

Otiganji? → see Stanford P.D. professor  
or others' geometric designs

crown/claw problem up



Alan's idea:  
attach the wires to  
the middle fulcrum



# Visual Design

SCOTT KLEMMER

FALL 2010

cs147.stanford.edu

Bill: copyright

visualization of life



Scot: PACHINKO  
passive gate array



Scot: a gate that shows  
who walked through it last

Bill: a gate that measures  
ceremonial gates



# How Might We Improve This? And What Would the Objective Function be?

You're invited to Zelda's 30th Birthday Party! Please come dressed as your favorite Gilbert and Sullivan character. Children are welcome. Dinner will be served; if you'd like to bring food, call Stacy at 555-1212. When: October 20th, at 7:00 PM Where: Zelda's house. If you need directions, feel free to call Zelda and ask. Please RSVP to Stacy by October 10th. See you there!

# Use whitespace to make groupings obvious

“Some space must be narrow so that other space may be wide, and some space must be emptied so that other space may be filled.”

- Robert Bringhurst

*Elements of Typographic Style*

# Can We Do Better Still?

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# Use size contrasts to indicate hierarchy

“Information consists of  
differences that  
make a difference.”

- Edward Tufte

*Envisioning Information*

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**GOTHAM**  
A FONT WE CAN BELIEVE IN

Jonathan Hoefler & Tobias Frere-Jones, *Gotham*,



New Baskerville



Optima

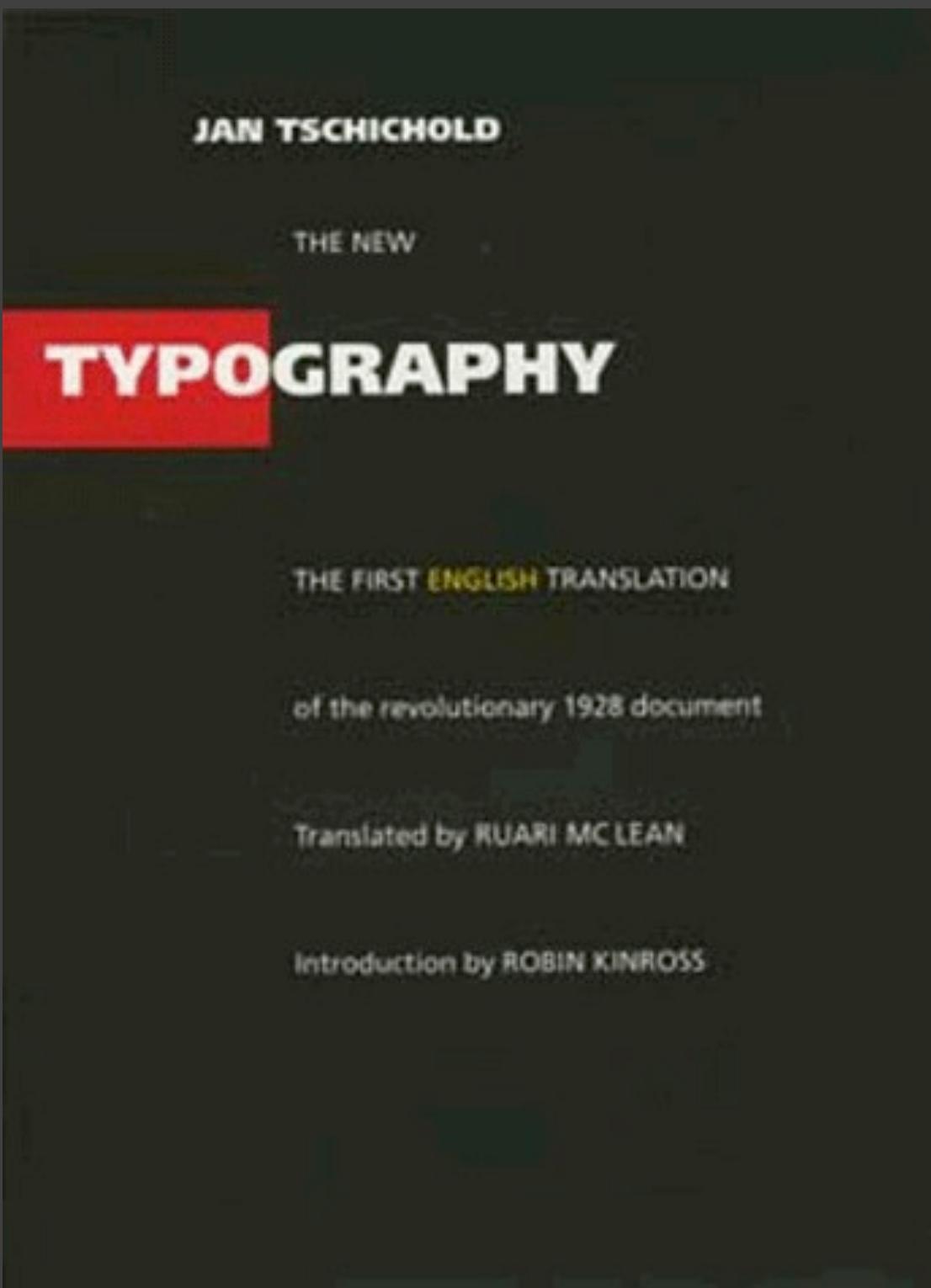


A large, bold, black Gill Sans capital letter R is centered on a white background. The letter is rendered in a sans-serif font, characterized by its clean, geometric shapes and lack of decorative flourishes. The 'R' is a single, continuous black stroke, starting with a vertical stem on the left, followed by a horizontal loop at the top, and a diagonal leg on the right.

Gill Sans, designed by Eric Gill and released  
by the Monotype Corporation in 1928

# Jan Tschichold's Revolution

- Champion of Modernist Typography



*Die Neue Typographie* Berlin,  
1928

Bauhaus school  
Dessau, 1925-26



“In anything at all, perfection is attained not when there is no longer anything to add, but when there is no longer anything to take away.”

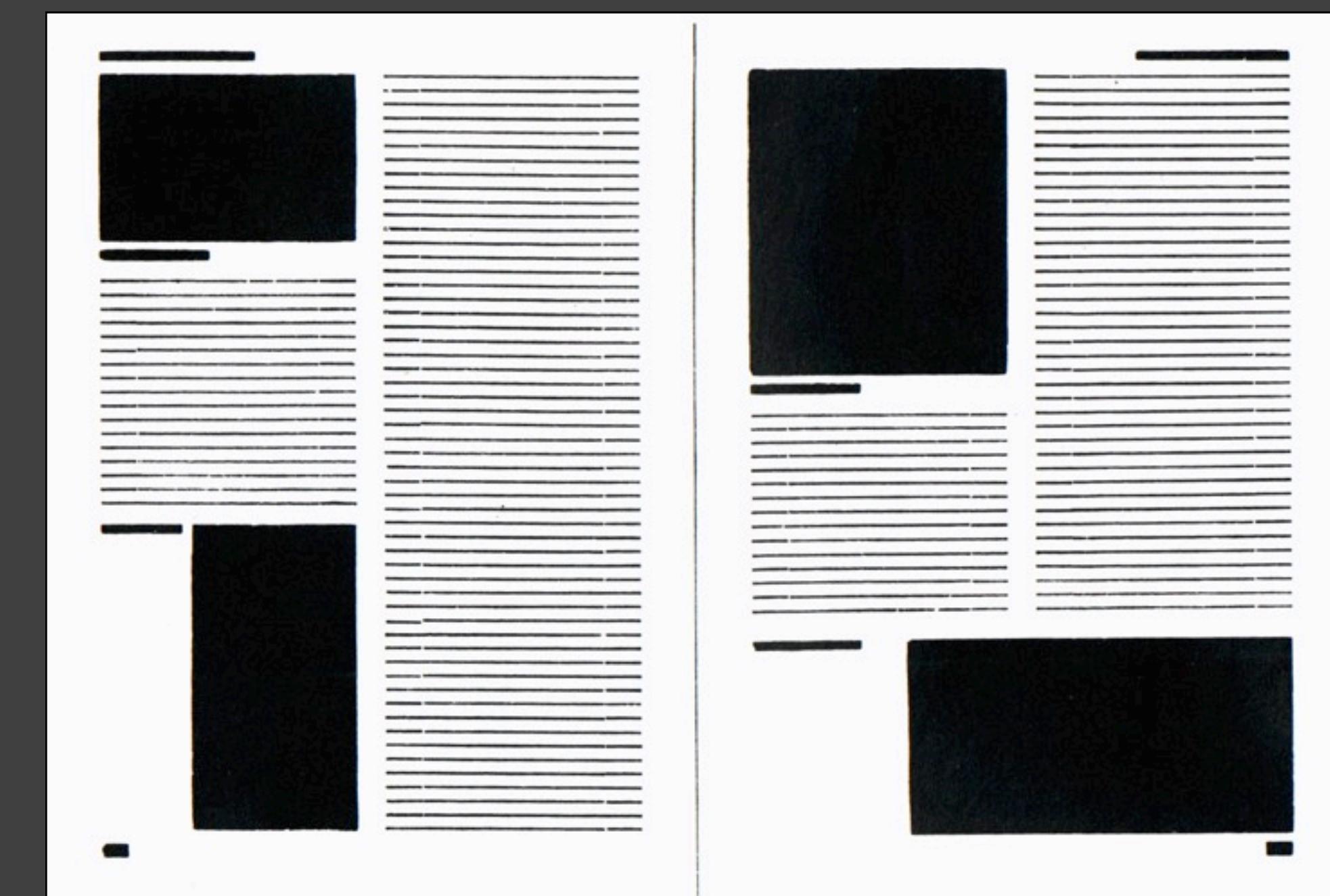
--Antoine de Saint Exupery

JAN TSCHICHOLD

# Asymmetric Typography



How blocks used to be arranged in magazines.  
Schematic, thoughtless centering of blocks  
(= ugly).

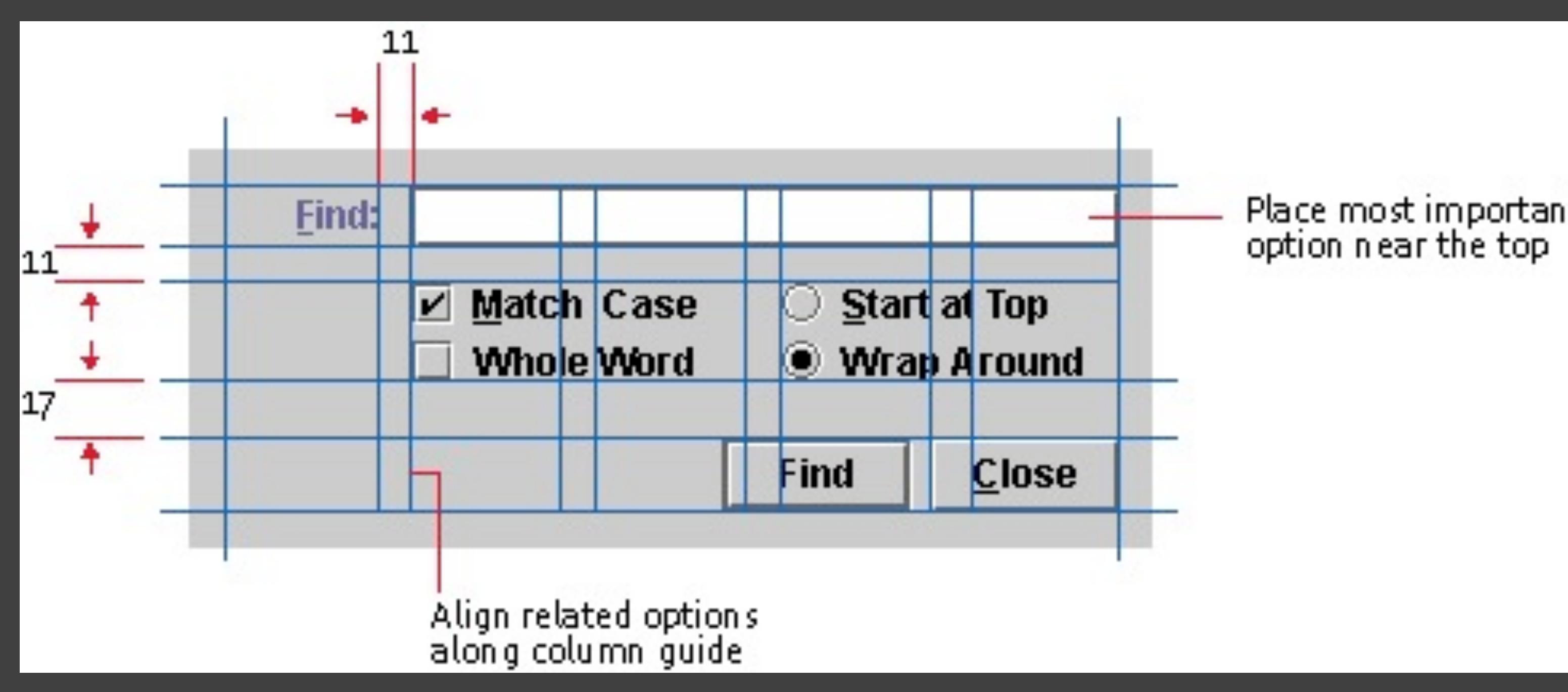


The same blocks, correctly arranged in the same type-area. Constructive, meaningful, and economical (= beautiful).

# Use alignment to guide the eye and reduce clutter

- Avoid slight misalignments; they undermine your ability to beacon organization.
- And they draw the eye -- our perceptual system notices deviations from patterns
- When you deviate from a pattern, do so strategically

# Grid Systems



*Java Look and Feel Design Guidelines*

AaBbCc

Sans Serif

AaBbCc

Serif

AaBbCc

Serifs Highlighted

# The Serif Hypothesis

- Serif typefaces are easier to read -- and thereby preferable for long stretches of text -- because the serifs provide anchors that guide the reader's eye. Sans serif fonts lack these anchors and are therefore inappropriate for long stretches of text.

# The Competing Hypothesis: Familiarity

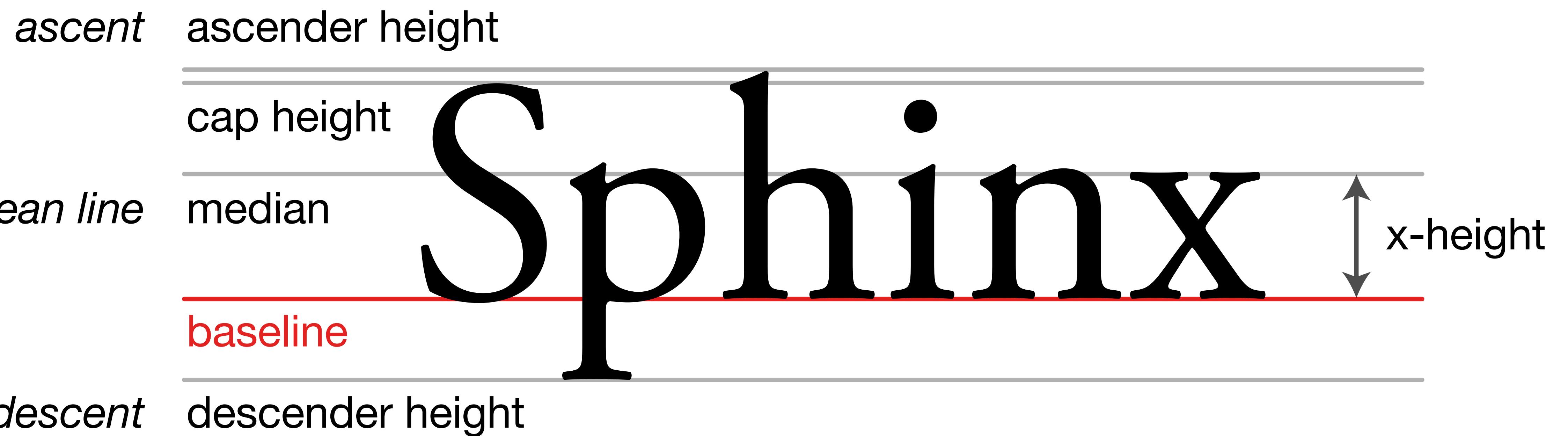
- “Legibility, in practice, amounts simply to what one is accustomed to” -- Eric Gill, 1931

# Challenges

- Individual differences dwarf manipulation effects
  - i.e., some people read faster than others. If there is an effect, it's very small
- Confound: Reading requires familiarity
- Dependent Variable? Speed? Comprehension? ...?
- There's a shockingly large literature on legibility;  
most of it is highly problematic

# No Robust Evidence for Serif Hypothesis

- “What initially seemed a neat dichotomous question of serif versus sans serif has resulted in a body of research consisting of weak claims and counter-claims, and study after study with findings of ‘no difference’. Is it the case that more than one hundred years of research has been marred by repeated methodological flaws, or are serifs simply a typographical ‘red herring’”
- <http://alexpooke.info/which-are-more-legible-serif-or-sans-serif-typefaces>

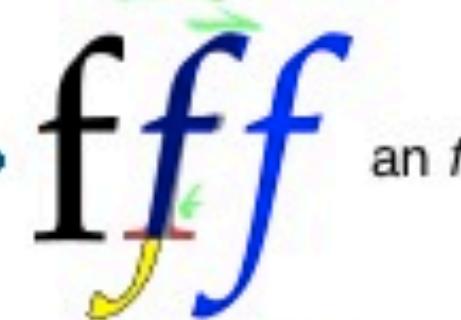


# Italics

The five boxing wizards jump quickly.

*The five boxing wizards jump quickly.*

Some examples of possible differences between roman and italic type, besides the slant, are below. The transformations from roman to italics are illustrated.

-  a "round" or one-storey a,
-  an e whose bowl is curved rather than pointed,
-  an f with a tail (known as a descender),
-  a k with a looped bowl, a k with a ball terminal,
-  a p with an intersection at the stem (ascender),
-  a v and w with swashes and curved bottoms,
-  and a z with the stress on the horizontal strokes as opposed to the diagonal vertical one.

None of these differences are required in an italic; some, like the p variant, do not show up in the majority of italic fonts, while others, like the a and f variants, are in almost every italic.

# Lowercase (aka old style) Numbers

0123456789

Helvetica Neue 25 Ultra Light

Helvetica Neue 35 Thin

Helvetica Neue 45 Light

Helvetica Neue 55 Roman

Helvetica Neue 65 Medium

Helvetica Neue 75 Bold

**Helvetica Neue 85 Heavy**

**Helvetica Neue 95 Black**

What to do with CAPITALS in your text? SMALL CAPITALS are the best solution. If they aren't available, reduce the point size of the full-size CAPITALS slightly and letterspace so they aren't crashing into each other.  
capitals attract too much attention and break up the text

What to do with CAPITALS in your text? SMALL CAPITALS are the best solution. If they aren't available, reduce the point size of the full-size CAPITALS slightly and letterspace so they aren't crashing into each other.  
small caps are designed to work with lowercase letters

What to do with CAPITALS in your text? SMALL CAPITALS are the best solution. If they aren't available, reduce the point size of the full-size CAPITALS slightly and letterspace so they aren't crashing into each other.  
if you don't have small caps, set full-size caps smaller

## Ligatures

office flirt file afflict effect  
office flirt file afflict effect

4'6" = 4 feet, 6 inches  
4'6" = 4 minutes, 6 seconds

"Typography is not an independent Art: it is a means to an end, not an end in itself. It must always be sub-servient to the text which is its 'raison d'être'..."

—HERBERT SPENCER

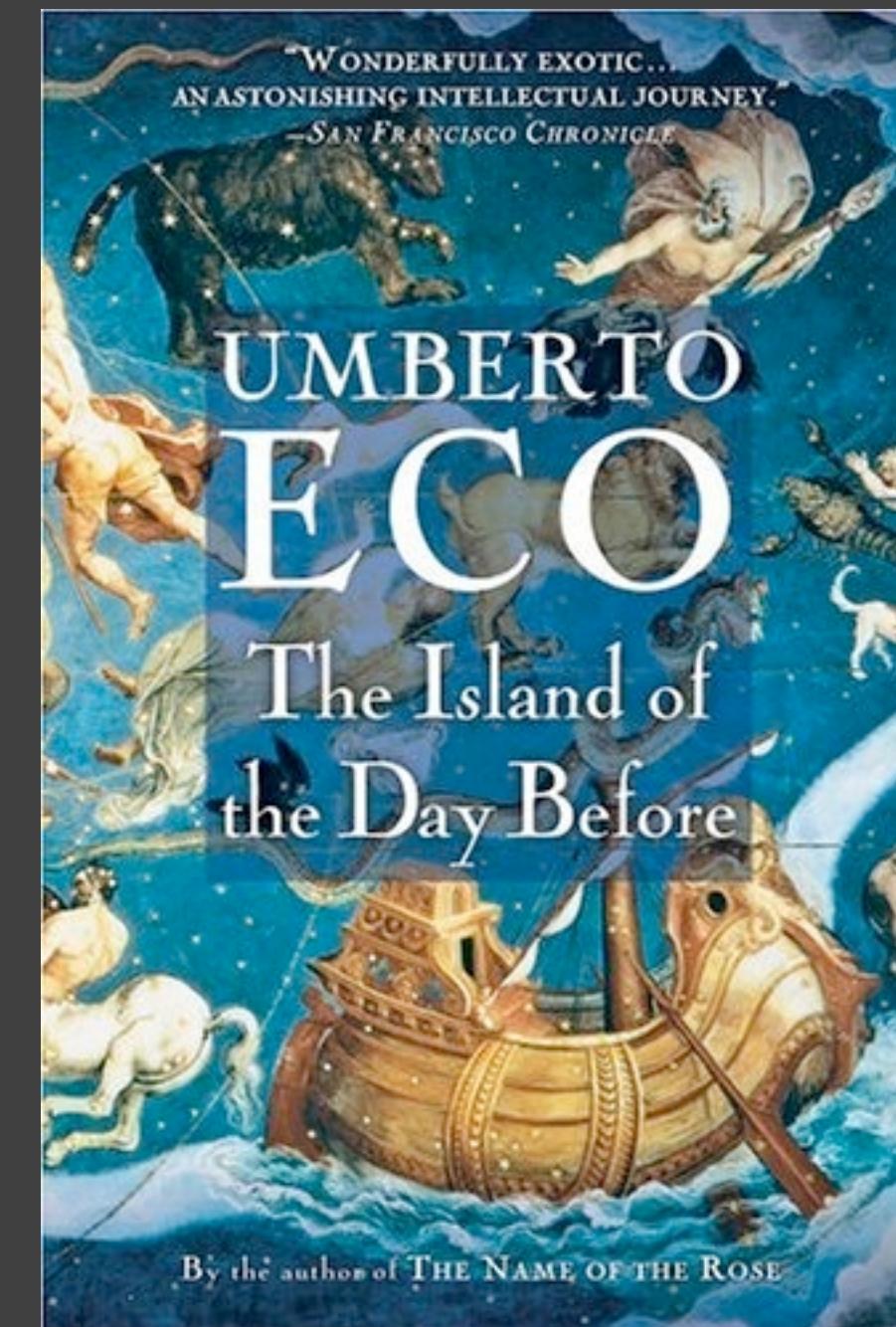
I take pride withal in my humiliation, and as I am to this privilege condemned, almost I find joy in an abhorrent salvation; I am, I believe, alone of all our race, the only man in human memory to have been shipwrecked and cast up upon a deserted ship.

THUS, WITH UNABASHED conceits, wrote Roberto della Griva presumably in July or August of 1643.

How many days had he been tossed by the waves, feverish surely, bound to a plank, prone during the hours of light to avoid the blinding sun, his neck stiff, strained unnaturally so as not to imbibe the water, his lips burnt by the brine? His letters offer no answer to this question: though they suggest an eternity, the time cannot have been more than two days, for otherwise he would never have survived the lash of Phoebus (of which he so poetically complains), he, a sickly youth, as he describes himself, a creature condemned by a natural defect to live only at night.

He was unable to keep track of time, but I believe the sea grew calm immediately after the tempest swept him from the deck of the *Amaryllis*, on that makeshift raft a sailor had

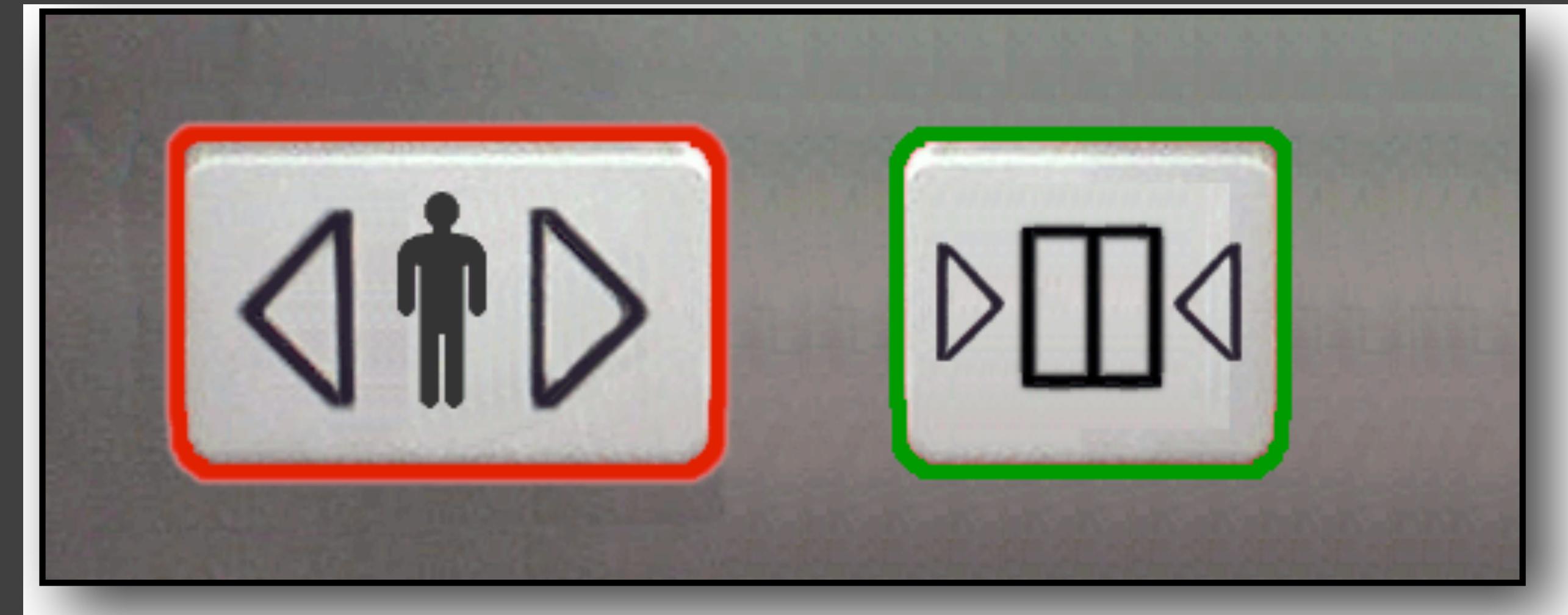
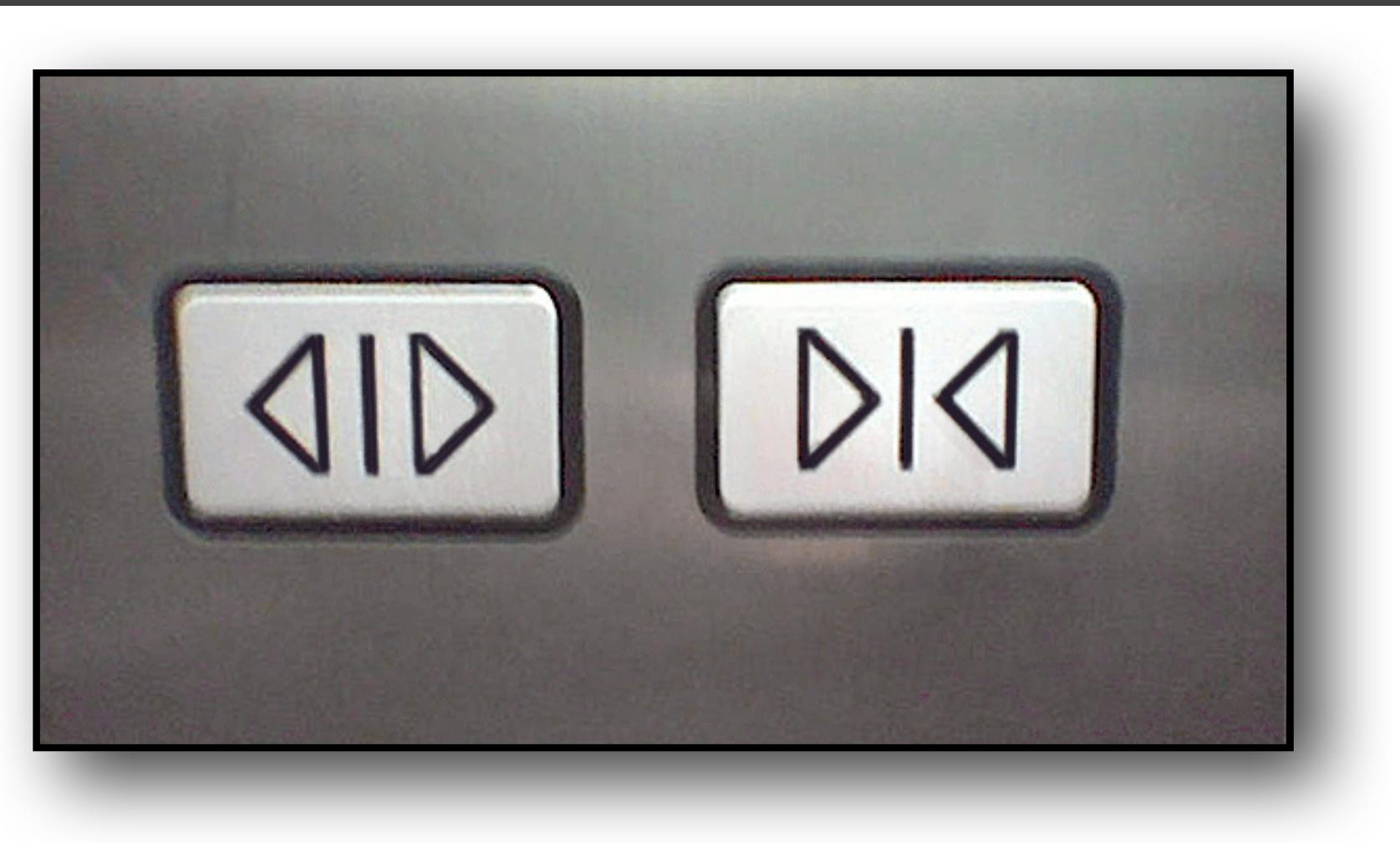
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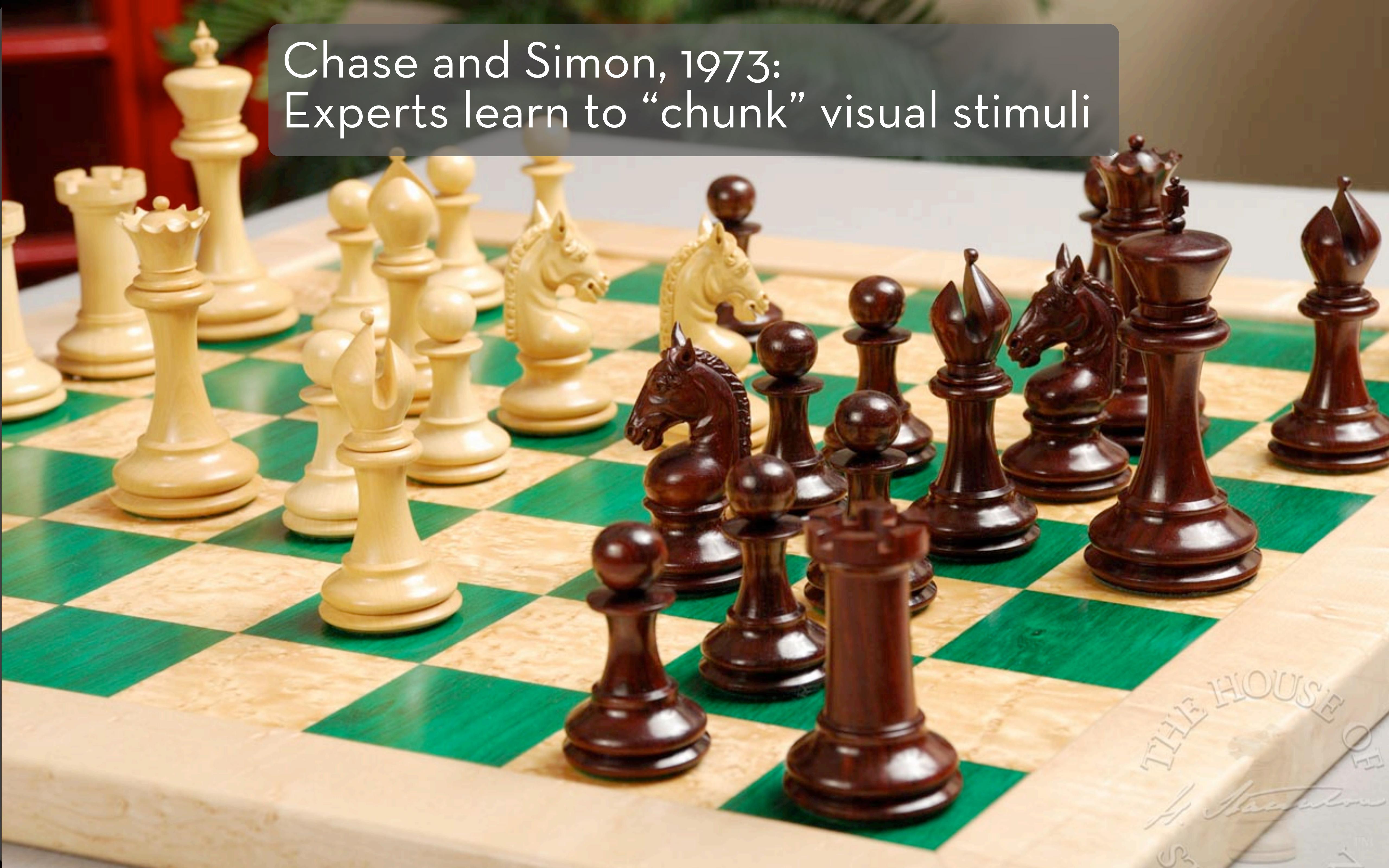
# Some Starting Points

- Gather materials you find...
  - Successful
  - Contextually relevant
- Could be from a very different domain
  - “Good artists borrow, great artists steal” - Picasso
- Include visual design professionals in the iterative design cycle

# Icon Design: Differences that Make a Difference



Chase and Simon, 1973:  
Experts learn to “chunk” visual stimuli



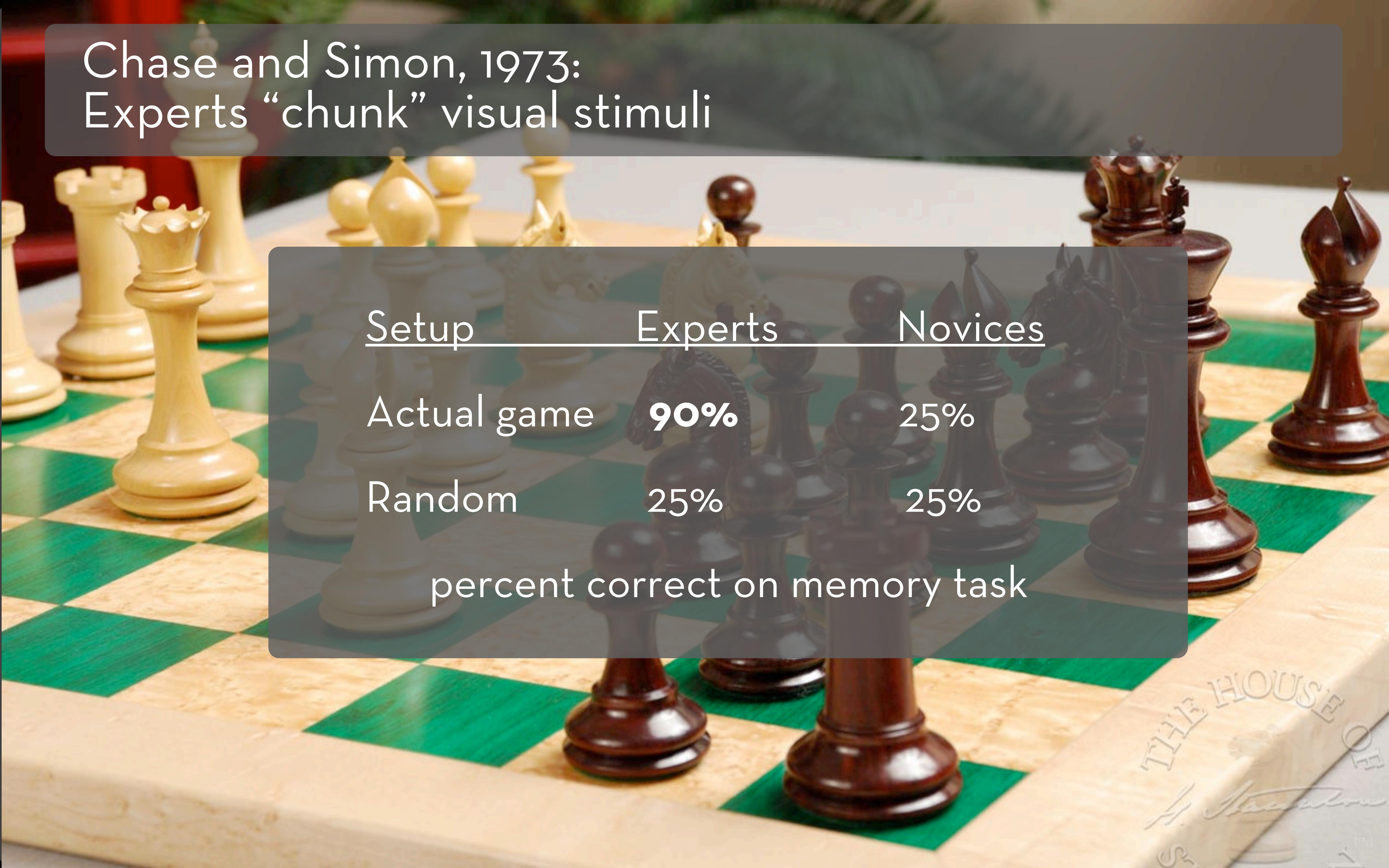
# Chase and Simon, 1973: Experts “chunk” visual stimuli

Setup	Experts	Novices
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Actual game	<b>90%</b>	25%
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Random	25%	25%
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percent correct on memory task



# Chunking in Interfaces

Ideally, we want a one-to-one mapping between concepts and gestures. User interfaces should be designed with a clear objective of the mental model we are trying to establish. Phrasing can reinforce the chunks or structure of the model.