A FIELD GUIDE
INCOGNATI · SPECIMEN SERIES No. 3

Charts that *want to persuade you* but *need* a *second look*

Four ways a chart can be built entirely from real numbers and still lead you to the wrong conclusion — real, documented cases, with the tell that gives each one away.

BEFORE YOU BEGIN

How This Guide Works

Every specimen here is a real, published chart — from a newsroom, a government agency, or a landmark book on statistics, not invented for the lesson. Sources are cited at the bottom of each plate so you can check the checking.

Field Guides No. 1 and No. 2 covered how claims get framed, spread, and misinterpreted. This edition zooms in on the picture itself — the axis, the scale, the icon — since a chart can distort a true number without a single fact being wrong.

OBSERVED SPECIMEN
The real chart, and the visual choice that changed what it seemed to show.

FIELD MARK
The one question that exposes the pattern, every time it resurfaces.

SPECIMENS IN THIS EDITION

CHART DISTORTION
SPECIMEN · NO. 01

PLATE I

Truncated Y-Axis

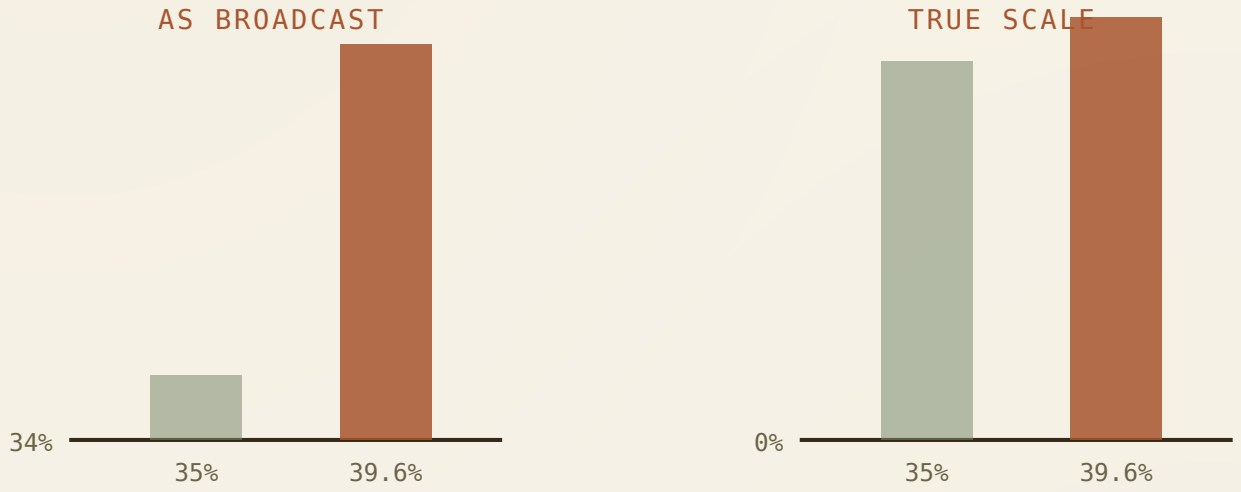
Axis Amputata

First observed 2012 **Status** Recurring technique across media

OBSERVED SPECIMEN — FOX NEWS BROADCAST GRAPHIC, AUG. 2012

A Fox News chart comparing the top U.S. tax rate now to the rate if the Bush-era cuts expired started its y-axis at **34%** *instead of 0%. The bar for the higher rate (39.6%) appeared roughly five times taller than the bar for the current rate (35%) — a real gap of just 4.6 percentage points, stretched to fill the entire chart.*

CHART RECONSTRUCTION — ILLUSTRATIVE, REDRAWN TO MATCH REPORTED VALUES



Same two numbers, two axis choices — a 4.6-point gap rendered as five-to-one, or rendered honestly.

THE HOOK

A bar chart's whole visual grammar is height — a bar five times taller reads as "five times more," even when the axis has been sliced to make it look that way.

THE MECHANISM

Starting the axis above zero doesn't change any number on the chart — it changes how much of the chart's height that number is allowed to fill.

Field mark: check where the y-axis actually starts. If it isn't zero, ask whether that choice is justified by the data — or whether it exists purely to stretch the difference.

CASE VERIFIED — widely documented, including FlowingData analysis, Aug. 2012; Media Matters archive.

CHART DISTORTION
SPECIMEN · NO. 02

PLATE II

Dual-Axis Deception

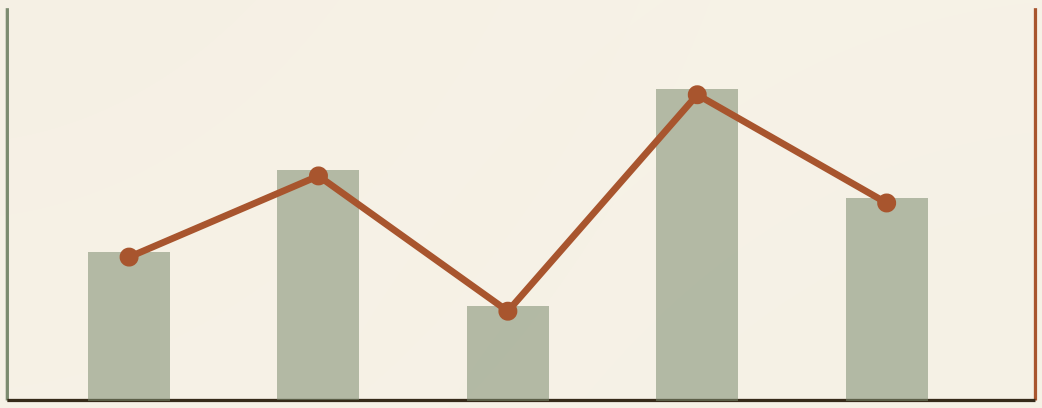
Duplex Mensura

First observed Recurring technique **Status** Documented in statistics-literacy literature

OBSERVED SPECIMEN — BAR-AND-LINE COMBO CHART, TWO INDEPENDENTLY SCALED AXES

A chart compares two unrelated measures — bars on a left axis, a line on a right axis — with each axis independently rescaled until the line's peaks land on top of the bars' peaks. Readers see two trends moving in lockstep; in fact, the two axes were adjusted separately until the shapes lined up, regardless of what either number actually measured.

CHART RECONSTRUCTION — ILLUSTRATIVE, REDRAWN TO MATCH REPORTED VALUES



Bars and line appear to move together — only because the right axis was stretched until they did.

THE HOOK

Two series that visually rise and fall together look connected — the eye doesn't check whether the two axes even share a unit.

THE MECHANISM

With two independent axes, either scale can be stretched or shifted until almost any two unrelated series appear to move together.

Field mark: whenever a chart has two y-axes, check what each one actually measures and where each one starts — an unlabeled or rescaled second axis is the tell.

CASE VERIFIED — documented technique analysis, Calling Bullshit (Bergstrom & West, Univ. of Washington), callingbullshit.org.

CHART DISTORTION
SPECIMEN · NO. 03

PLATE III

Inverted / Reversed Axis

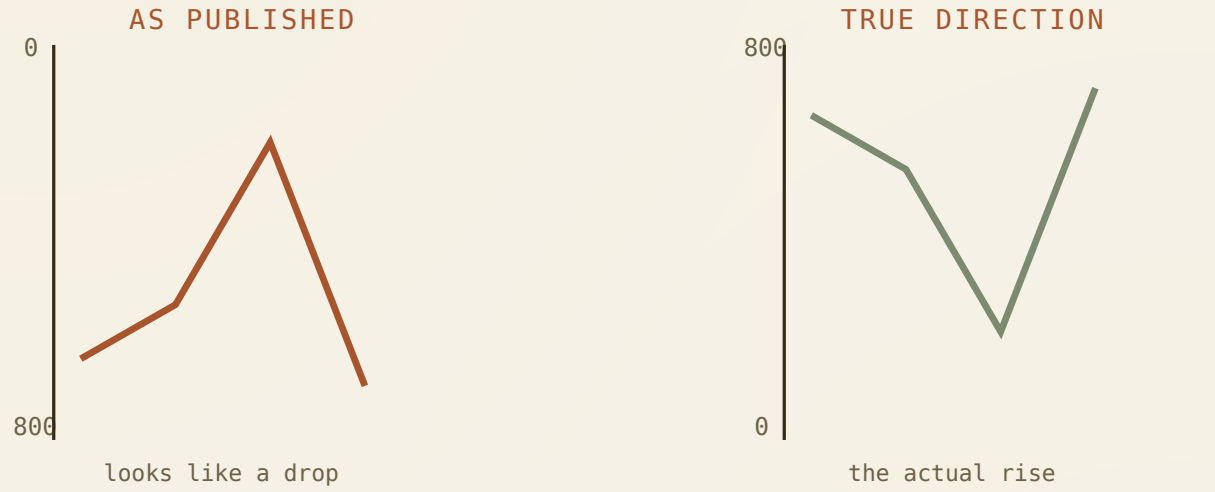
Axis Inversa

First observed Feb. 2014 **Status** Recirculated repeatedly since, incl. 2021

OBSERVED SPECIMEN — REUTERS GRAPHIC ON FLORIDA GUN DEATHS, FEB. 2014

A Reuters chart tracking Florida gun deaths after the state's 2005 "Stand Your Ground" law used a y-axis that counted **downward** *— zero at the top, 800 at the bottom — styled to resemble dripping blood. Gun deaths actually rose sharply after 2005, but the rising line moved visually downward, making many readers conclude deaths had fallen.*

CHART RECONSTRUCTION — ILLUSTRATIVE, REDRAWN TO MATCH REPORTED VALUES



Identical underlying values — the left axis counts downward, the right axis counts up.

THE HOOK

Nearly everyone reads "line going up" as "number going up" — the convention is so automatic that a flipped axis overrides the data itself.

THE MECHANISM

Flipping which direction represents "more" doesn't change a single data point, but it inverts the story the shape appears to tell.

Field mark: before reading a line's direction as a trend, check which way the axis actually counts — up isn't always up.

CASE VERIFIED — Reuters graphic by Christine Chan, Feb. 2014; widely analyzed by Junk Charts, Pacific Standard, and Sociological Images.

Non-Proportional Icon Scaling

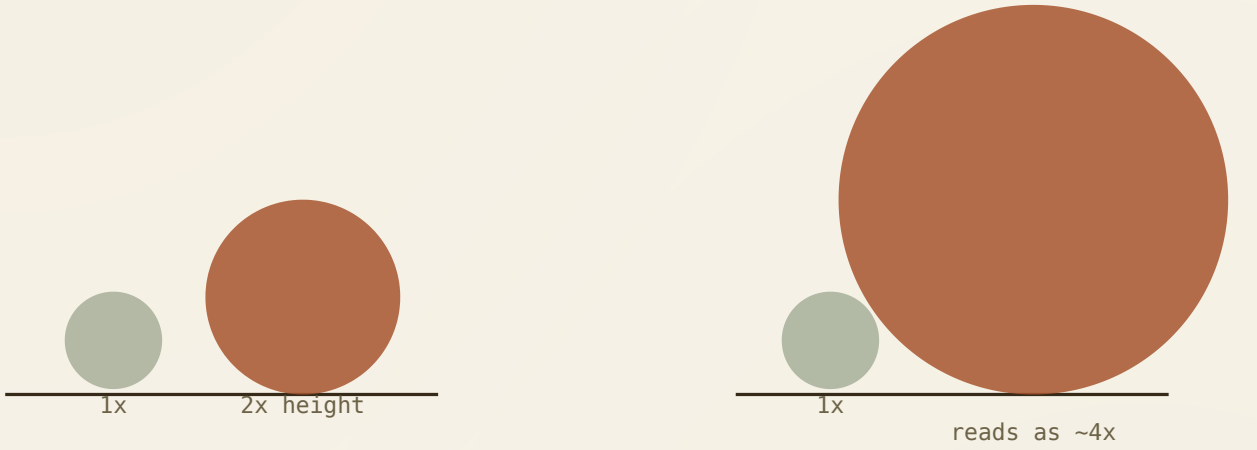
Icon Non Proportio

First observed 1954 **Status** Still common in infographics today

OBSERVED SPECIMEN — "THE CRESCIVE COW," HOW TO LIE WITH STATISTICS

To illustrate a doubling of the U.S. dairy-cow population, an infographic doubled both the **height and width** *of a cow icon between two years. Doubling both dimensions quadrupled the icon's visible area — so a 2x increase in the real number appeared, visually, to be a 4x increase.*

CHART RECONSTRUCTION — ILLUSTRATIVE, REDRAWN TO MATCH REPORTED VALUES



Both circles represent a 2x increase — only the right one scales area instead of just height.

THE HOOK

An icon that's twice as tall and twice as wide looks like it represents a much bigger jump than "twice as much" — area grows faster than height.

THE MECHANISM

A single number should scale one dimension. Scaling an icon in two (or three) dimensions at once multiplies the visual impression far beyond the real change.

Field mark: when a comparison uses picture size instead of a bar, check whether only height changed — if the image also got wider, the visual gap is exaggerated.

CASE VERIFIED — Darrell Huff, How to Lie with Statistics, 1954, illustrated by Irving Geis; widely cited in data-visualization literature since.

Closing Plate · Field Method

Reading a Chart: A Visual Gut Check

five questions to ask before a picture changes your mind

1 **Check the baseline**
Does the axis start at zero? If not, ask whether that's justified — or just makes the gap look bigger.

2 **Check both axes**
Two lines sharing a chart — do they share one axis, or has a second axis been quietly rescaled to fit?

3 **Check the direction**
Does "up" on the chart actually mean what you'd assume? Confirm which way the axis counts.

4 **Check the shape**
Are icons or images scaled by height only, or has width grown too? Area exaggerates far faster than height.

5 **Check the source**
Can you find the underlying numbers behind the picture? A chart you can't verify is a claim, not evidence.

INCOGNATI

The Atlas Goes Deeper

This guide covers four specimens; Field Guide No. 1 covers twelve patterns in how false claims get framed and spread, and No. 2 covers eight more in how accurate data gets misread. The Incognati Atlas catalogs thousands more — biases, fallacies, distortions, and manipulation patterns, each one documented the same way: real case, real source, real tell.
