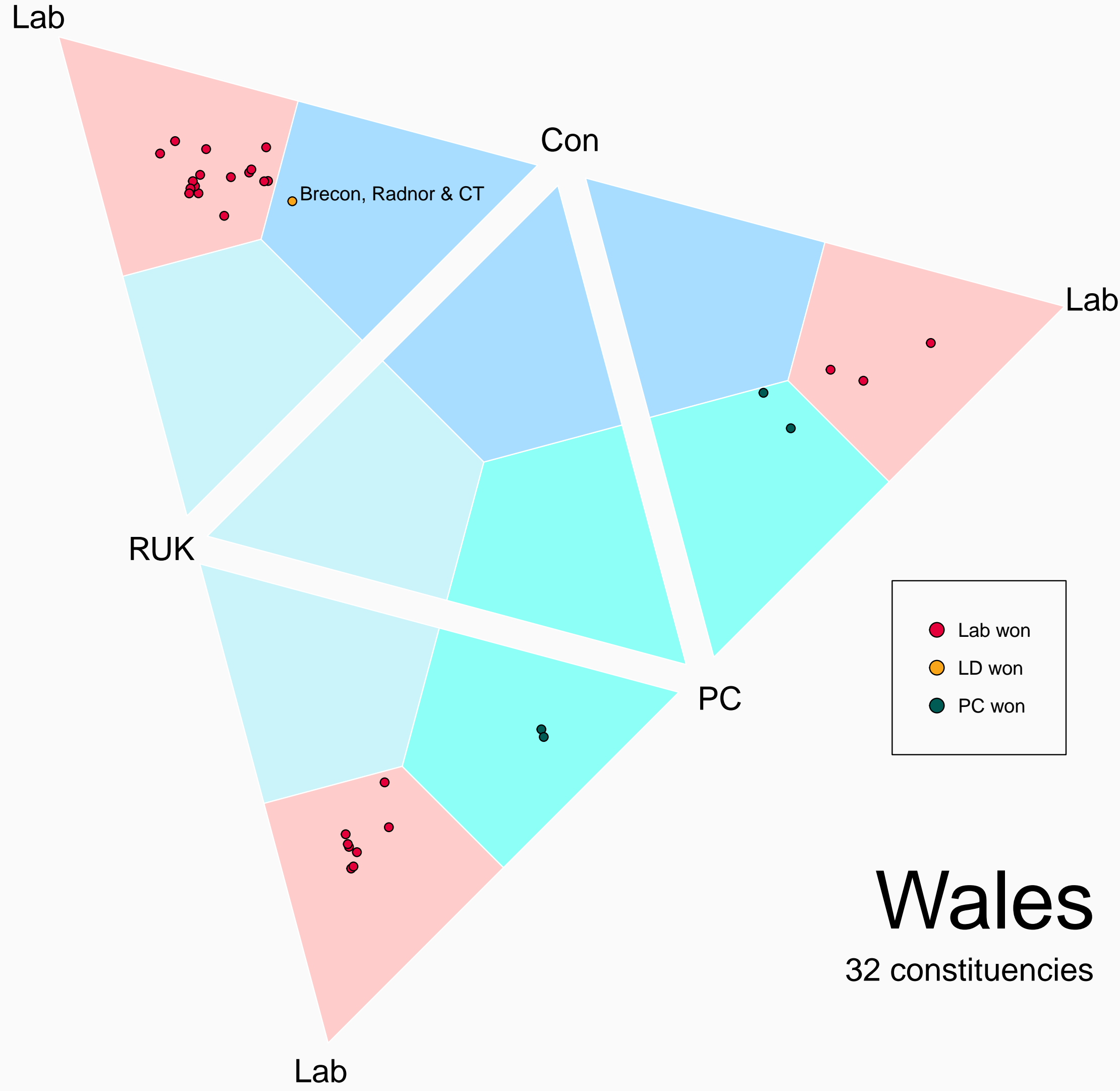
github.com/DavidFirth/tplots

Con:Lab:LD:SNP in Scotland



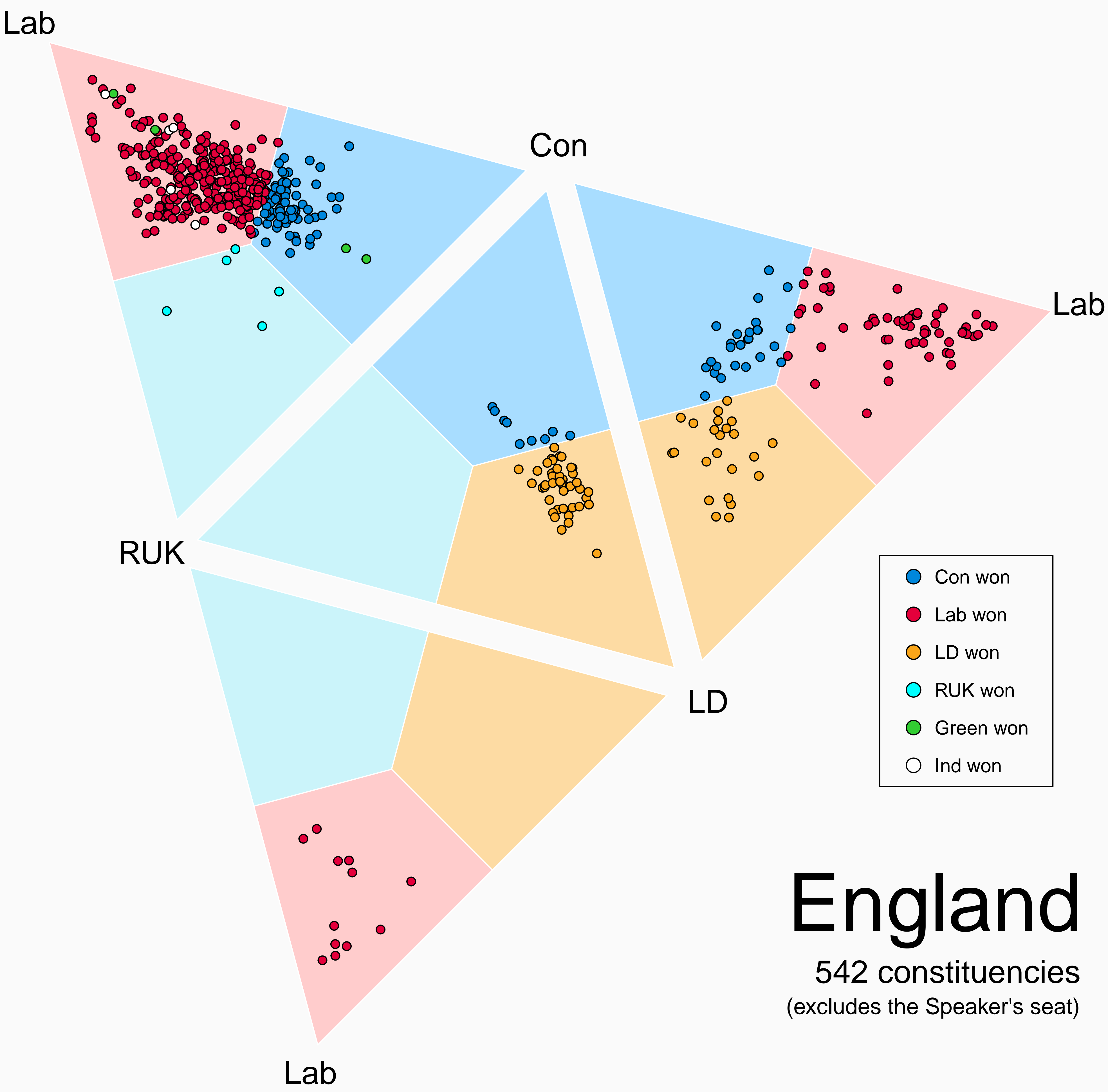
Scotland
57 constituencies

Con:Lab:PC:RUK in Wales



Wales
32 constituencies

Con:Lab:LD:RUK in England



England
542 constituencies
(excludes the Speaker's seat)

Acknowledgments:

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- And many thanks to my talented woodworker friend Nicholas Tawn for the lovely tetrahedron!