Relaxation Techniques for the Upset Data Scientist

Nils Gehlenborg, PhD

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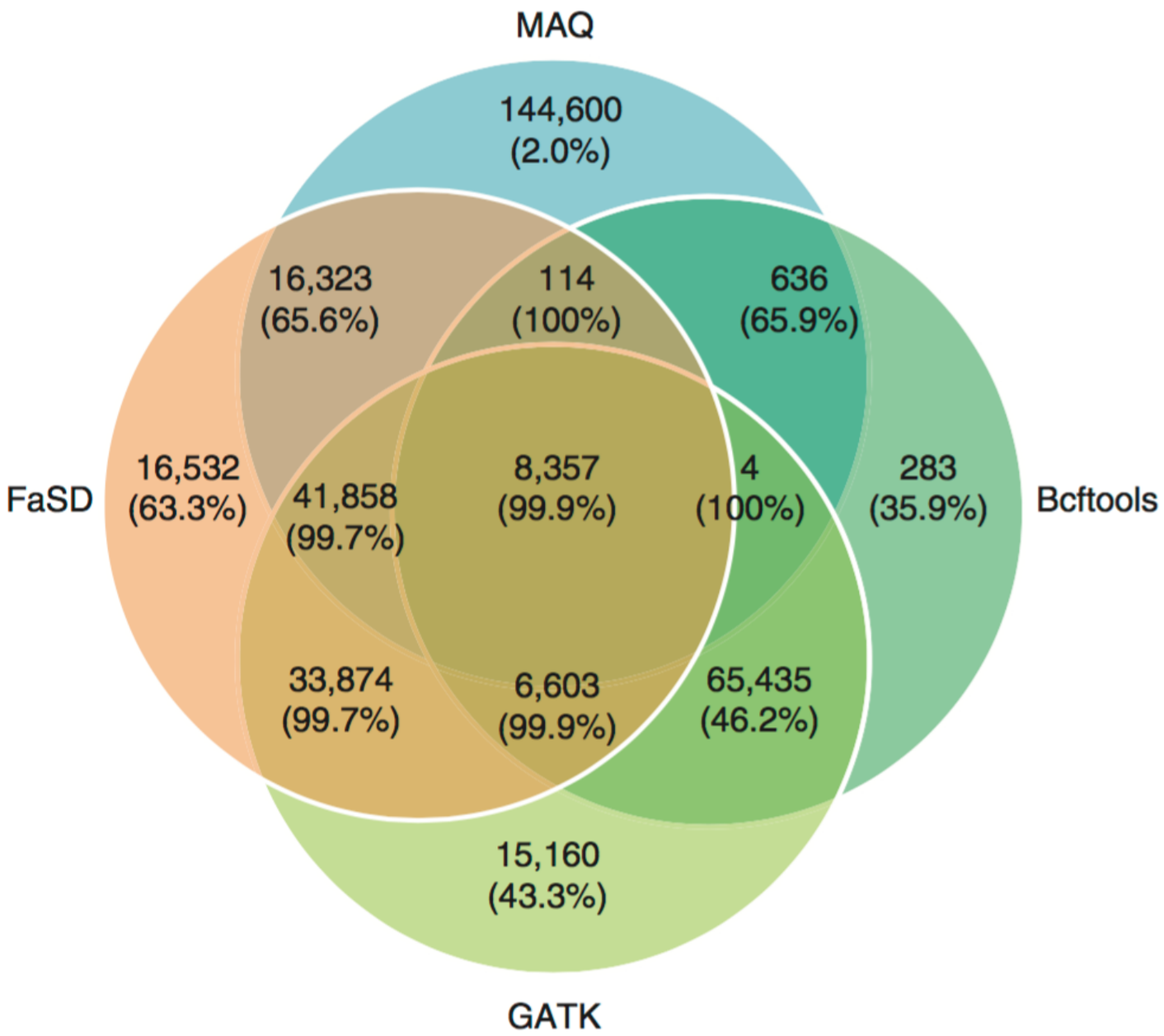
What are the sources of your tension and anger?

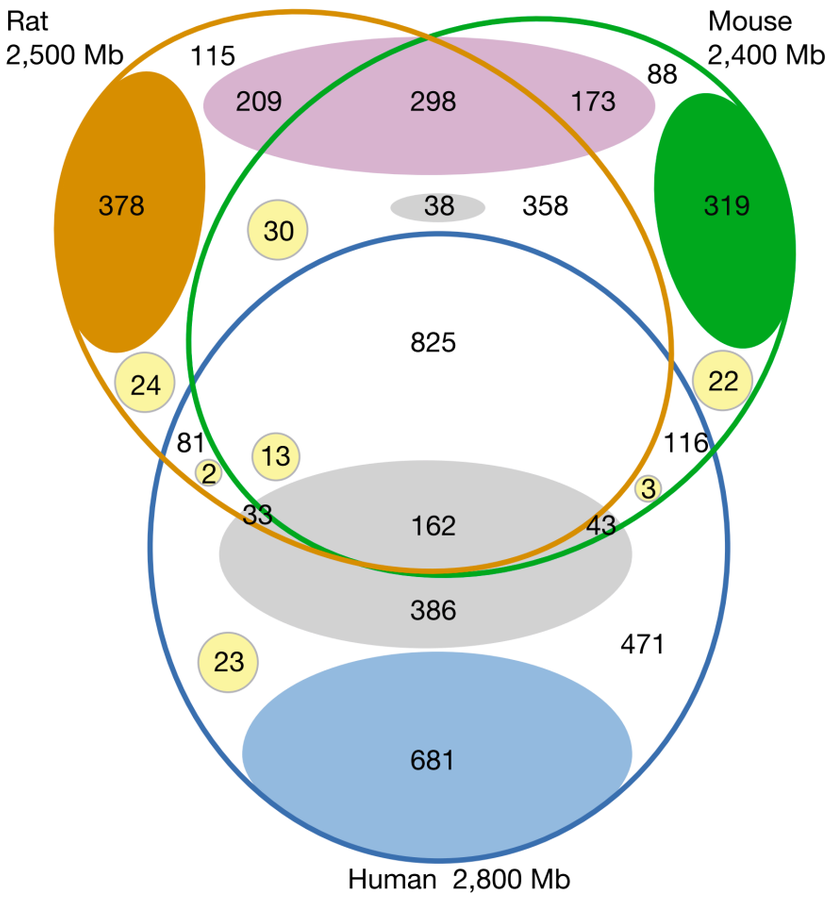
Xu et al., Nature Communications 3, 1258 (2014)

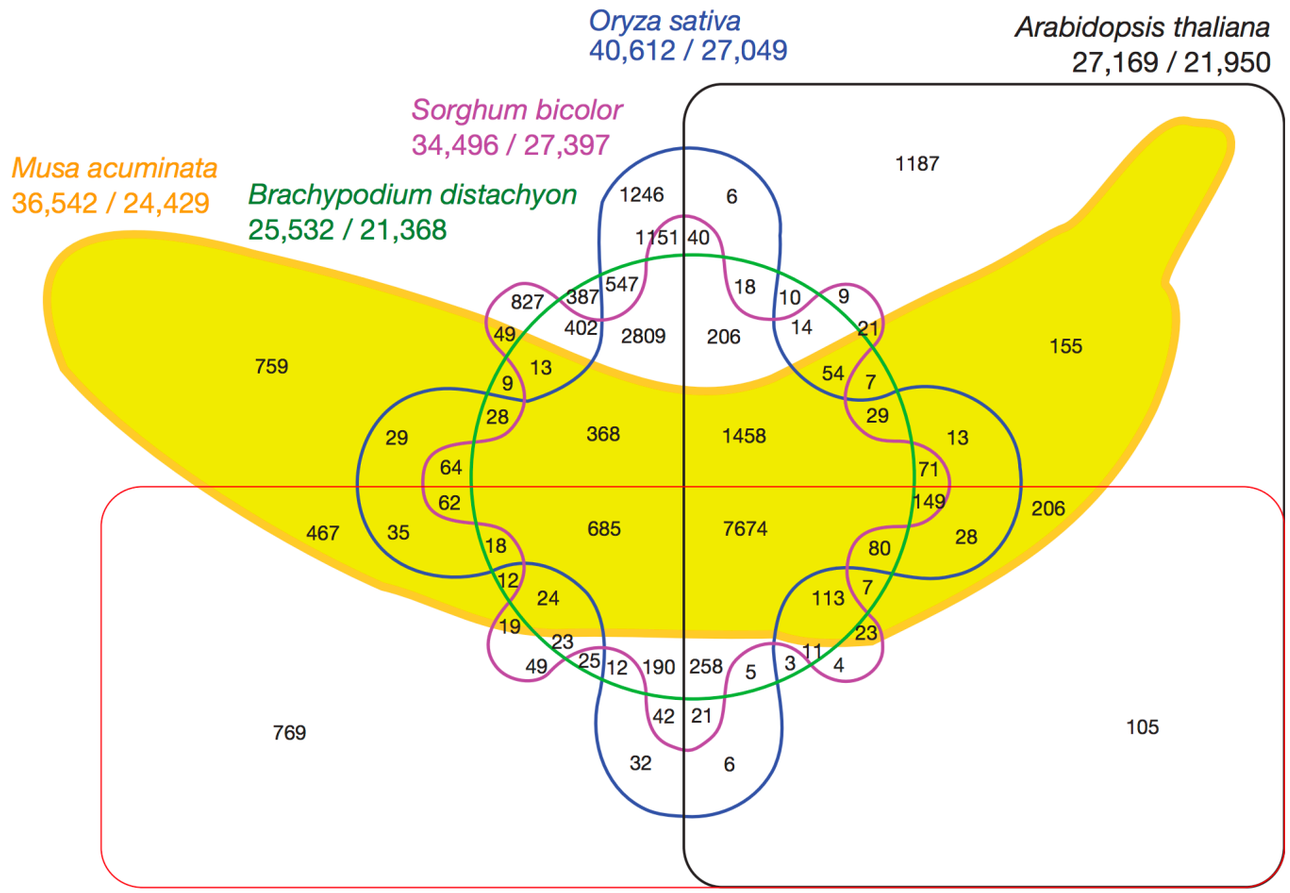
Where is the biggest intersection?



Rat Genome Sequencing Consortium, Nature 428, 493 (2004)
D'Hont et al., Nature 488, 213 (2012)

"Rats," you'll say, "I'll go bananas!"





Why is this stressful and exhausting?

This visualization makes you work!

This visualization makes you work!

[Good] visualization uses perception to free up cognition!

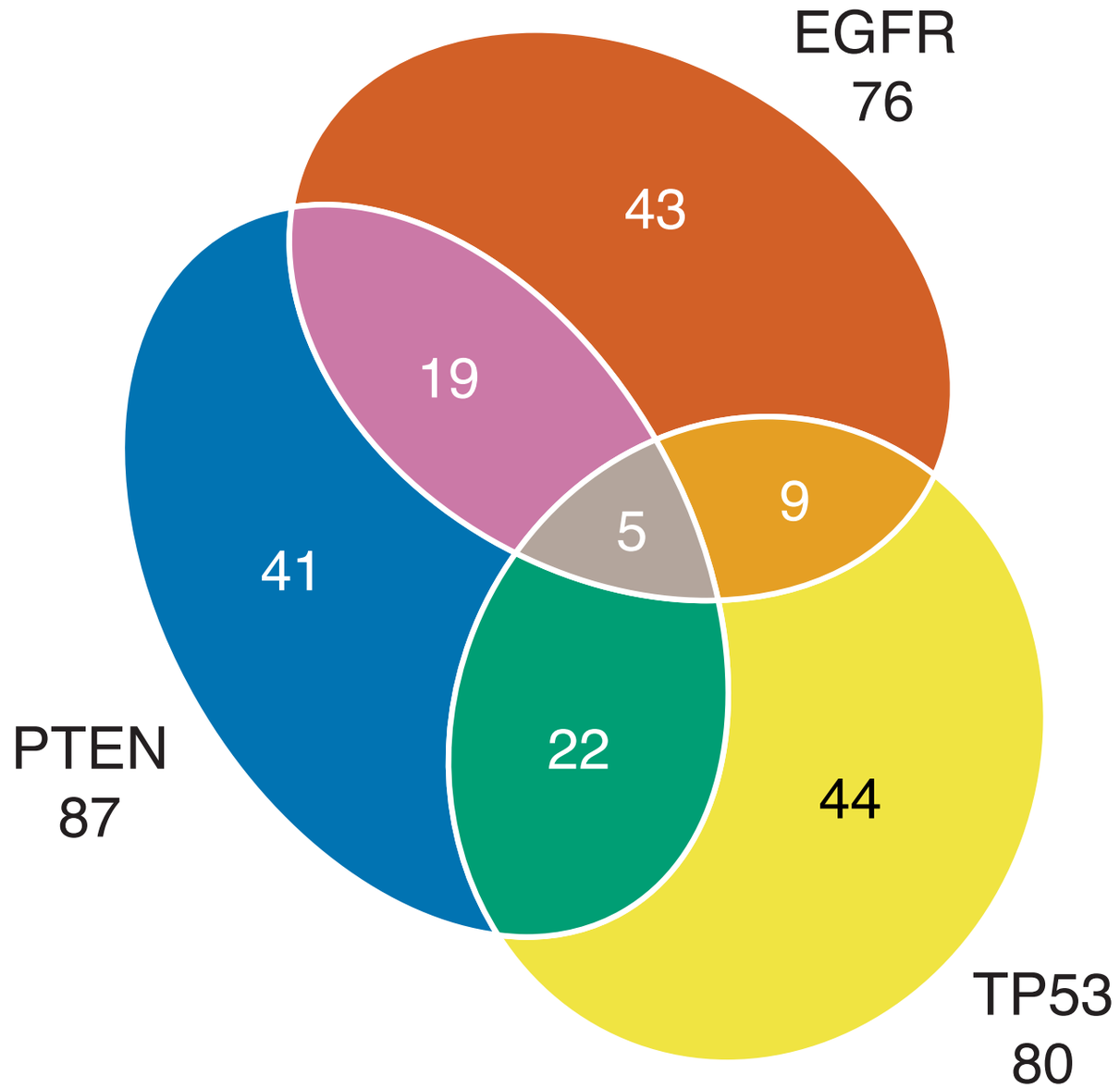
What does that mean?

What does that mean?

$$
\begin{array}{r}
453 \times 862 = \\
\hline
906 \\
+\ 27,180 \\
+\ 362,400 \\
\hline
390,486
\end{array}
$$

What are some proven relaxation techniques?

Lex & Gehlenborg, Nature Methods 11, 1 (2014)



Lex & Gehlenborg, Nature Methods 11, 1 (2014)

Lex & Gehlenborg, Nature Methods 11, 1 (2014)

1. Let Go!

Lex & Gehlenborg, Nature Methods 11, 1 (2014)

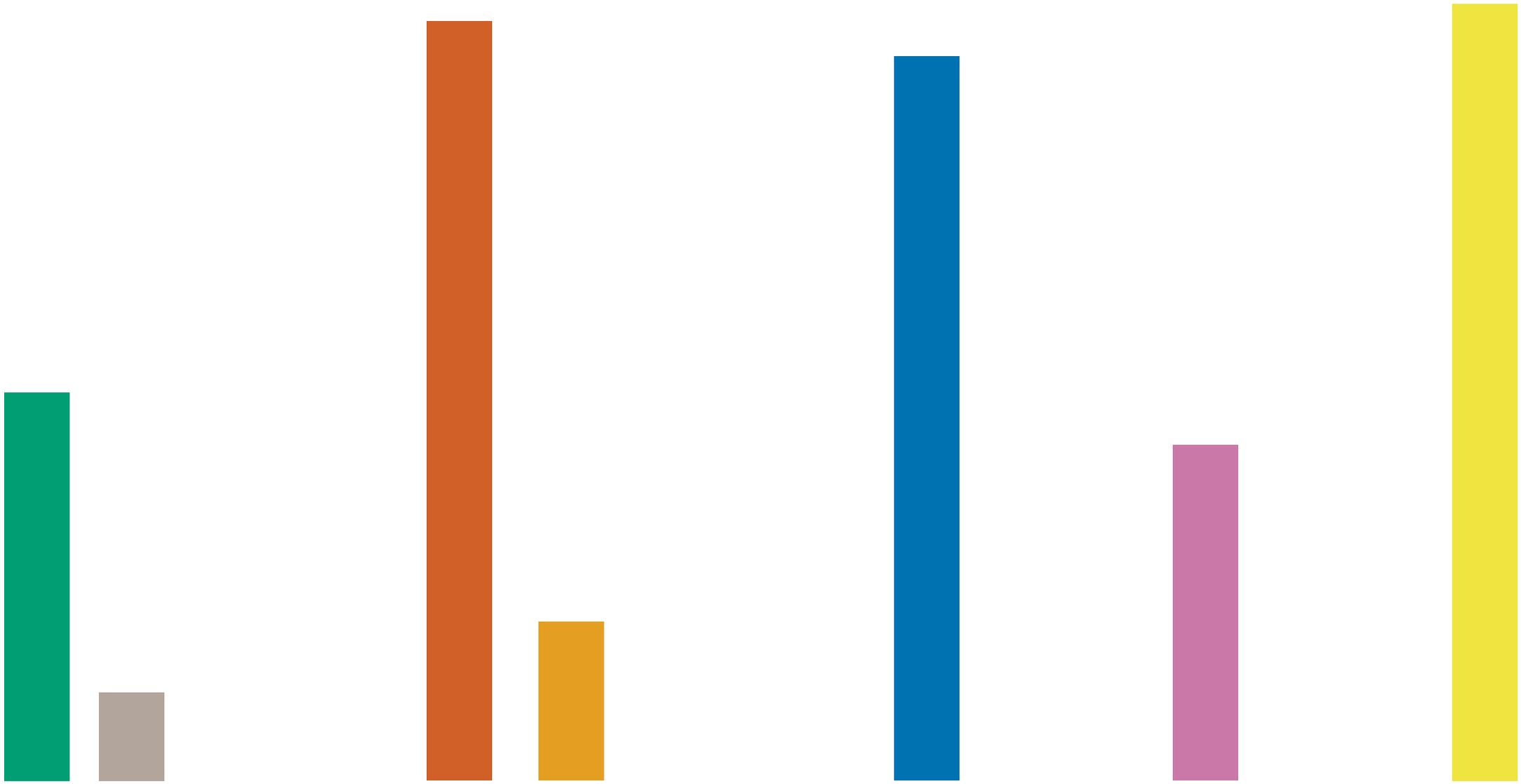
2. Stretch!

Lex & Gehlenborg, Nature Methods 11, 1 (2014)

Lex & Gehlenborg, Nature Methods 11, 1 (2014)

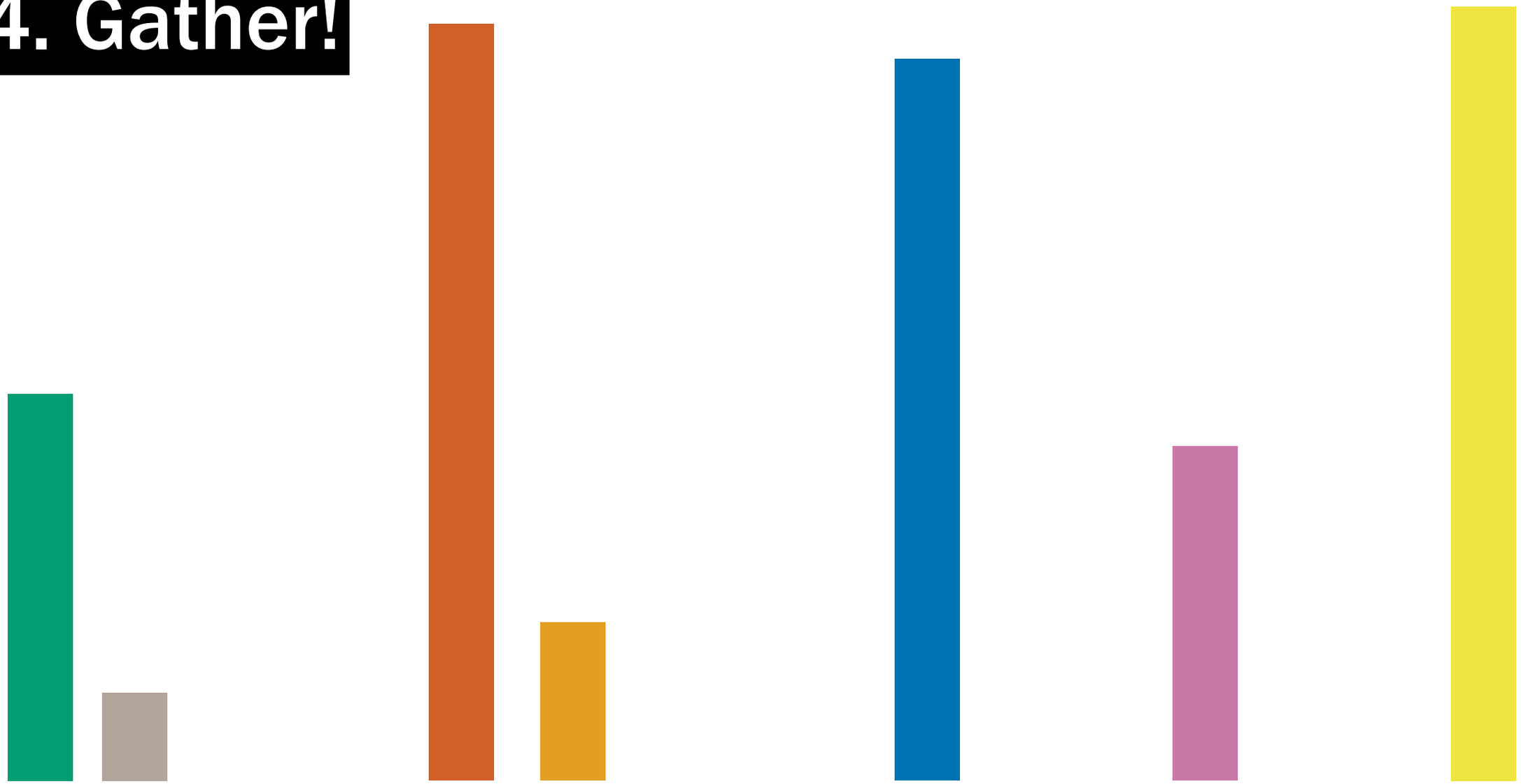
3. Align!

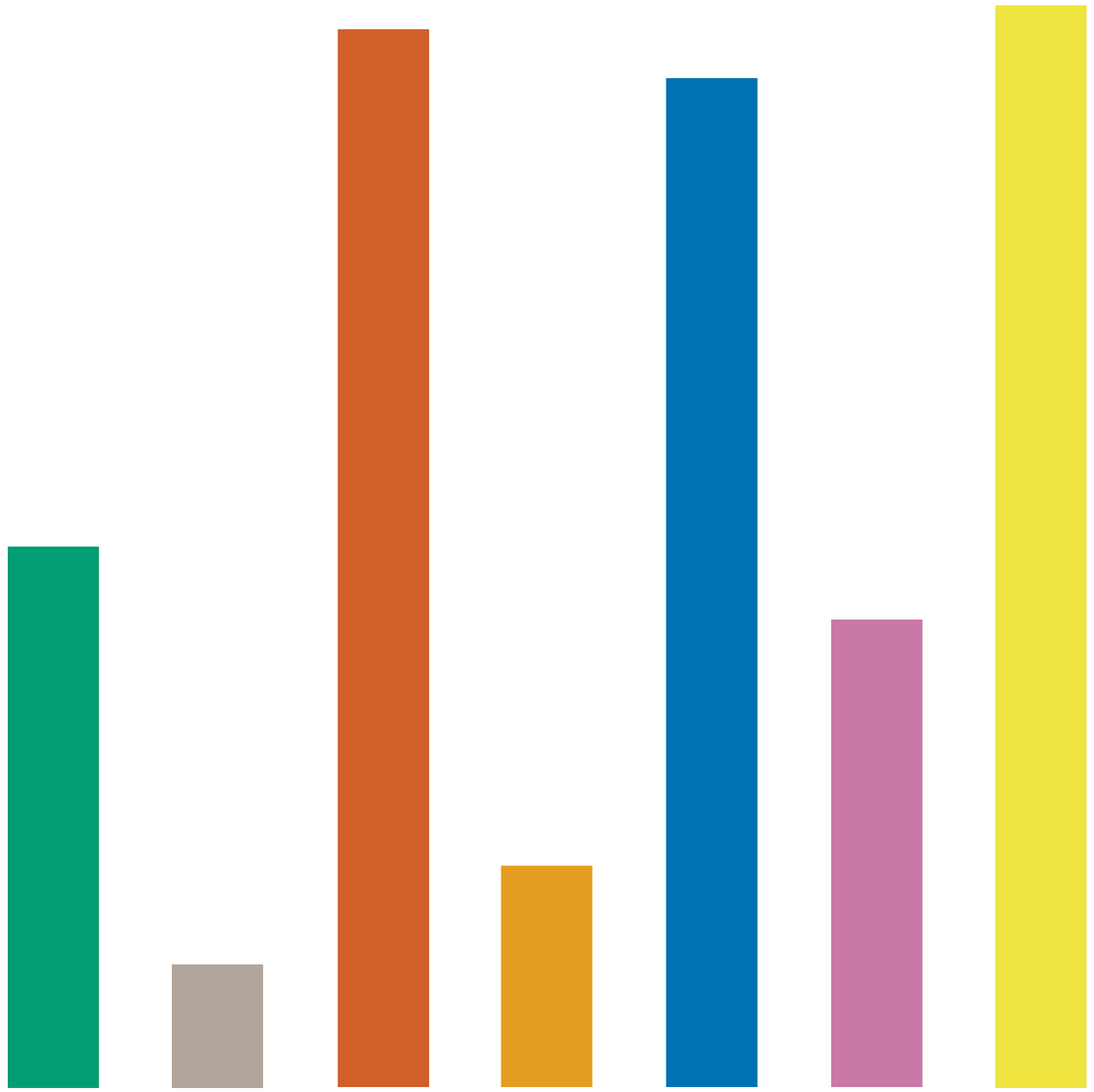
Lex & Gehlenborg, Nature Methods 11, 1 (2014)



Lex & Gehlenborg, Nature Methods 11, 1 (2014)

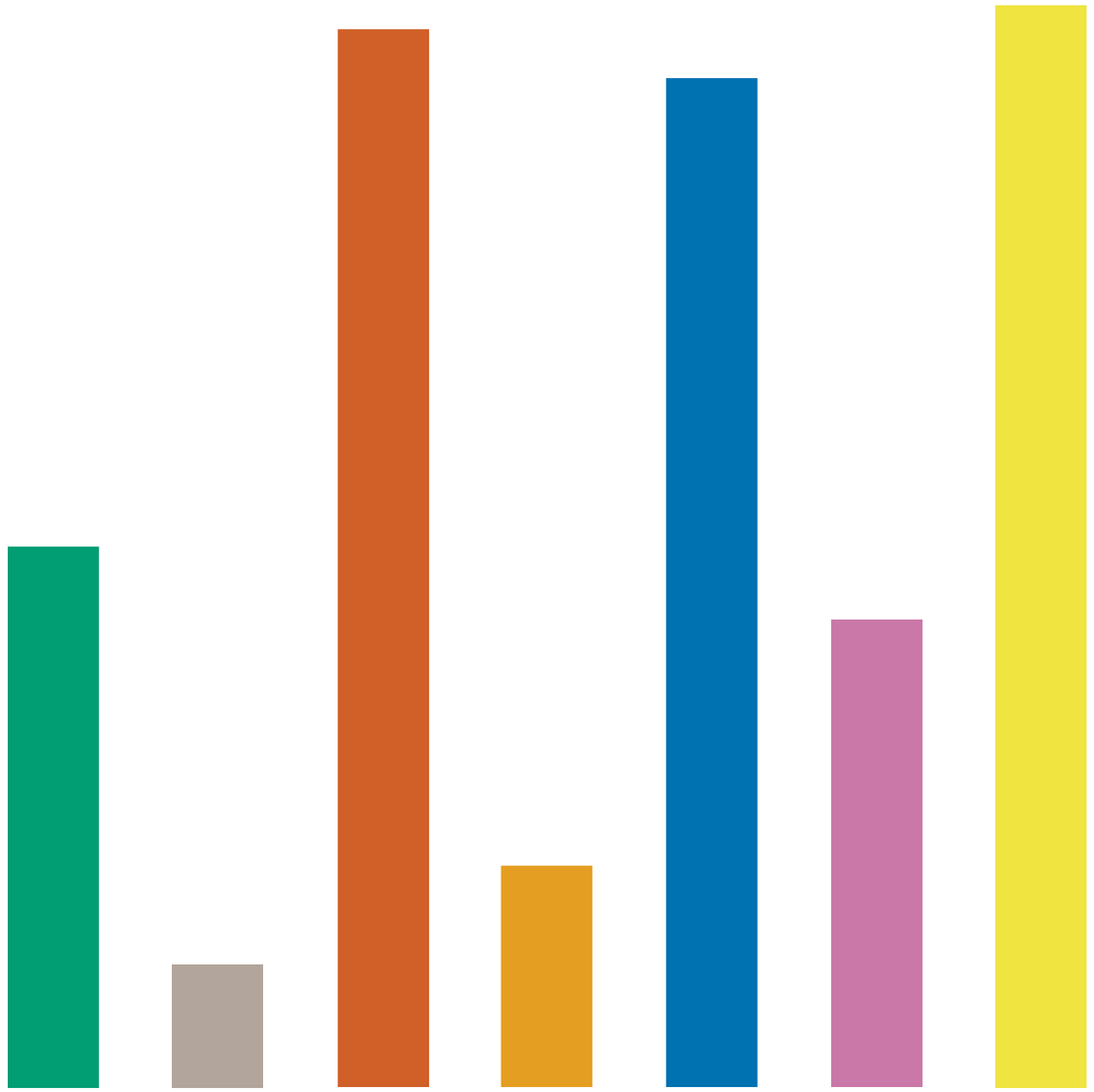
4. Gather!

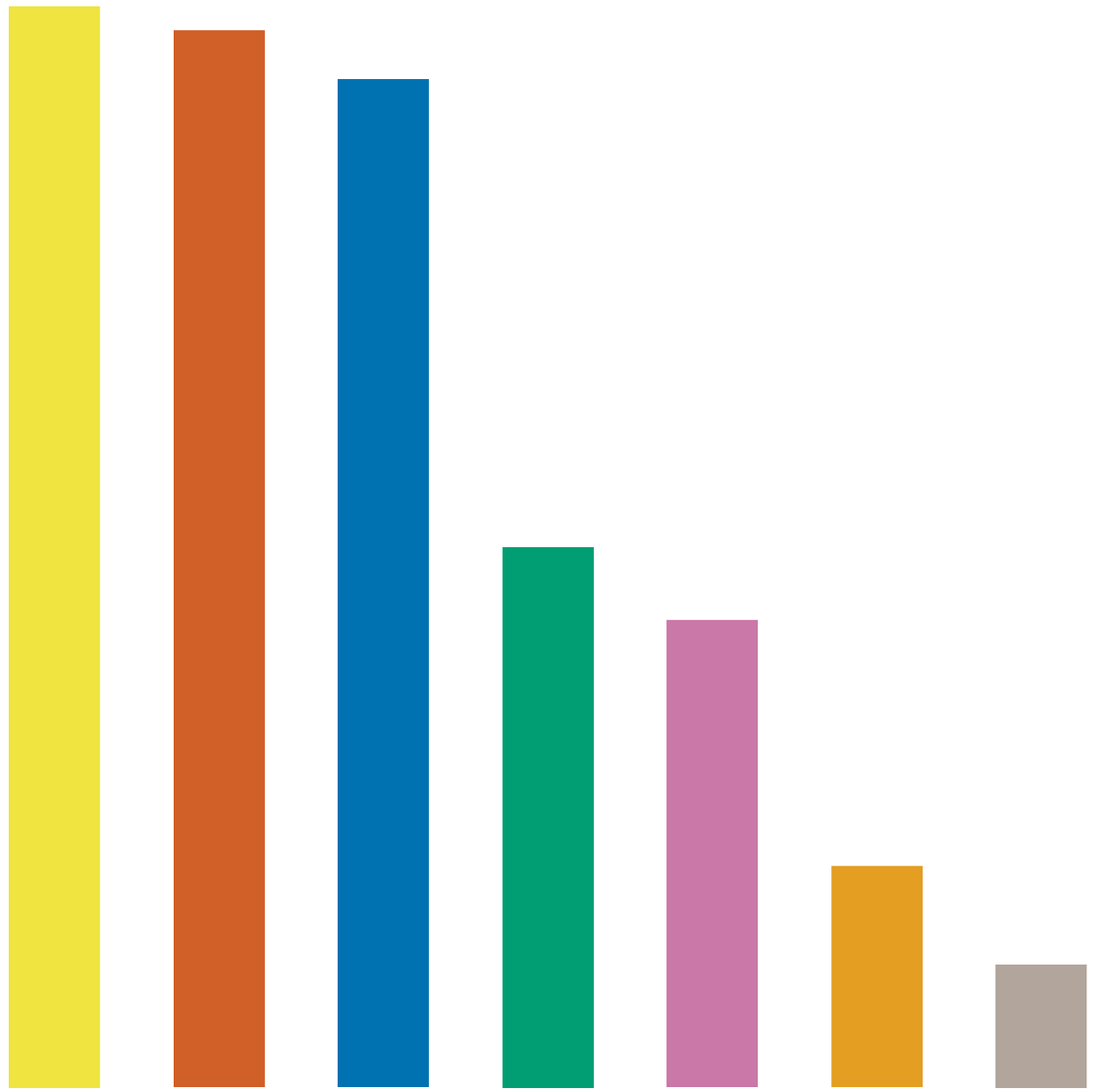




Lex & Gehlenborg, Nature Methods 11, 1 (2014)

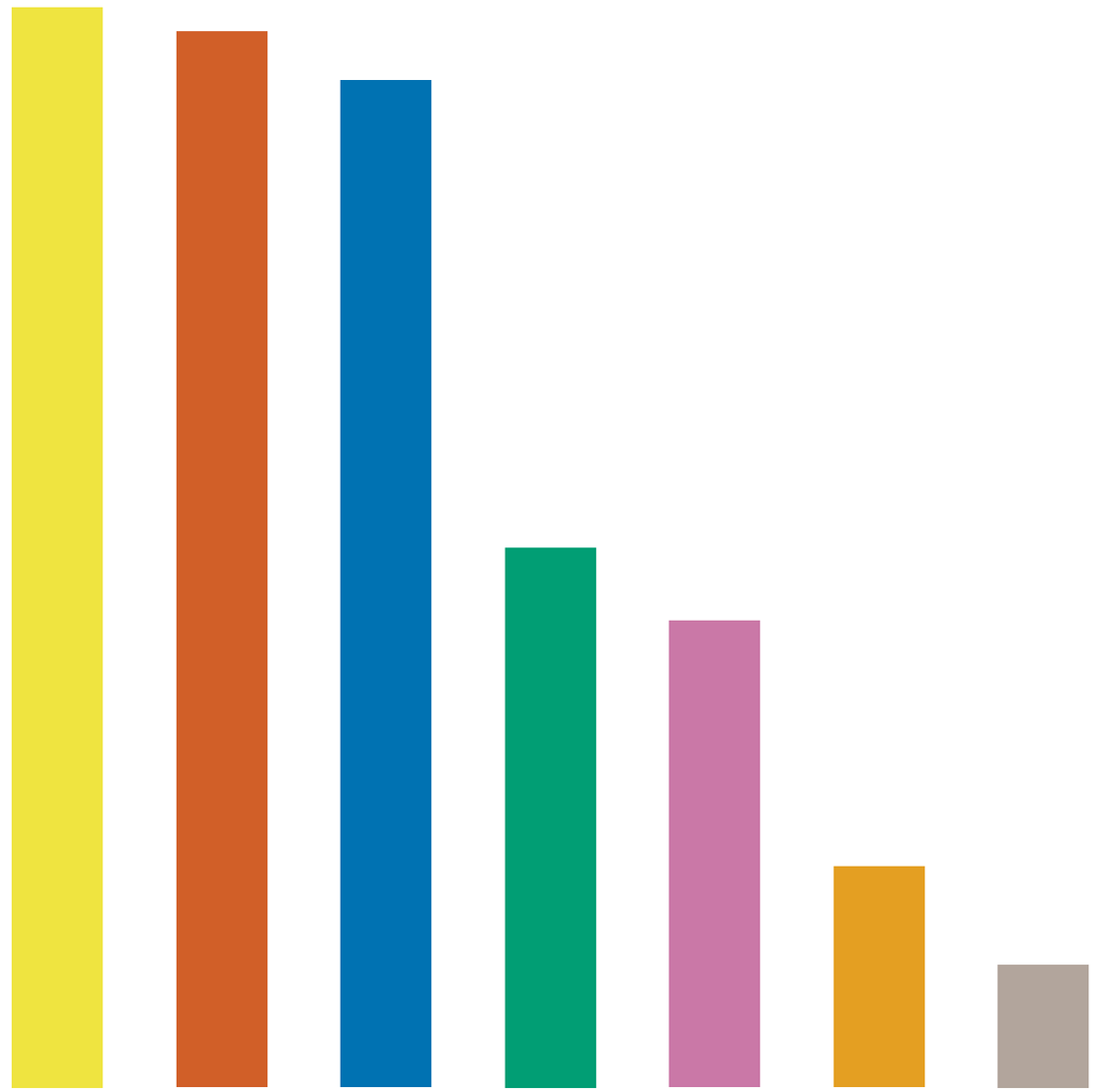
5. Sort!



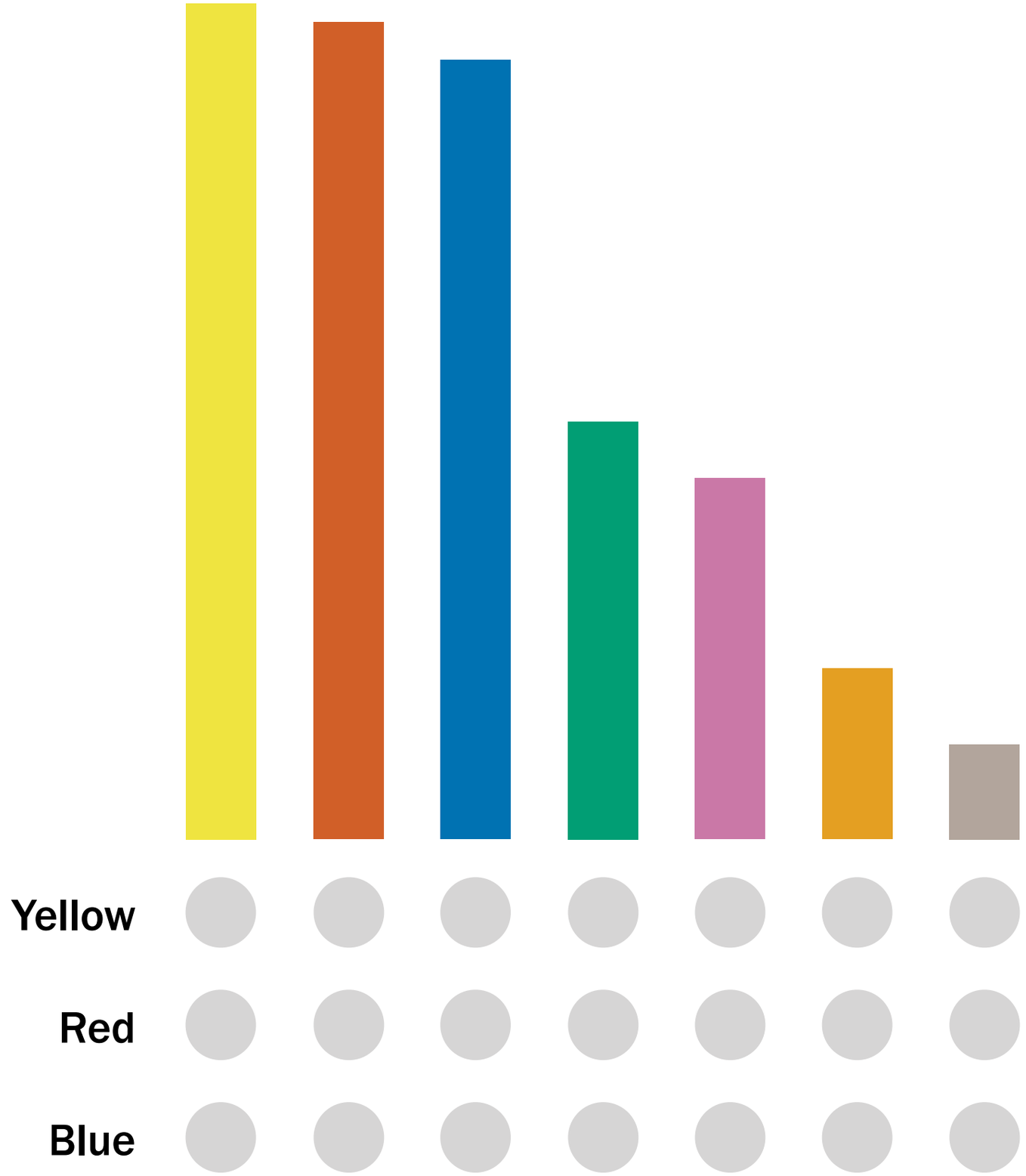


Lex & Gehlenborg, Nature Methods 11, 1 (2014)

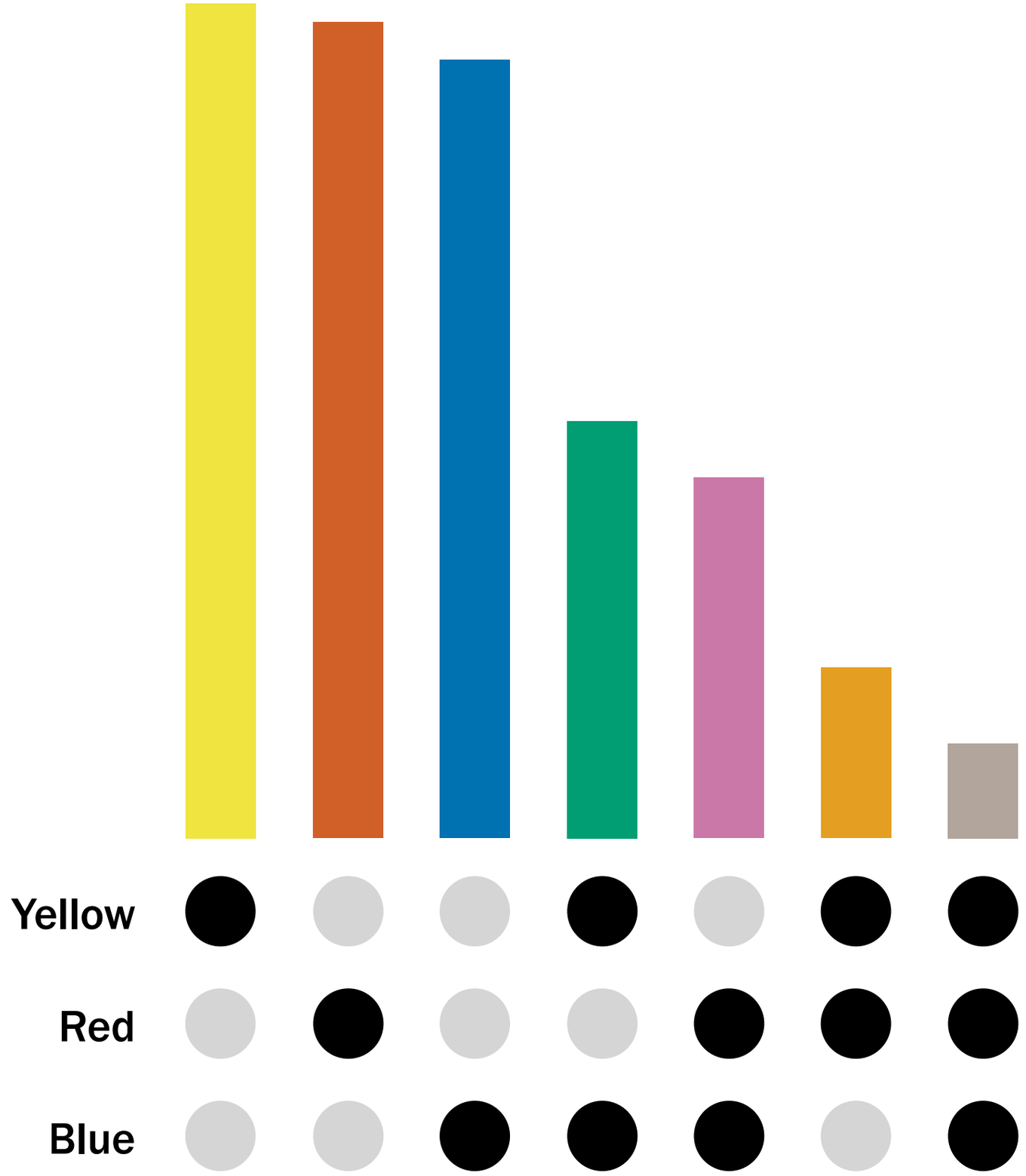
6. Let Go! (again)



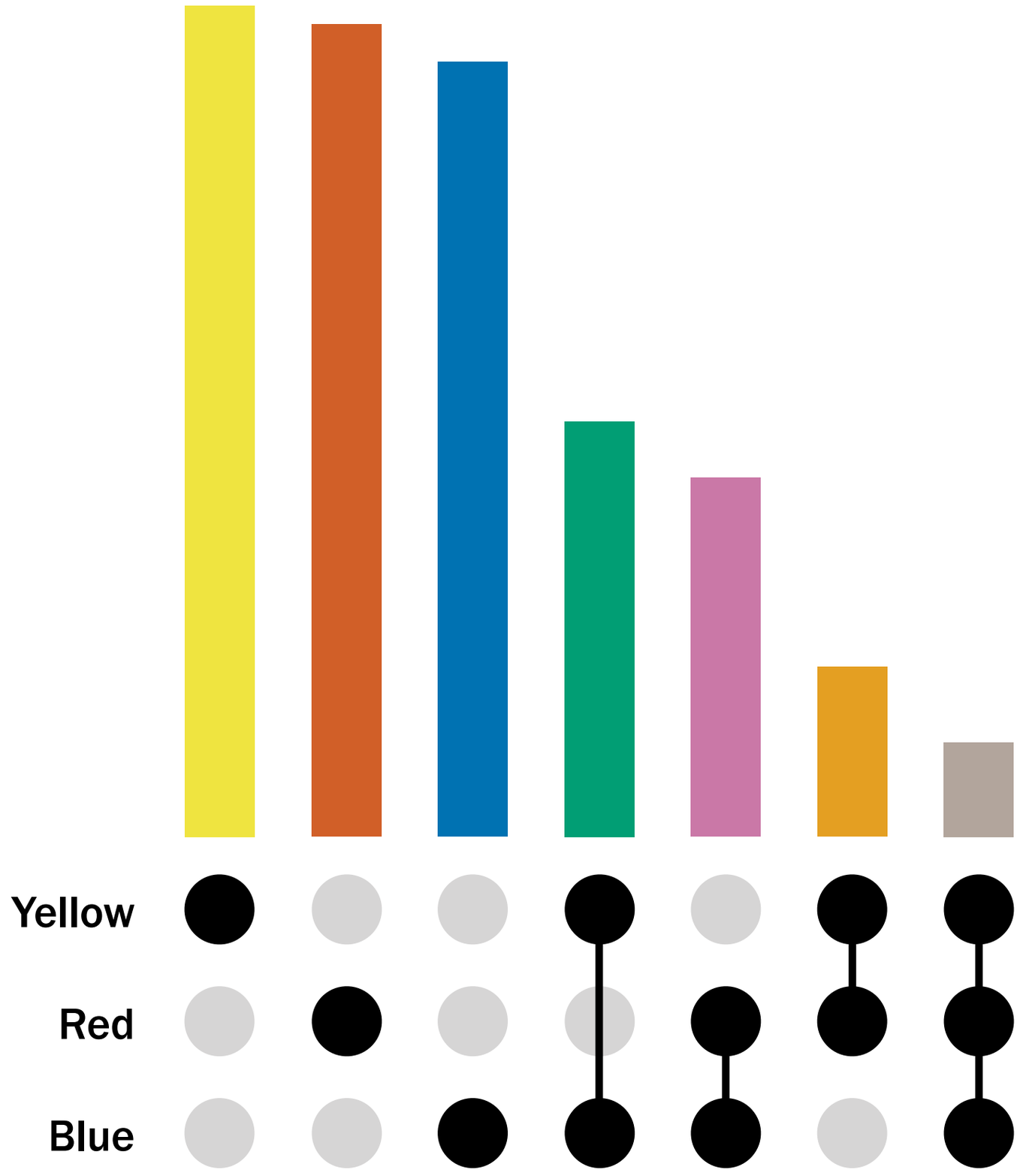
Lex & Gehlenborg, Nature Methods 11, 1 (2014)



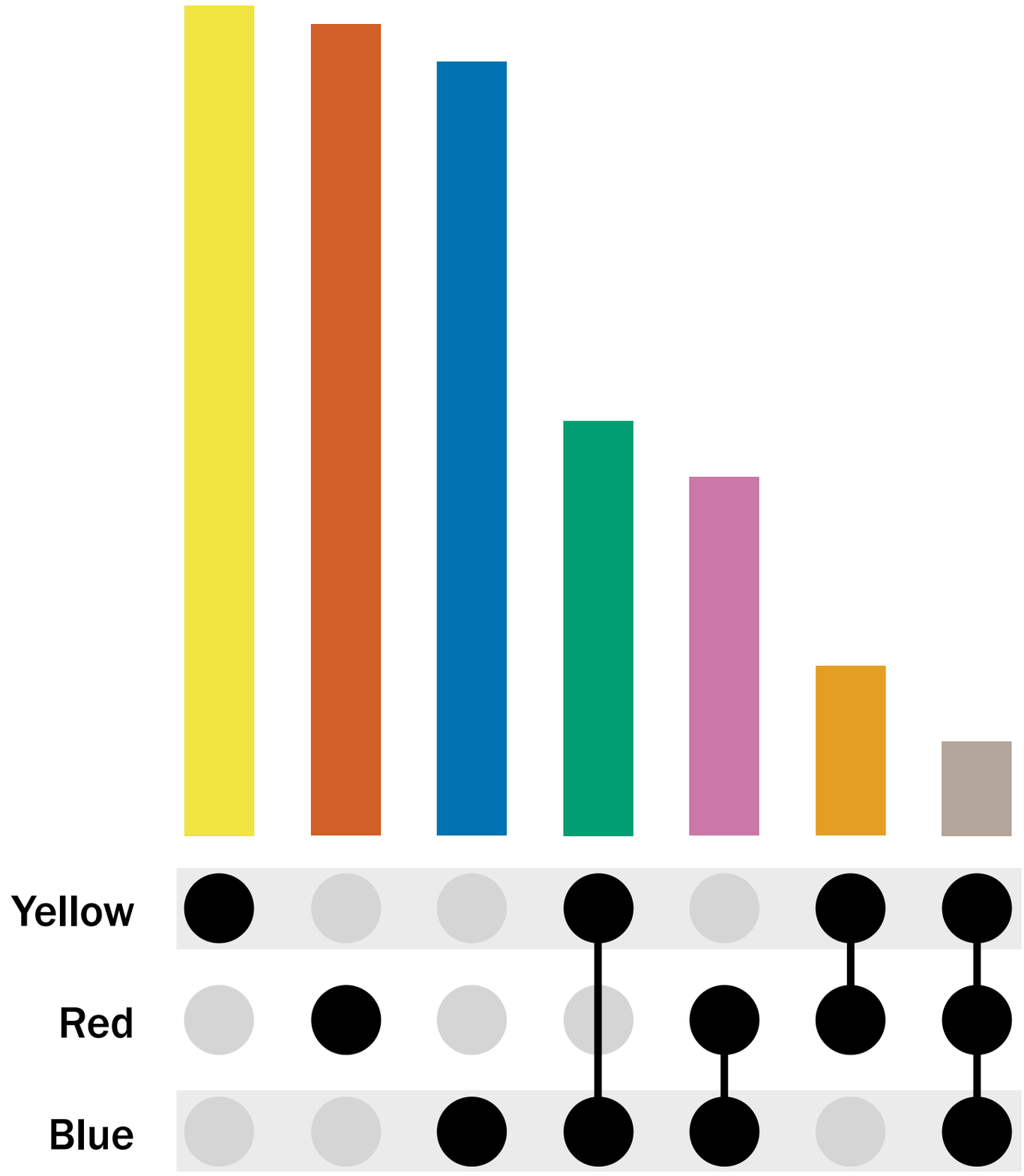
Lex & Gehlenborg, Nature Methods 11, 1 (2014)



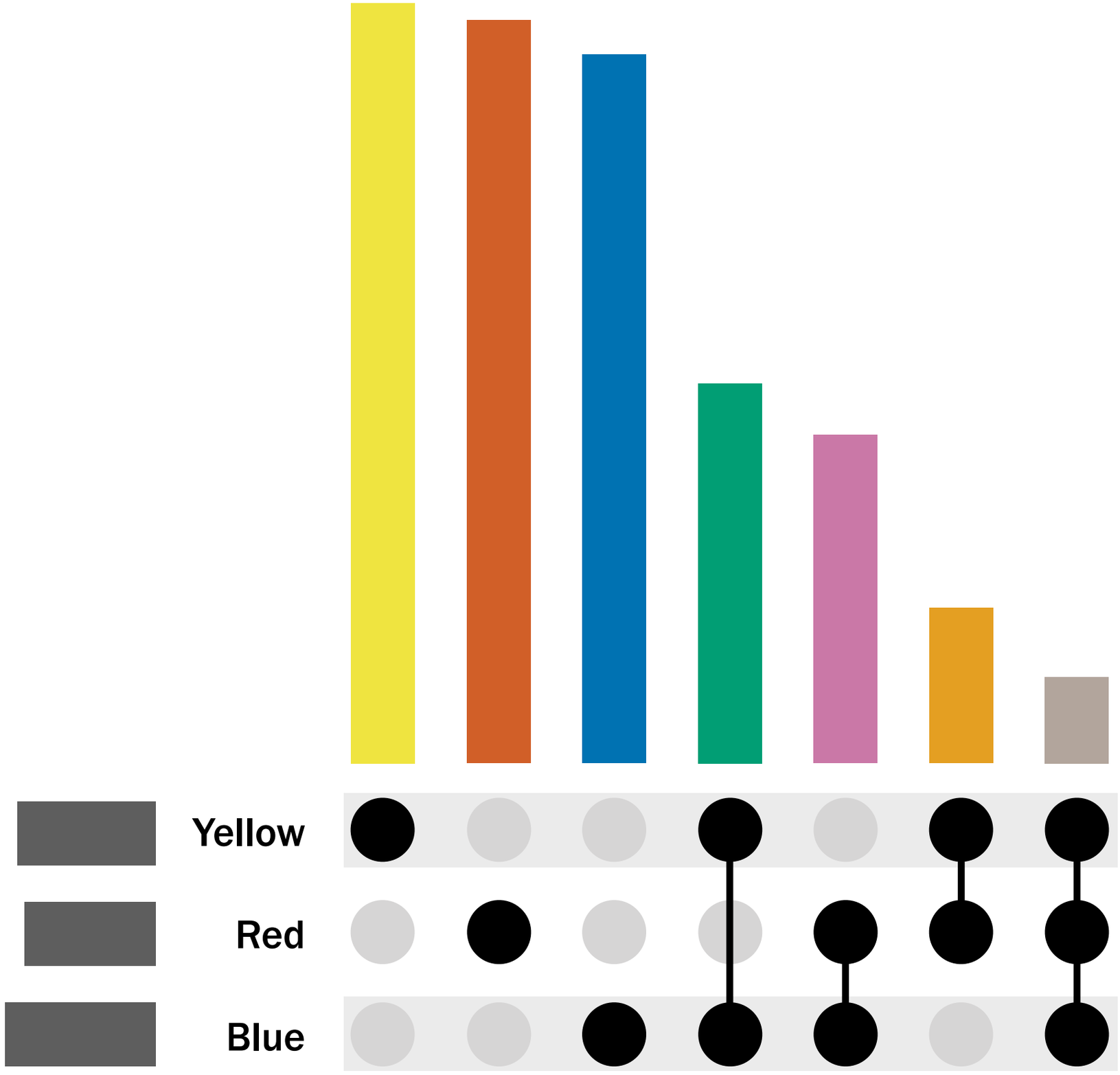
Lex & Gehlenborg, Nature Methods 11, 1 (2014)



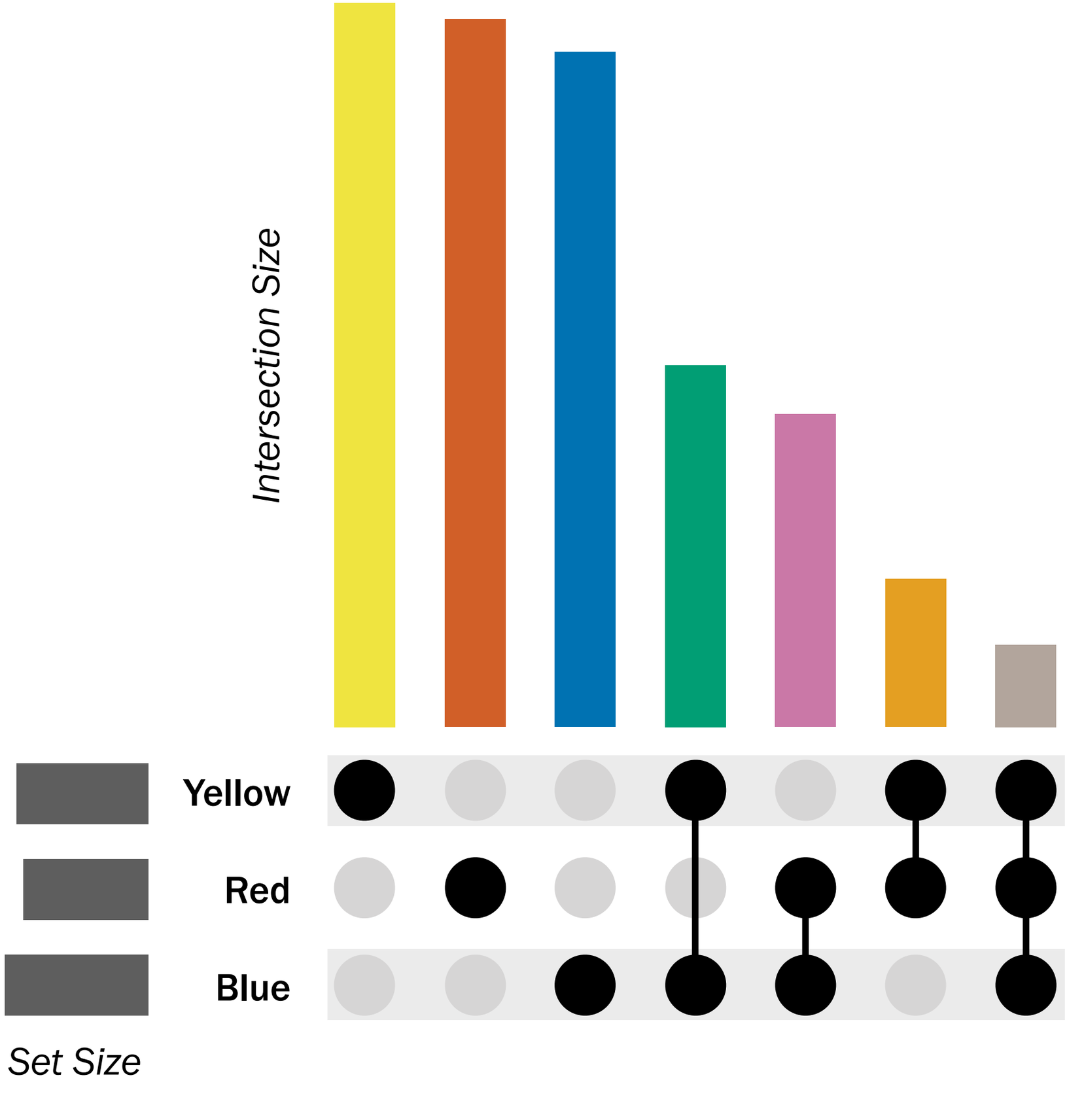
Lex & Gehlenborg, Nature Methods 11, 1 (2014)



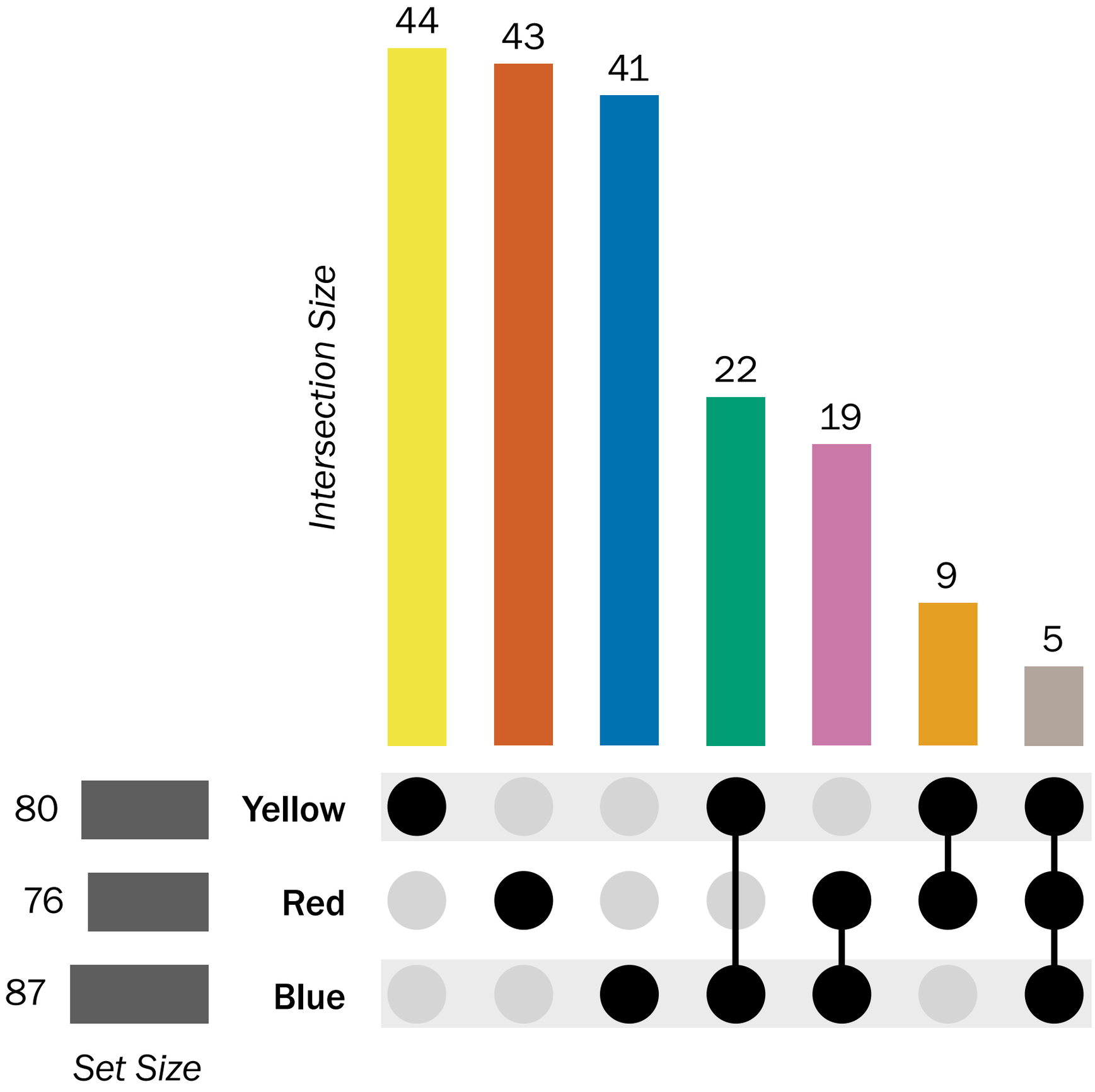
Lex & Gehlenborg, Nature Methods 11, 1 (2014)



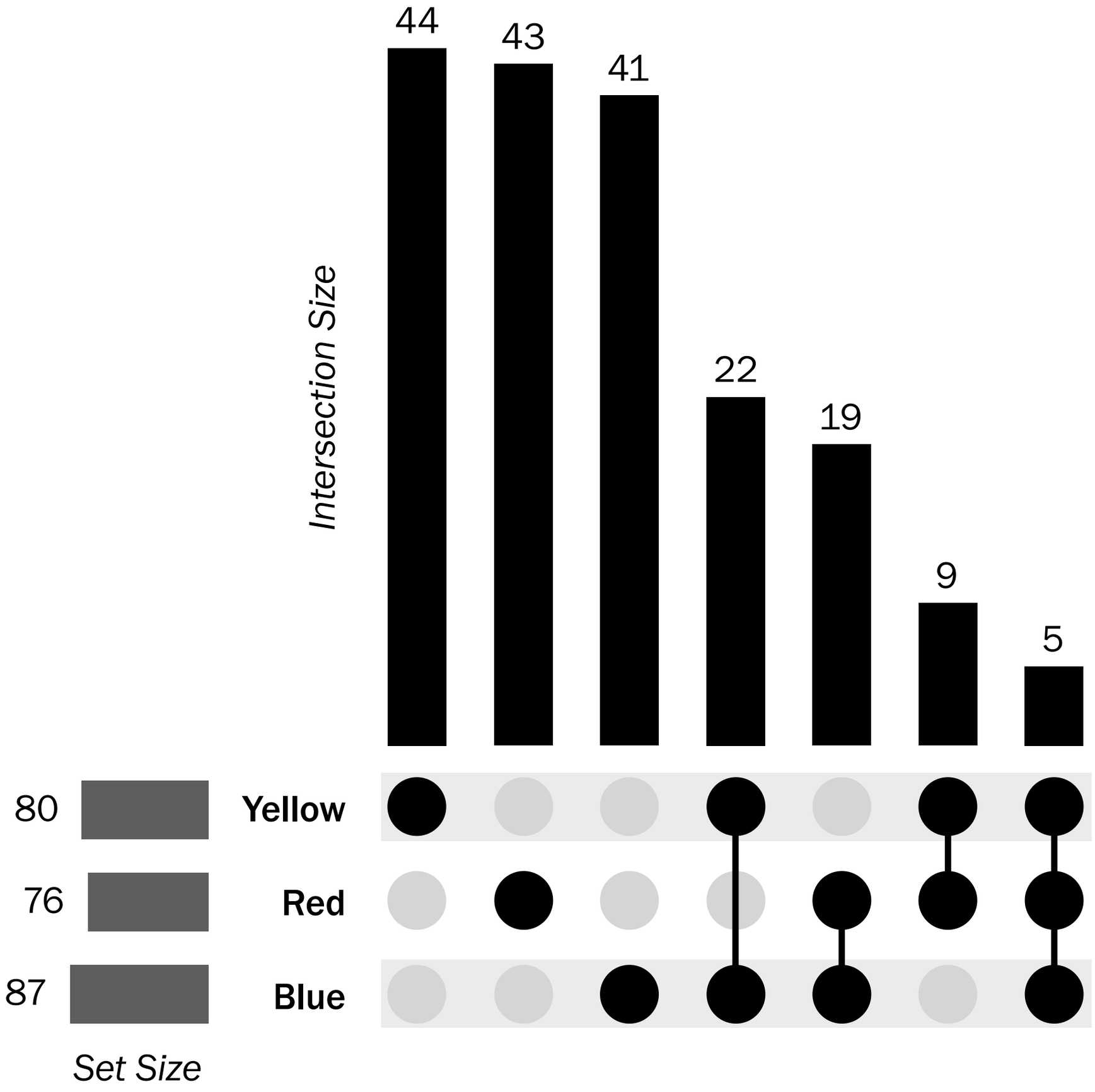
Lex & Gehlenborg, Nature Methods 11, 1 (2014)



Lex & Gehlenborg, Nature Methods 11, 1 (2014)



Lex & Gehlenborg, Nature Methods 11, 1 (2014)



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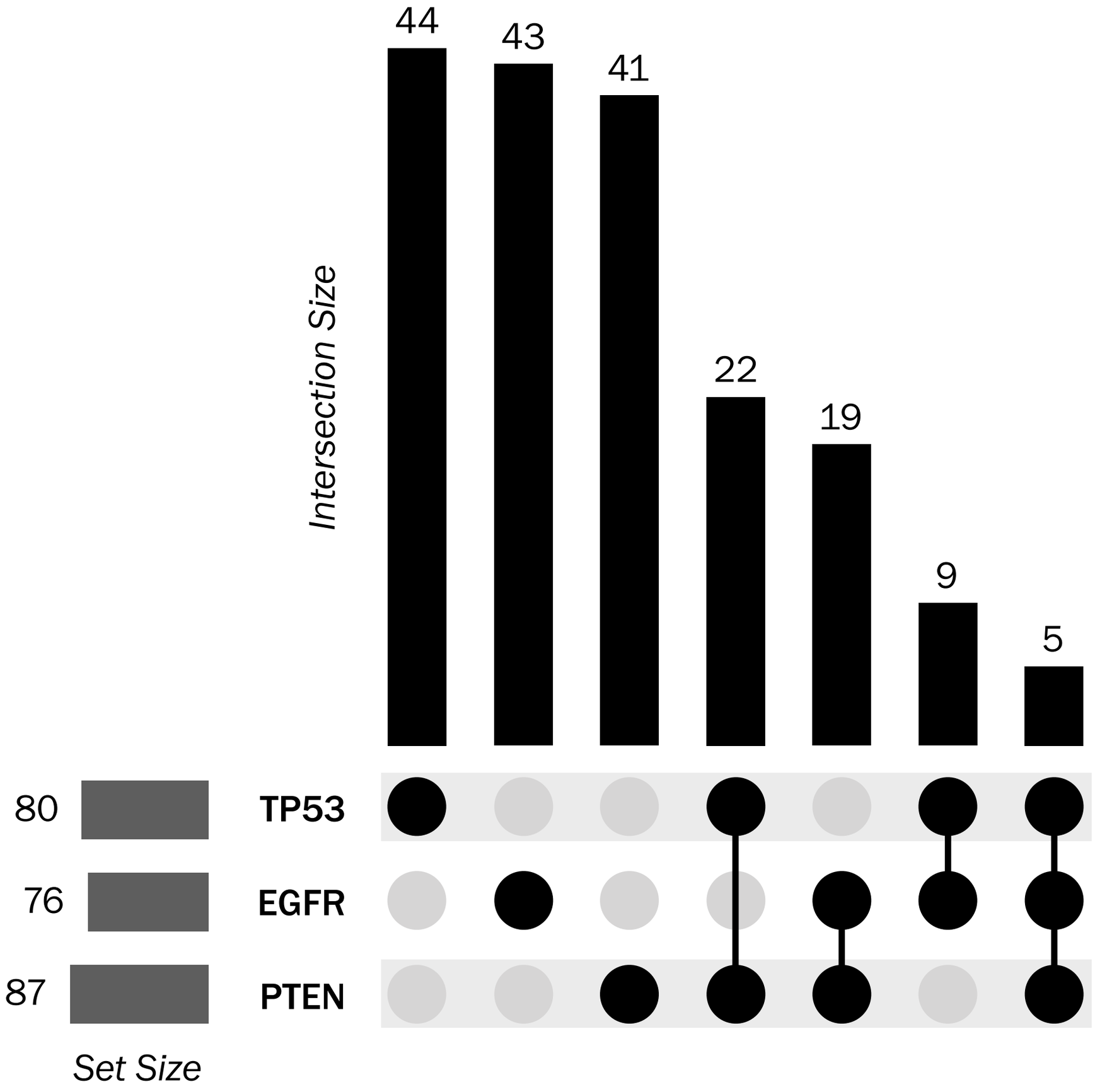

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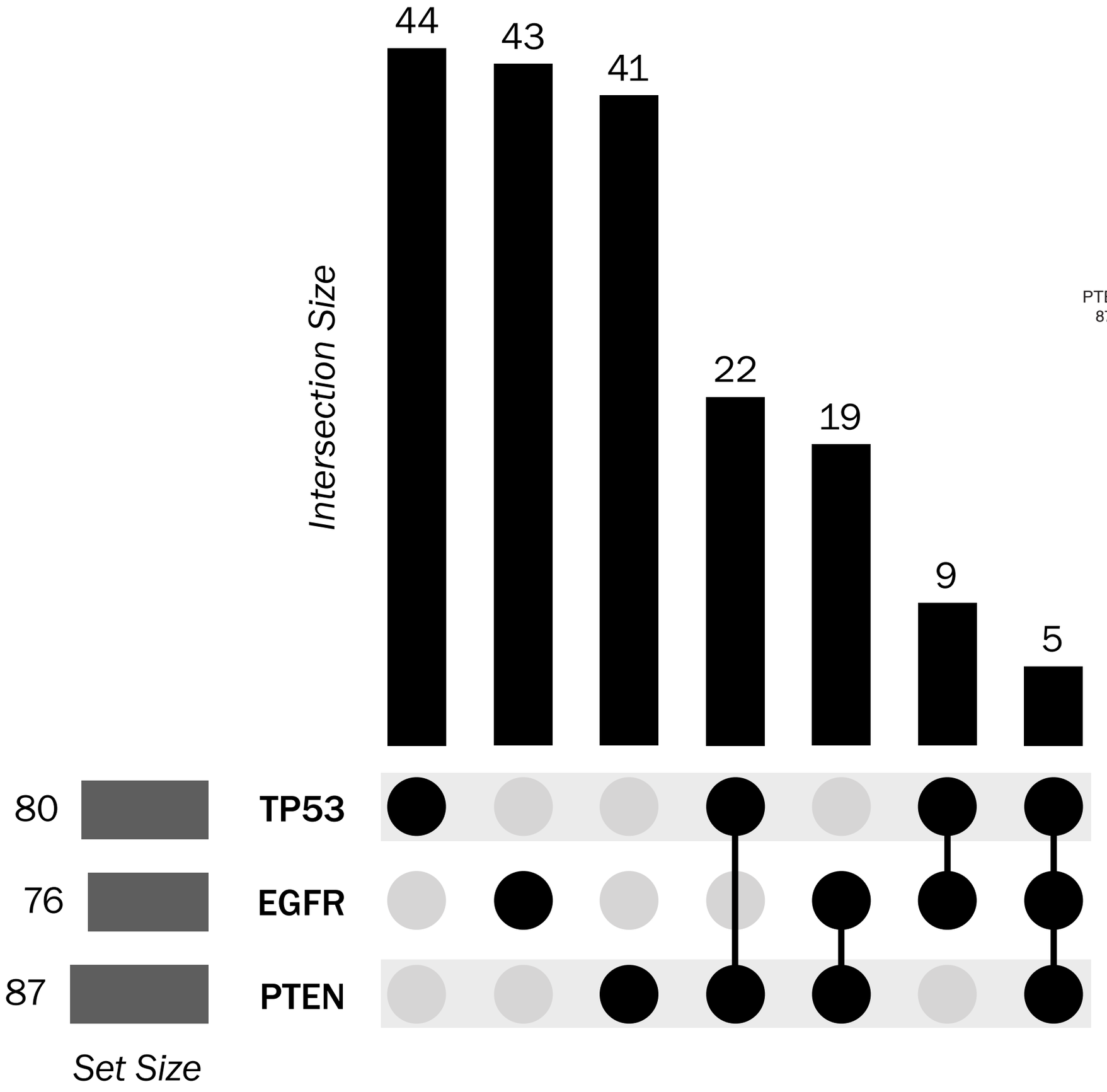

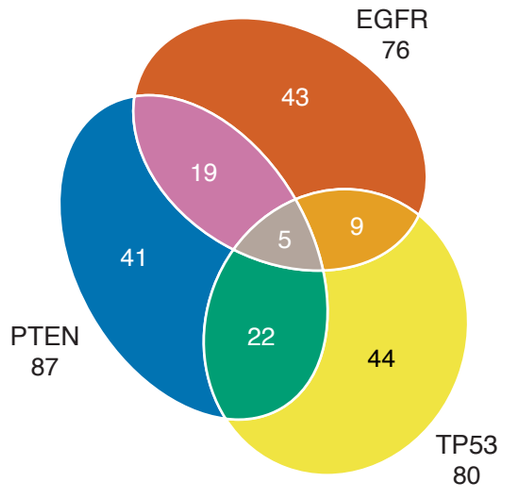

Hey! It's an UpSet Plot!

Bioinformatics, 2017, 1–3
doi: 10.1093/bioinformatics/btx364
Applications Note

Genome analysis

UpSetR: an R package for the visualization of intersecting sets and their properties

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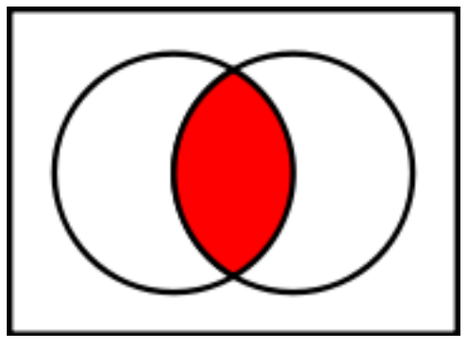
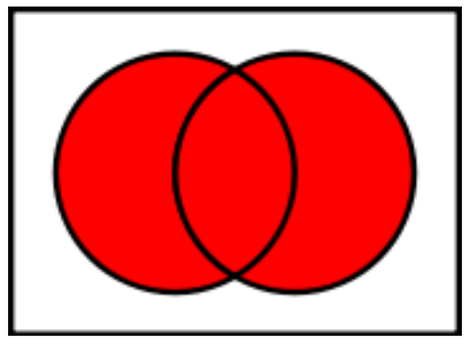
Disclaimer

http://en.wikipedia.org/wiki/Venn_diagram

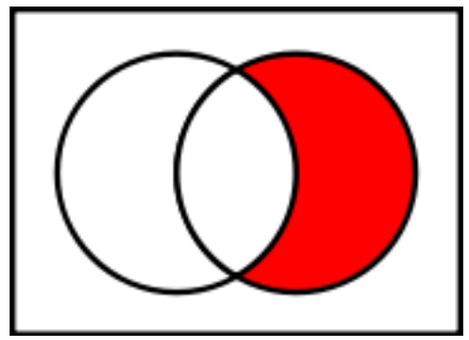
Venn Diagrams are actually very useful!



$A \cap B$



$A \cup B$



$B \setminus A$

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