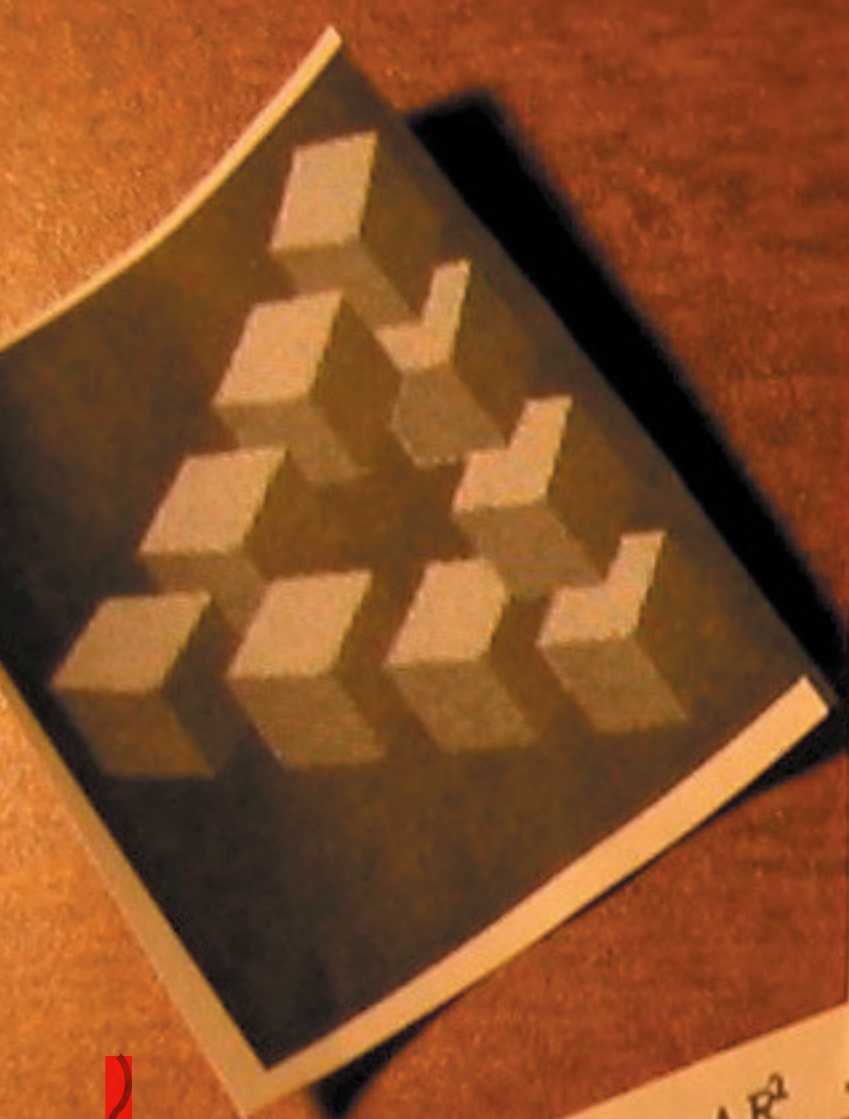
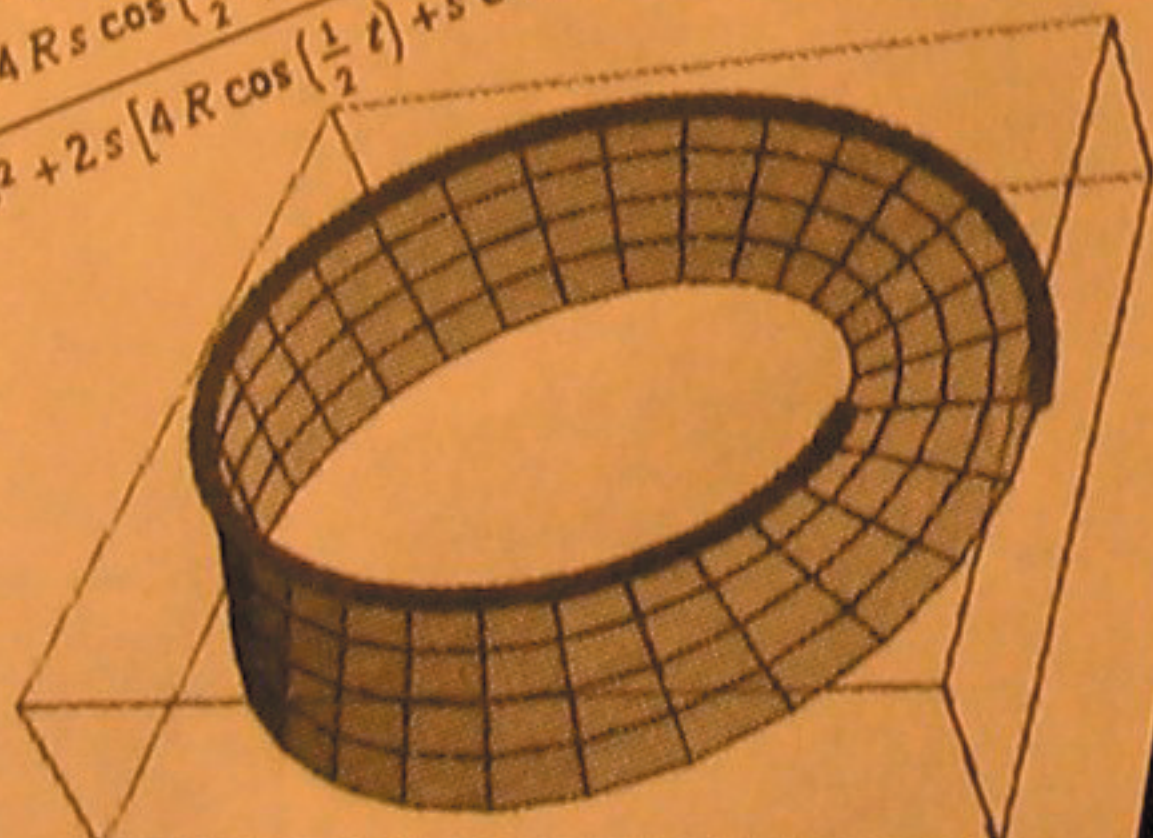


Joe's Paradox Notebook



$$K = -\frac{4R^2}{|4R^2 + 3s^2 + 2s[4R\cos(\frac{1}{2}t) + s\cos t]\sin(\frac{1}{2}t)|}$$
$$H = \frac{2[2(R^2 + s^2) + 4Rs\cos(\frac{1}{2}t) + s^2\cos t]\sin(\frac{1}{2}t)}{|4R^2 + 3s^2 + 2s[4R\cos(\frac{1}{2}t) + s\cos t]|^2}$$



One of My Favorites

Suppose there is a town with just one male barber, and that every man in the town keeps himself clean-shaven—some by shaving themselves and some by going to the barber. The barber shaves all and only those men who do not shave themselves.

So, who shaves the barber?



“Only the paradox comes anywhere near to comprehending the fullness of life.”
—Carl Jung

The Barber’s Paradox, also known as Russell’s paradox*, was discovered by Bertrand Russell in 1901. It is commonly considered the most famous of the logical or set-theoretical paradoxes.

This paradox arises within naive set theory when considering the set of all sets that are not members of themselves. Such a set appears to be a member of itself if and only if it is not a member of itself! Hence, the paradox.

🖱️ Get more information on Russell’s Paradox.

* Russell’s spare formulation of this paradox is: “A man of Seville is shaved by the Barber of Seville if and only if the man does not shave himself. Does the Barber of Seville shave himself?”

Impossible Objects



I always use a *blivit* (also known as a *poiuyt*), to unlock a Penrose triangle!

Does this painting* represent an impossible or merely an improbable scene?



“This is how we see the world, we see it outside ourselves, and at the same time we only have a representation of it in ourselves.”

—René Magritte, *La Ligne de Vie II*, February 1940.

* *La condición humana I* (*The Human Condition*), 1933 by René Magritte.

Types of Paradox

Willard Van Orman Quine* identified three types of paradoxes:

veridical

Produces a result that appears absurd but is demonstrated to be true nevertheless.

Consider the paradox of Frederic’s birthday in *The Pirates of Penzance*: the surprising fact that a person’s fifth birthday is the day he turns twenty, if born on a leap day.

falsidical

Establishes a result that not only appears false but actually is false; there is a fallacy in the supposed demonstration.

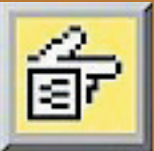
For example: the various invalid proofs (e.g. that $1 = 2$) are classic examples, generally relying on a hidden division by zero. Another example would be the inductive form of the Horse paradox

antinomy

Neither a veridical nor falsidical paradox, an antinomy reaches a self-contradictory result by properly applying accepted ways of reasoning.

For example, consider Russell’s paradox about the barber of Seville.

Since Quine’s work, a fourth type of paradox has sometimes been distinguished: a *dialetheia*. This is said to be a paradox which is both true and false at the same time in the same sense—thus violating the principle of non-contradiction.



* W.V. Quine or W.V.O. Quine (1908-2000), was one of the most influential philosophers and logicians of the 20th century.

Get a comprehensive list of paradoxes, including logical, self-referential, vagueness, mathematical, statistical, probability, infinity, geometry, topology, and more.

In Bananaland,
all chairs are green
and no chairs are green!



“I loved implying that the
one thing I believed in was a
contradiction.” *

* Steve Martin. “In the Bird Cage,” The New Yorker: October 29, 2007; 48.

Is it a contradiction to claim
that there is a place where all
chairs are green and no chairs
are green?

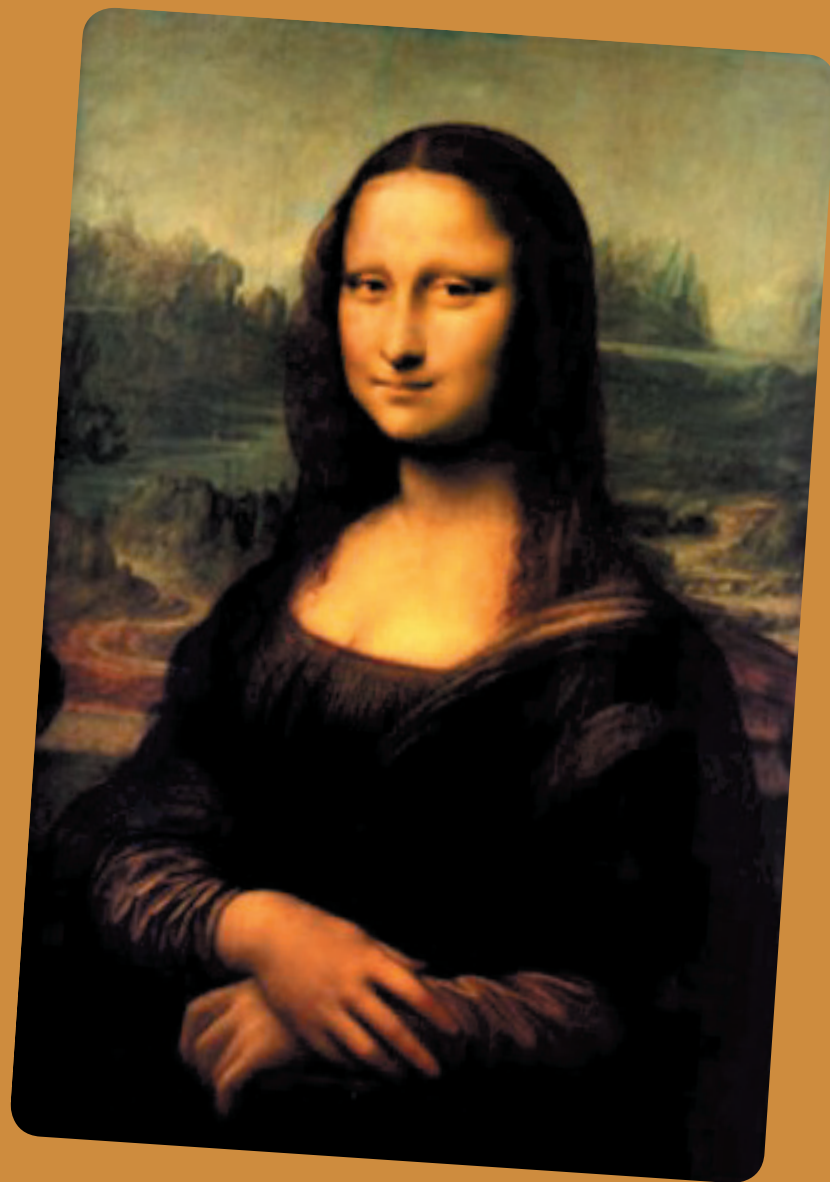
Get a simple
definition of
contradiction.



At the bottom of this
painting*, René Magritte
painted “Ceci n’est pas une
pipe” (This is not a pipe). This
statement might appear to be
a contradiction, but is actually
true. “Ceci” refers to the
painting—not its image. As
Magritte himself is reported to
have commented: “Just try to
stuff it with tobacco!”

* *La Trahison des Images* (*The Treachery of Images*), 1928-9 by René Magritte. This painting’s name is sometimes referred to as “This is Not a Pipe,” or “The Betrayal of Images.”

Some say a picture is worth a thousand words.*



* In fact, many people claim this is true.

But in the mind's eye, a word can also be worth a thousand pictures!



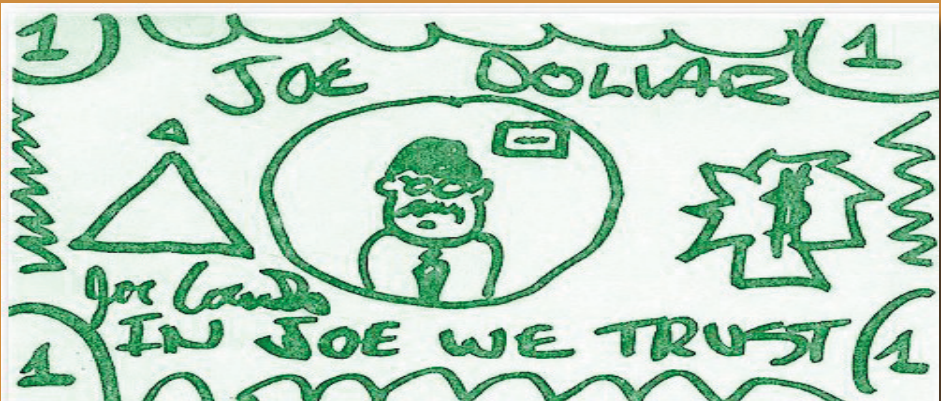
In Bananaland, there are no chairs! So, in that land, all chairs are green and no chairs are green!



Some say talk is cheap.*



Yet, some say money talks!



* Variously ascribed.

And walking the talk...



Easier said than done!

“When I came home I expected a surprise and there was no surprise for me, so, of course, I was surprised.” —Ludwig Wittgenstein



... all kinds of writing!

It’s true. some of us can wear several different job hats—sometimes even simultaneously!

We’re talking **multi-dimensionalism** here . . . maybe “pair o’ digms” or more.*

An uncommon conjunction of skills?
Perhaps. Outside of the box? Maybe.
But **not a paradox.**



* Some say that paradoxes can lead to new paradigms. For example, refer to Frank Wilczek’s Nobel Lecture, “Asymptotic Freedom: From Paradox to Paradigm.” The 2004 Nobel Prize in Physics was awarded to Drs. Wilczek, H. David Politzer, and David J. Gross for their discovery of asymptotic freedom in the theory of the strong interaction.

The Writers & Hats Puzzle & Paradox*

In a simple version, this is a logic puzzle. In more complex versions, it becomes a paradox!**

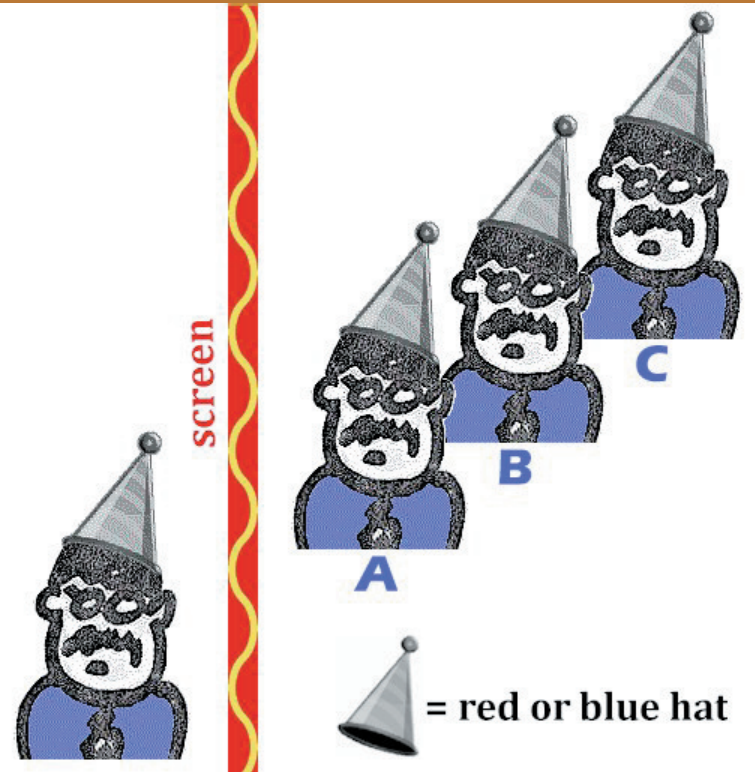
Four writers are arrested for gross copyright infringement. But the jail is full and the jailer has nowhere to put them. So, he decides to give them a puzzle. If anyone can solve the puzzle, all will go free. If nobody solves the puzzle, they will be executed.

The jailer puts three of the writers sitting in a line. The fourth is put behind a screen. He gives all four hapless scriveners party hats. The jailer explains that there are two red and two blue hats. Prisoner C can see the hats on B and A; B can see the hat on A. The fourth prisoner behind the screen can’t see or be seen by any other prisoner. No communication among the prisoners is allowed.

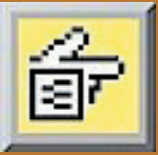
If any prisoner can announce to the jailer the colour of the hat on his head, all four prisoners go free. How can they escape death?



* This is an adaptation of the Prisoners and Hats Puzzle. Link here for the solution to this puzzle.



“The paradox is the source of the thinker’s passion, and the thinker without a paradox is like a lover without feeling.”
—Soren Kierkegaard



** Link here to evaluate the claim that the variations on this puzzle needed to turn it into a paradox are minimal.

Can do!



Well . . . enough about my stuff—merely more examples of the false dichotomy between designing and writing, creating and analyzing, and so forth.

No paradox here!

There is a lot to learn and my small notebook has now run out of space!

There are so many more paradoxes that are noteworthy!

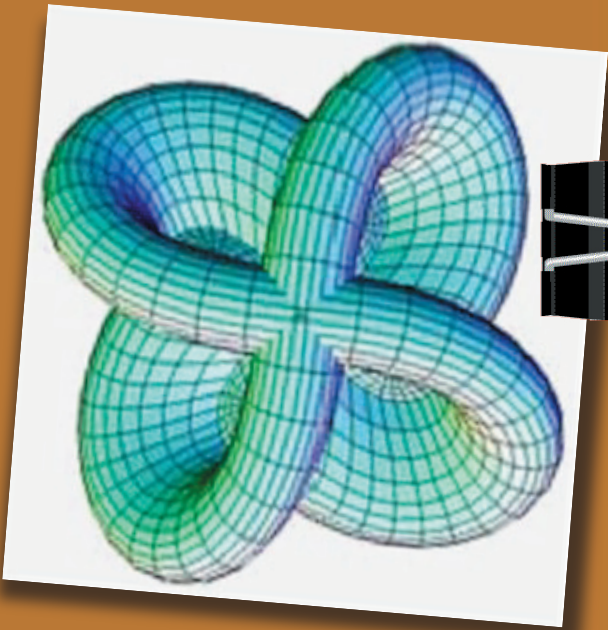
Space...where does it all go?

Smale's Paradox

This 'paradox' was discovered by Stephen Smale in 1958. It asserts that it is possible to turn a sphere inside out in 3-space with possible self-intersections but without creating any crease, a process often called *sphere eversion*.

The first example was demonstrated several mathematicians, including who was blind, Bernard Morin.

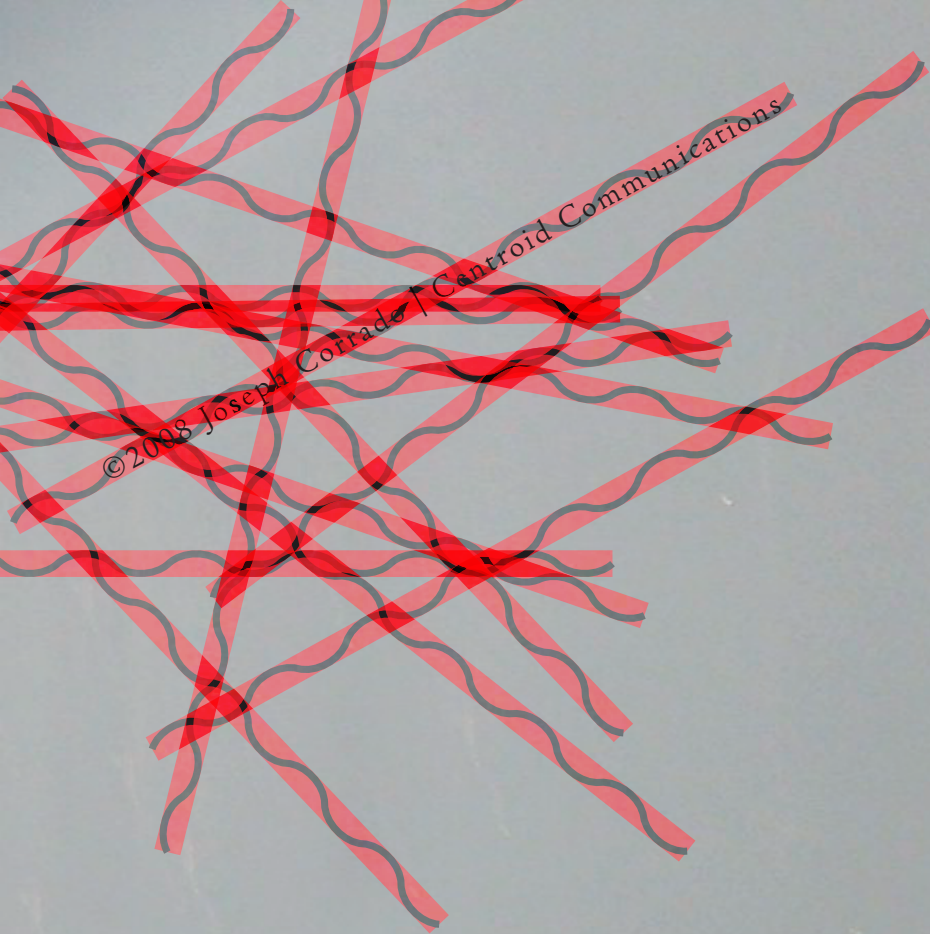
Here is an illustration of the half-way model of the sphere eversion discovered by Bernard Morin—as viewed from the top.



Chrome Contact

A young, alert student and a zany professor team up to decipher the first messages from the Chromes.

Run *Chrome Contact*—HTML-based, interactive fiction. This eBook is designed for integrated learning via a fictional story targeted to young adolescents.



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