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The illusions of advertising

A look at the science behind marketing tricks

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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.

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