

THURSDAY, MAY 16, 2013 05:35 PM EDT

The illusions of advertising

A look at the science behind marketing tricks

BY STEPHEN L. MACKNIK, LEANDRO LUGI DI STASI AND SUSANA MARTINEZ-CONDE



TOPICS: SCIENTIFIC AMERICAN, SCIENCE, ADVERTISING, NEUROSCIENCE, VISUAL NEUROSCIENCE, LOGOS, FEDEX, SALES, LIFE NEWS

(Credit: [Eugene Berman, Shutterstock.com](#))

This article originally appeared on [Scientific American](#).

**SCIENTIFIC
AMERICAN**

Ancient philosophers were far from alone in their musings about time. Playwright Tennessee Williams wrote in 1944 that time is the longest distance between two places. And the

years since have proved him right. Fast travel, instant communications and express deliveries between opposite ends of the world mean, more than ever, that time is not only relative but also an illusion.

But time is also money, or so the axiom goes. Certainly both time and money are precious, exist in limited quantities and can be intimately intertwined. Have you ever longed to get away but lacked the money or time to take your ideal vacation? In our travels we have noticed that airports, surprisingly, are a favorite location for high-end watch displays. It is as if travelers commonly must decide before imminent takeoff whether to pop into the newsstand to grab some gum and a copy of *Scientific American* or stop by the adjoining jewelry counter for a \$10,000 Rolex. Who chooses the latter? We can't, unfortunately, although we do like to window shop. Next time you do, pay special attention to the watch displays and see if you notice anything unusual. You may see how advertisers exploit the intersection of time and illusion to sell their products.

Accurate Twice Each Day

Search for the term “watch images” on your favorite **Internet** browser, and you'll find something

bizarre. Almost every watch is set to 10:10. What belief, what powerful insight, what shared brain mechanism could cause salespeople to hock their clocks with that setting? Is it that shoppers preferentially like to make purchases just after morning tea? Or, as conspiracy theorists have suggested, because 10:10 is the hour when John F. Kennedy, Martin Luther King, Abraham Lincoln or John Lennon was assassinated? Or when Fat Man and Little Boy burned the sky above Nagasaki and Hiroshima? Nope. All such proposals are factually incorrect.

According to the *New York Times*, the Hamilton Watch Company was among the first to set its products to 10:10—in the 1920s. The previous standard setting was 8:20. Some advertising executives now assume that the switch occurred to turn the watches' 8:20 “frown” upside down, into a “smile.”

But to visual neuroscientists like us, all this speculation begs the question as to why clock hands were set to oblique 8:20/10:10 positions in the first place. It seems unlikely that pre-1920 watchmakers wanted their watches to frown. One possibility is that oblique watch-hand orientations are best at keeping company logos uncovered

—but, if so, horizontal positions such as 9:15 or 2:45 would be even better. Because horizontal orientations have never been popular in watch advertisement, we can rule this idea out.

Could it then be that oblique orientations result in higher watch sales than do cardinal—or vertical and horizontal—orientations? The answer may well be affirmative, and the neuroscience of perception and cognition reveals why. Scientists have long known that we can detect cardinal orientations more easily than oblique orientations. The visual cortex, moreover, responds to oblique orientations more weakly, as if they had lower contrast than cardinal orientations of the same physical brightness. In addition, fewer neurons are sensitive to oblique than to cardinal orientations. As a result, obliquely oriented watch hands are a bit more difficult for us to see.

At first, this fact may seem like bad news for marketing timepieces, especially if you think that watch hands should be as visible as possible in ads. But neuroscience tells us why it is actually a benefit. To maximize the potential for sales, you really want your customers to rivet their attention on your product—and the visual challenge of seeing the oblique position draws that attention. Visual

attention has the effect of enhancing the perception of low-contrast image elements in perception. As it happens, the enhancement is most valuable when those elements are difficult to detect because attention is stronger when the object of interest is hard to see—such as watch hands that are oriented obliquely.

If Mad Men (and Women) intuited that obliquely oriented lines are attention getters, people in other fields may have arrived at similar conclusions. We looked for prominently featured clocks in fine art paintings and—viola!—Marc Chagall used the time 10:10 in his famous series of clock paintings dating as far back as 1914, before the watch industry's own 10:10 preference.

Time's Arrow

Watch manufacturers are not the only companies that have toyed with the interaction of time and illusion in commercial advertising. When you use FedEx courier services to buy yourself some time, you may overlook the clever illusion hidden in the company's iconic logo: time's arrow, pointing toward the future. You can see either the white arrow or the FedEx letters, but not both at once, because one is always the background to the other. The current FedEx logo was shortened from the

earlier company name Federal Express and given a new snazzy illusory design element, the background arrow between the “E” and the “x.” Did the company shorten the name to reduce the amount of paint needed for signage on its planes and trucks? That explanation makes no sense, unless the painters could use only one font size. Once the name was shorter, they could just paint the letters larger to take up the same space and use about the same amount of paint. In fact, according to Linden Leader, the graphic artist who designed the new logo, the FedEx CEO specifically requested that the logo be easily legible on every truck from five blocks away.

Instead the change resulted from a thorough analysis of the company’s name recognition in the market. Why might the new logo be more effective? One reason is that the arrow, a symbol that has special meaning to our cognitive system, helps to draw attention to the logo as a whole. Arrows indicate what scientists call “implied motion.” Visual neuroscientists Anja Schlack and Thomas Albright of the Salk Institute for Biological Studies have shown that neurons that respond preferentially to specific directions of motion in the world are also activated by arrows pointing in the corresponding direction, even though the arrows

are not themselves moving but just represent the concept of motion.

The FedEx arrow pointing to the right signifies motion toward the future for those who write in English and other left-to-right languages. Moreover, because our motion areas also have more neurons that prefer cardinal rather than oblique directions, here the arrow invokes a powerful competition with the FedEx name itself, so our perception vacillates between “FedEx” and forward momentum. In languages read right to left, the FedEx arrow points toward the left, such as in the Arabic version of the logo, consistent with the corresponding cognitive representation of time’s arrow.

This same left-to-right effect works to express temporal order of pictograms grouped in sequences, such as in the famous representation of **human evolution** from prehominin to *Homo sapiens*. The direction of the sequence is fundamentally arbitrary, yet if you grouped it the wrong way, it would look like a time reversal.

So time may fly like an arrow, but it is your attention to time that advertisers care about.

MORE STEPHEN L. MACKNIK.

MORE LEANDRO LUIGI DI STASI.

MORE SUSANA MARTINEZ-CONDE.

Recommend 109 Send 37 Twitter 60 LinkedIn Share 19 +1 6      



The high cost of giving birth in the U.S.



YOU MIGHT ALSO LIKE

Men Only: The Case Against Exercising
Hot Topix

Mad Men Style: 5 Tricks to Maximize Your Curves
iVillage

2 Metabolism-Destroying Foods To Avoid At All Costs
Natural Health Sherpa

Top 10 Athletes Turned Actors of All Time
Rant Sports

by Taboola

More from Salon

- Does self-awareness require a complex brain?
- How did the wolf evolve into man's best friend?
- The Super Bowl's bloated, chaotic spectacle
- Artificial limbs, controlled by thoughts
- When I sold out to advertising
- Inside a 20-something's brain

We Recommend

- **Billionaire Tells Americans to Prepare For "Financial Ruin"**
(Moneynews)
- **These 5 Things Start Cancer in Your Body. Watch Video.**
(Newsmax)
- **The 20 Hottest Moms Associated with Sports** (Rant Sports)
- **How much does it cost to hire a house cleaner?** (Angie's List)
- **7 of the Best Cheap Cars of 2013** (InsiderCarNews.com)
- **The Latest In Gray Hair Solutions** (eSalon)

by Taboola

MORE RELATED STORIES

Ohio gov. signs budget laced with antiabortion provisions

The high cost of giving birth in the U.S.

The high cost of giving birth in the U.S.

Vatican monsignor questioned in corrupt plot

FEATURED SLIDE SHOWS

7 MOTORIST-FRIENDLY CAMPING S



1 of 9



SPONSORED POST



White River National Forest via Lower Crystal Lake, Colorado For those OK with the mainstream, White River Forest welcomes more than 10 million visitors a year, making it the most-visited recreation forest in the nation. But don't hate it for being beautiful; it's got substance, too. The forest boasts 8 wilderness areas, 2,500 miles of trail, 1,900 miles of winding service system roads, and 12 ski resorts (should your snow shredders fit the trunk space). If ice isn't your thing: take the tire-friendly Flat Tops Trail Scenic Byway — 82 miles connecting the towns of Meeker and Yampa, half of which is unpaved for you road rebels. fs.usda.gov/whiteriveryou

Image credit: Getty



1 of 9



The week in 10 pics

The week in 10 pics

10 summer food festivals worth the pit stop

The week in 10 pics

The week in 10 pic

RELATED VIDEOS



Antoine Young's Standup About...



Digitas CEO: Why Real-Time Advertising...



Vizu Touts Real-Time Brand-Lift Data for...

COMMENTS

8 Comments

You may use these HTML tags and attributes:

 <i> <blockquote>

[Post Comment](#) [Preview](#) [Cancel](#)



[About](#) | [Advertising](#) | [Contact](#) | [Corrections](#) | [Help](#) | [Privacy](#) | [Terms of Service](#)

Copyright © 2013 Salon Media Group, Inc. Reproduction of material from any Salon pages without written permission is strictly prohibited.

SALON® is registered in the U.S. Patent and Trademark Office as a trademark of Salon Media Group Inc.

Associated Press articles: Copyright © 2013 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed.