

DON'T GET FLUMMOXED BY BAD STATISTICS

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EdChoice

“There are three kinds of lies: lies, damned lies, and statistics.”

-Benjamin Disraeli (though this might be a lie)

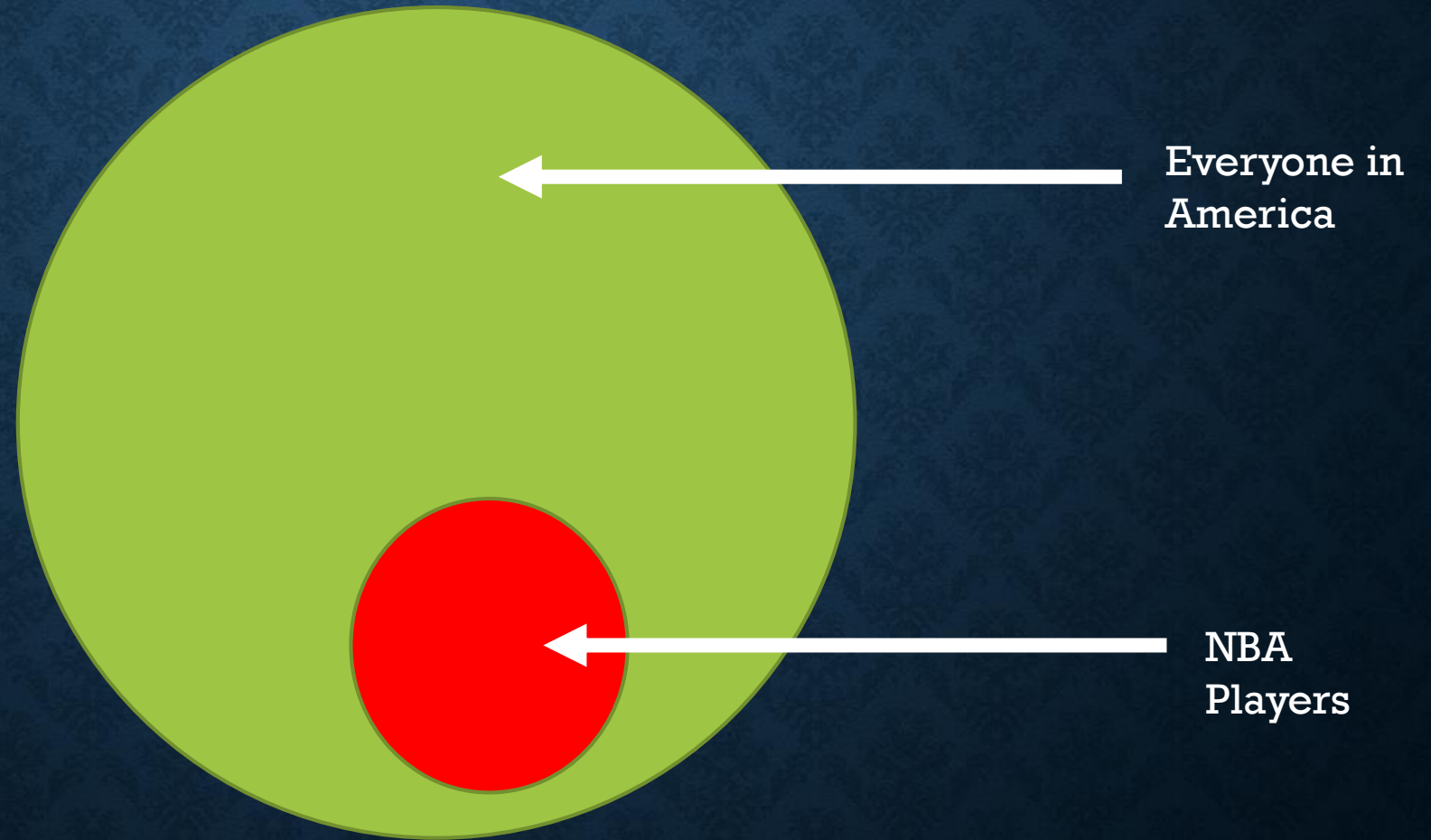
TWO PROBLEMS

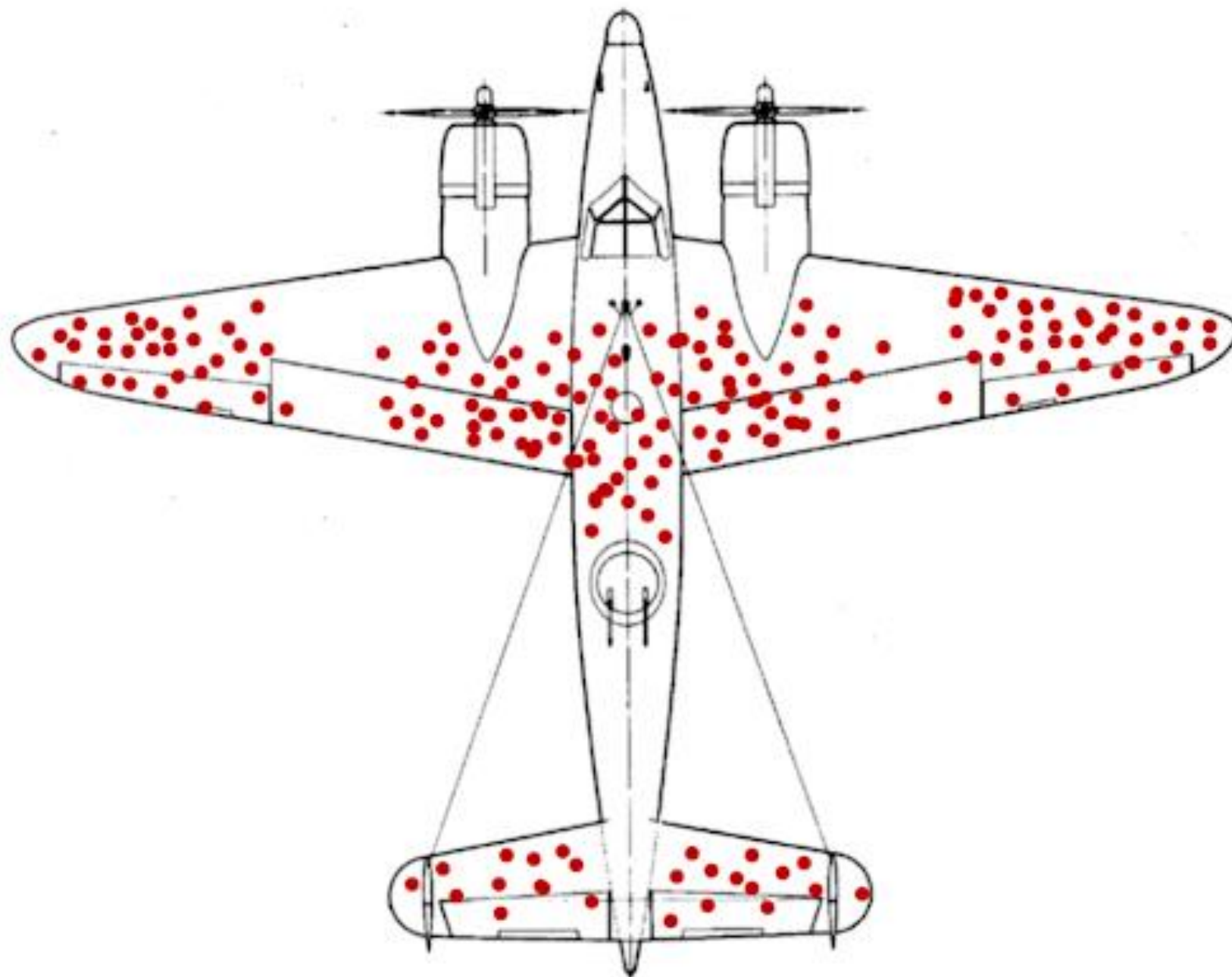
- Bad Comparisons
- Bad Presentations

THE FOUNDATION OF COMPARISONS: SAMPLES



NON-REPRESENTATIVE SAMPLE: HEIGHT





PRESENTATION PROBLEMS

- Y-Axis Problems
- Correlation and Causation
- Denominator Problems
- Compared to what?

Case Study: School Integration

Y-AXIS PROBLEMS

Cars sold this year, by month

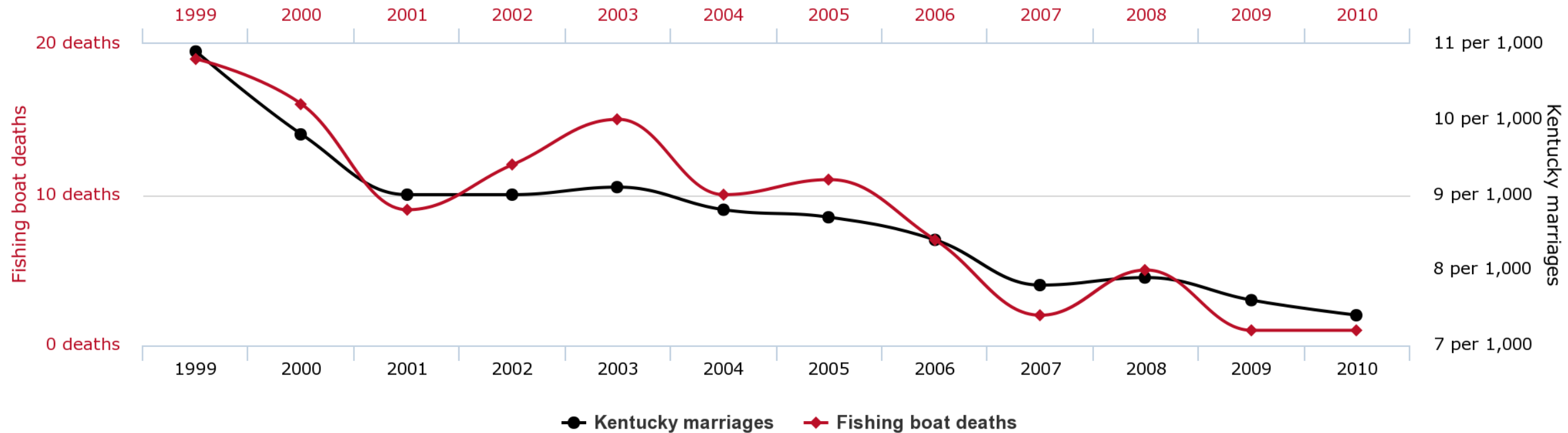


Cars sold this year, by month



CORRELATION IS NOT CAUSATION

People who drowned after falling out of a fishing boat correlates with Marriage rate in Kentucky



DENOMINATOR PROBLEMS

DRINKING A TALL WHISKEY EVERY NIGHT DOUBLES YOUR CHANCE OF HEART DISEASE!

- Well, what is the underlying rate?
- Going from a 1 in a million chance to a 2 in a million chance is doubling the chance of something, but it is still very unlikely.
- Common with rare things, a small change in numbers can look big percentage-wise.

COMPARED TO WHAT?

Researchers fed children broccoli every day for six months. Six months later, on average students were two inches taller. They concluded that broccoli causes children to grow.

What is the problem here?

A REAL WORLD EXAMPLE: THE CENTURY FOUNDATION AND SCHOOL INTEGRATION



REPORT SCHOOL INTEGRATION

Do Private School Vouchers Pose a Threat to Integration?

MARCH 21, 2017 — HALLEY POTTER

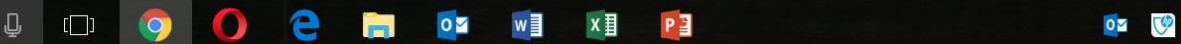
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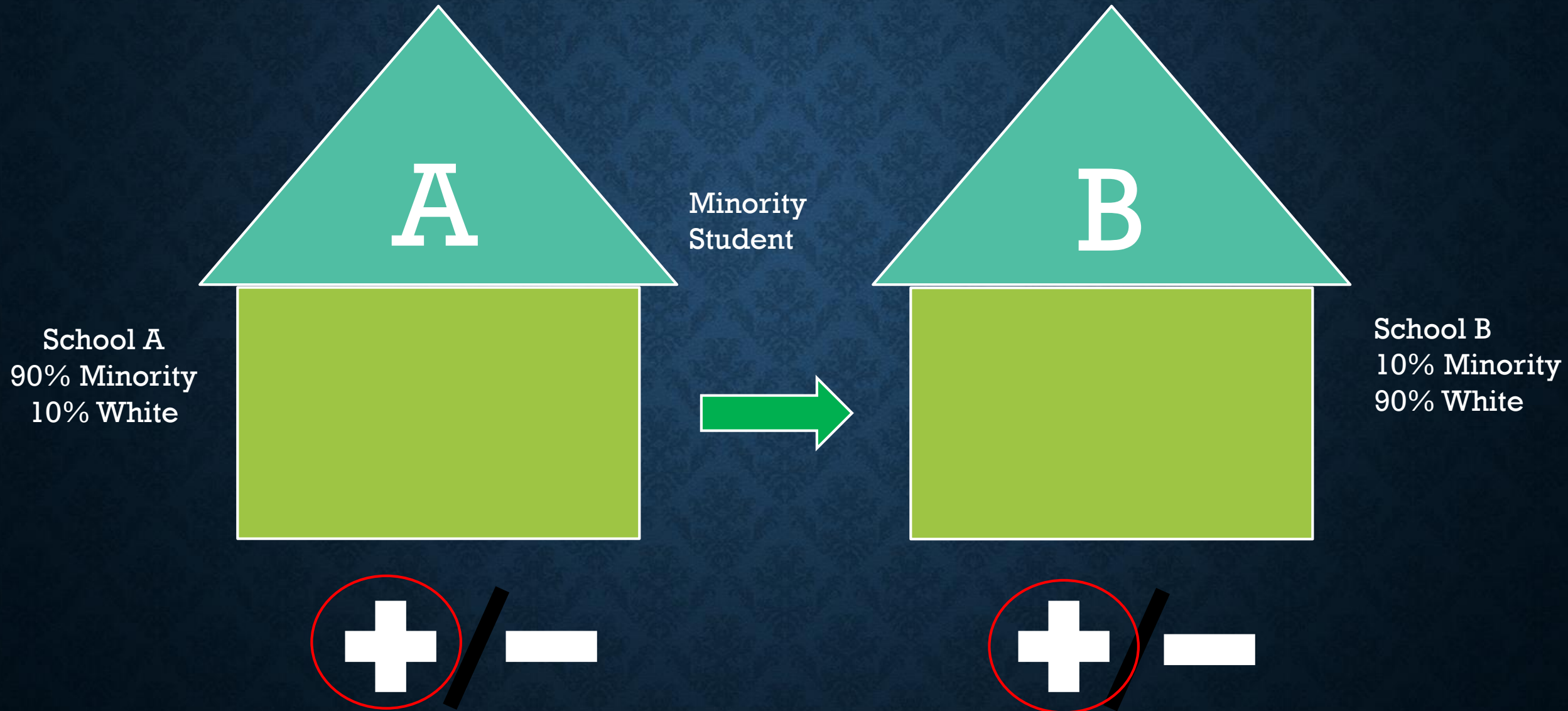
HALLEY POTTER
SENIOR FELLOW

t e

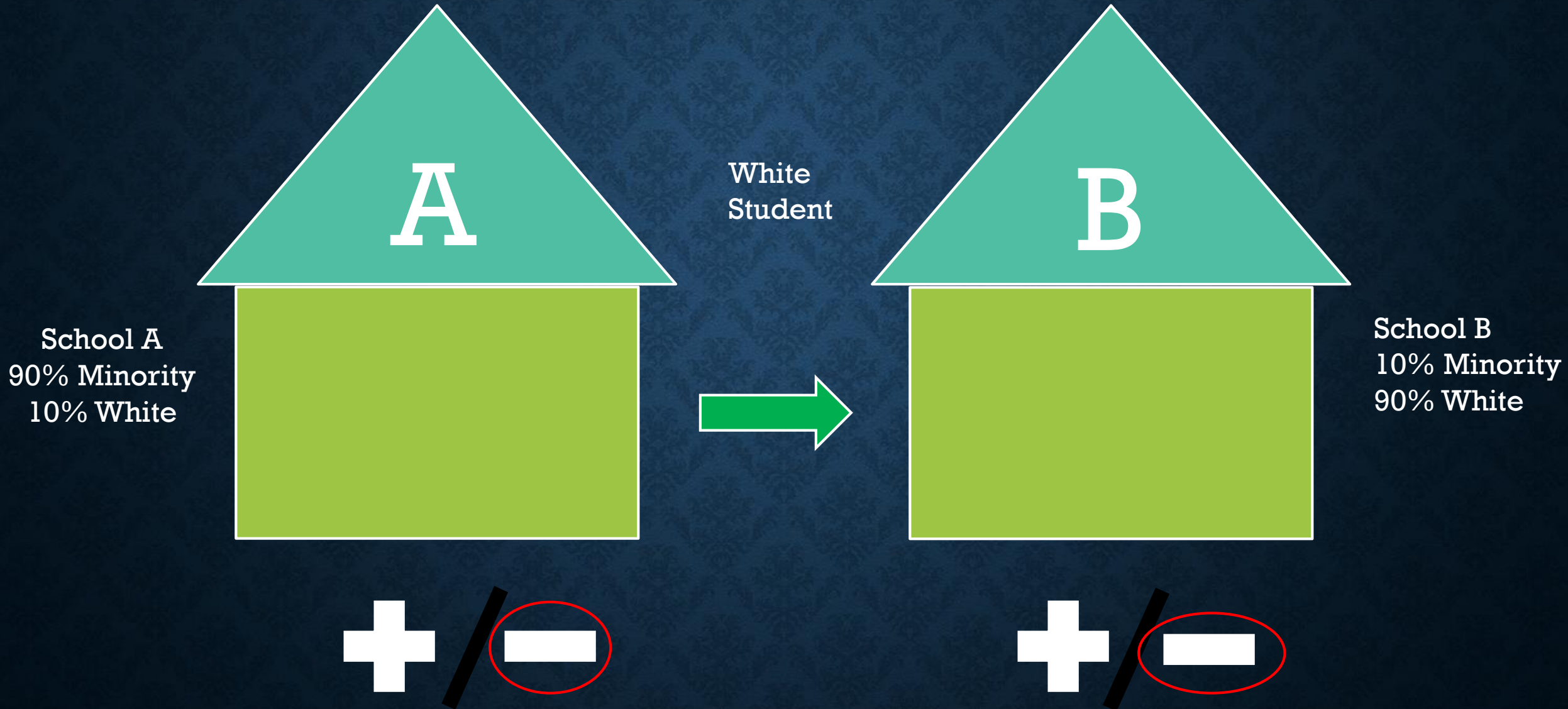
One of the few ways in which Donald Trump's presidential campaign addressed the issue of education was through a dramatic promise to create a \$20 billion school choice program, including private school vouchers or similar initiatives that fund private school tuition.¹ While the political future of the \$20 billion proposal is unclear, finding ways to use public dollars to fund private school



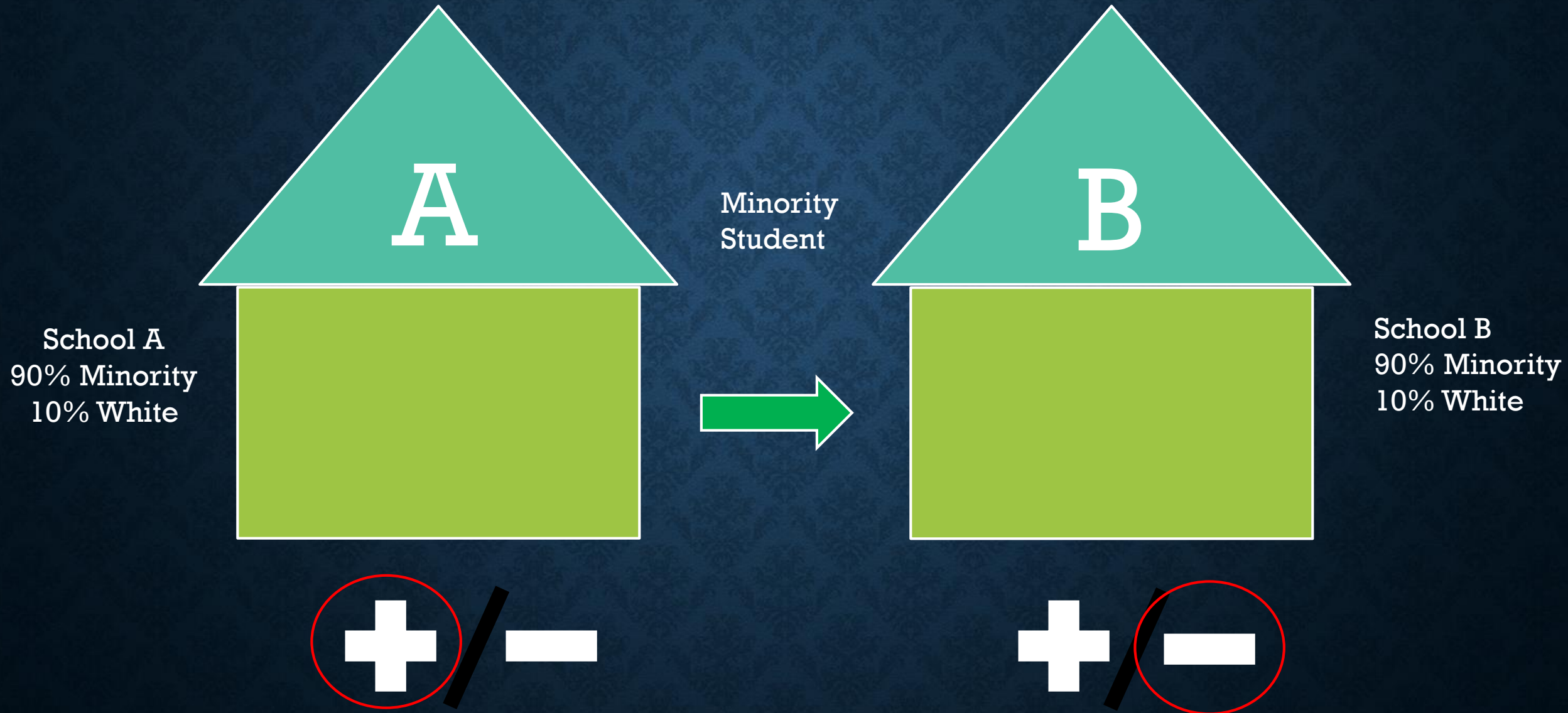
STUDYING INTEGRATION



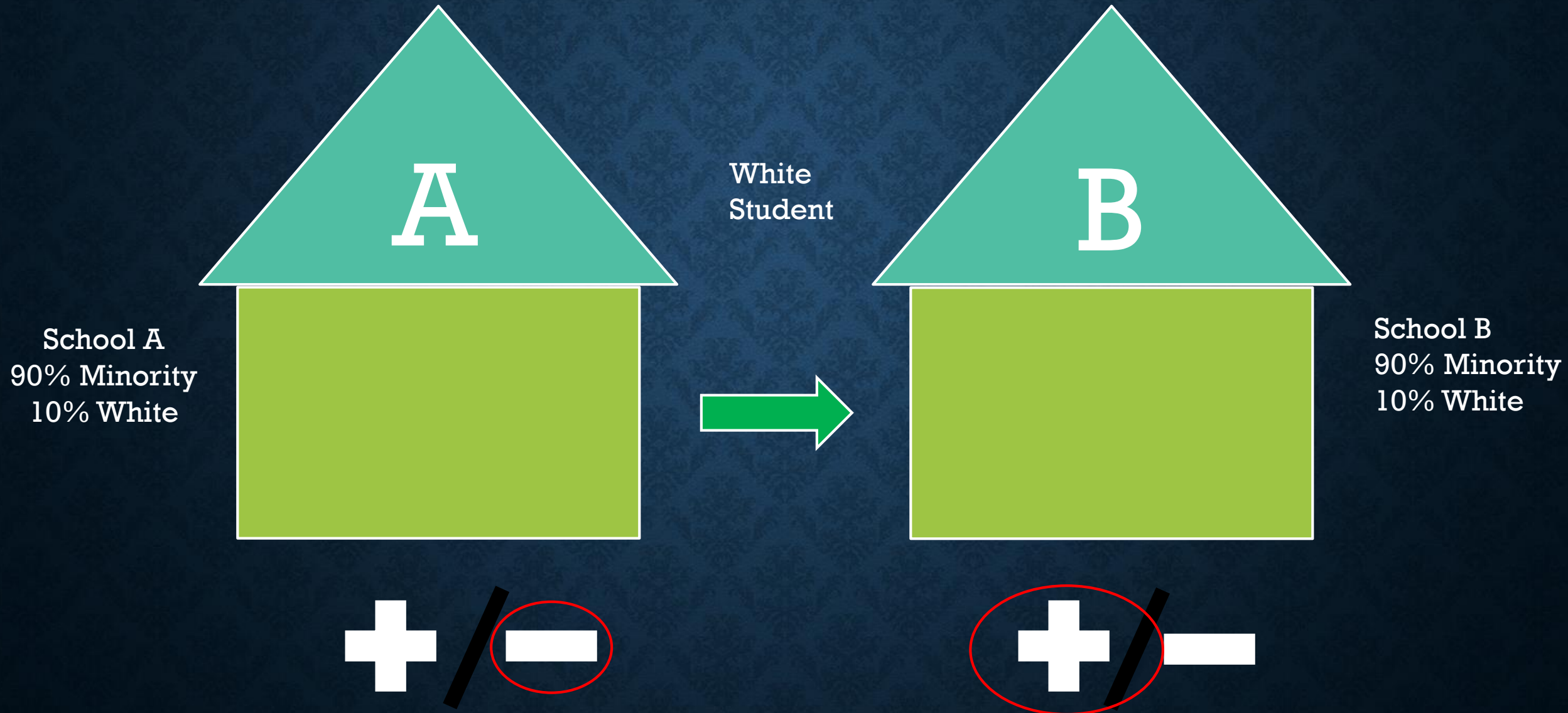
STUDYING INTEGRATION



STUDYING INTEGRATION



STUDYING INTEGRATION



EGALITE, MILLS, AND WOLF (2016)

“A third of all voucher transfers resulted in more integrated public and private schools, an additional 57 percent of transfers had mixed effects (positive effects in one sector, negative effects in another), and just 9 percent of transfers had negative effects.”

Receiving School

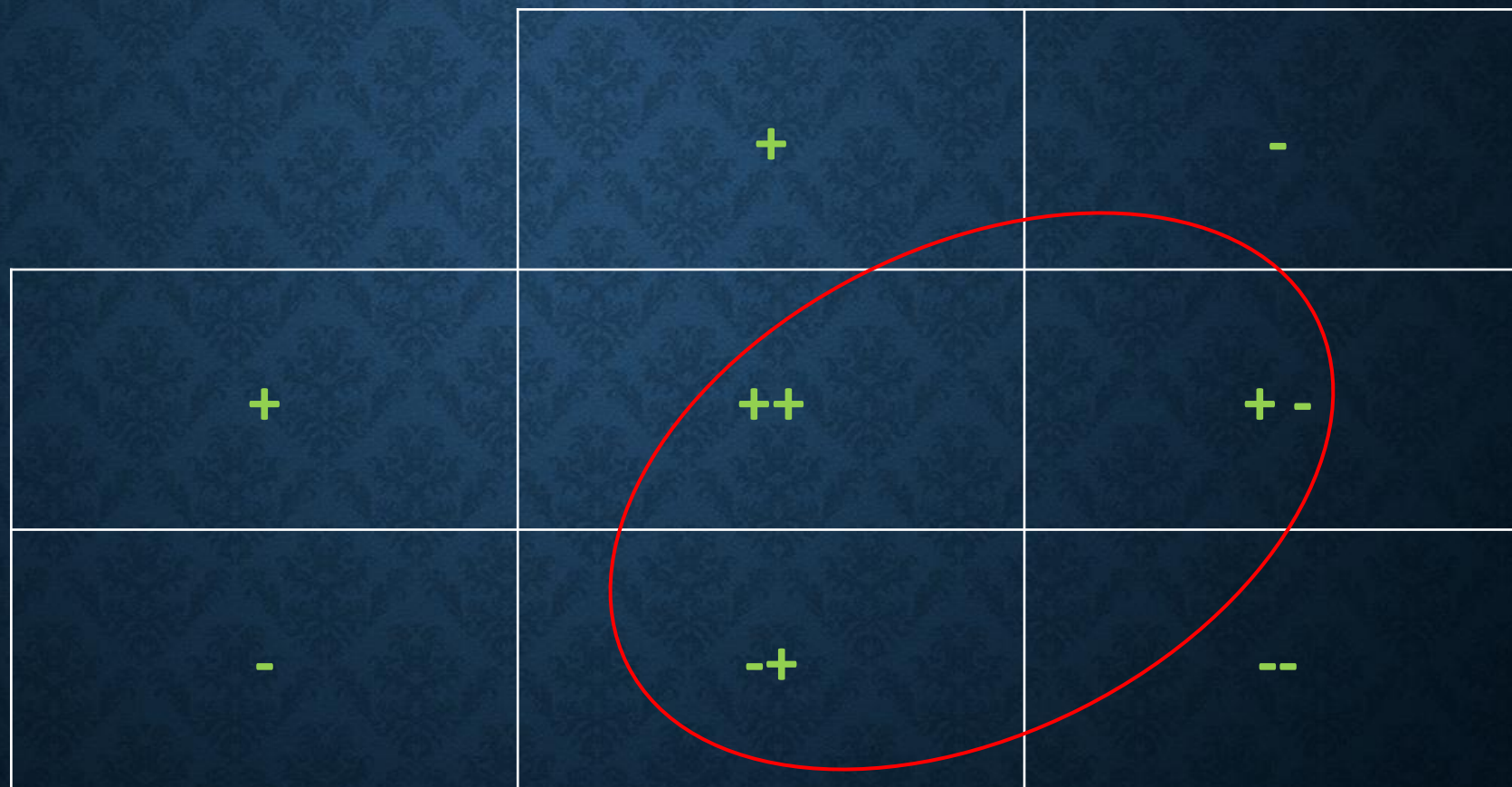
Sending School

	+	-
+	++	+ -
-	-+	--

Receiving School

Sending School

		+	-
+		++	+ -
-		-+	--



Receiving School

Sending School

	+	-
+	++	+ -
-	-+	--



CENTURY FOUNDATION

“About a third (34 percent) of the voucher transfers had a positive effect on school integration by moving students from public schools where their race was overrepresented to private schools where their race was underrepresented. However, **two-thirds of the transfers had negative or mixed effects**, increasing segregation in one or both sectors. In 9 percent of transfers, students moved from a public school where their group was underrepresented to a private school where their race was overrepresented, having a negative effect on integration in both sectors.”

HOW NOT TO GET FOOLED BY STATISTICS

- Ask “compared to what?”
- Ask about samples: characteristics, averages, outliers
- We look at the framing and ask if it is fair
- When in doubt, give us a shout and we can look at a study for you