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Optical Illusion - Why A Curveball Confuses Batters

Posted by [Queuebot](#) in [Science & Tech](#) on May 14, 2009 at 11:11 am

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A curveball will slowly shift by a couple of feet at most, but to the batter it seems to suddenly jump several feet. Watch this animation of the Best Visual Illusion of the Year winner to experience how this occurs.

In baseball, a curveball creates a physical effect and a perceptual puzzle. The physical effect (the curve) arises because the ball's rotation leads to a deflection in the ball's path. The perceptual puzzle arises because the deflection is actually gradual but is often perceived as an abrupt change in direction (the break). Our illusions suggest that the perceived "break" may be caused by the transition from the central visual system to the peripheral visual system. Like a curveball, the spinning disks in the illusions appear to abruptly change direction when an observer switches from foveal to peripheral viewing.

Link - via [josephfosco](#)

From the [Upcoming Queue](#), submitted by [josephfosco](#).

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11 comments to "Optical Illusion - Why A Curveball Confuses Batters"



[jermH](#)

May 14th, 2009 at 11:43 am

Truly amazing. This is one of the best optical illusions I've ever seen.



[Sakina Al-Amin](#)

May 14th, 2009 at 12:07 pm

Nice.

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Byrd Brain

[May 14th, 2009 at 12:32 pm](#)

Where is Jobu when you need him?



Michelle Bivotti

[May 14th, 2009 at 2:29 pm](#)

Great illusion. Thank you for showing.



Confused

[May 14th, 2009 at 7:05 pm](#)

I'm a bit confused. A batter would be looking at the ball, not a blue dot off to the right. Also changing the orientation/frequency destroys the illusion. Sorry to hate, but I'm not sure about "Best Visual Illusion of the Year" 😊



Church

[May 14th, 2009 at 8:45 pm](#)

While interesting, that's only/at least part of the effectiveness of a curveball. The ball actually arcs from left to right (assuming a right-handed-pitcher and a batter's view.) So this is at best an incomplete demonstration.



danoso

[May 14th, 2009 at 9:12 pm](#)

OK, it's a neat illusion, but I don't think it has much to do with explaining a curve ball. Pitching in general is the art of making the ball appear to do something it's not. A rising fastball, for instance, doesn't really rise — all pitches drop due to gravity (with the exception of those submarine throwing goofballs I suppose). A rising fastball appears to do that since it's thrown with 4 seams (to give it some compensating lift) and harder than all other pitches (so it gets to the batter faster). Since it gets there quicker, it appears to rise (only because it didn't fall as much as expected).

A curve ball moves in a direction counter to what the batter expects, and will make use of gravity to have it moves farther than it otherwise would (if it was only the spin of the pitch causing the change in direction).



gambit

[May 14th, 2009 at 10:13 pm](#)

the science behind it is simple: a curve ball is in projectile motion. it's just sideways.



Foreigner1

[May 15th, 2009 at 3:08 am](#)

Nice illusion!

I like the bands at left and right of the screen on that site! All wobbly when you just look at it, yet totally straight when you focus on it.



roxtar

[May 15th, 2009 at 5:33 am](#)

Here's an experiment just begging to be conducted:

Would a curve ball "curve" less if it was sewn with white thread instead of red thread, making the rotation more difficult to perceive?



SenorMysterioso

[May 15th, 2009 at 8:32 am](#)

re Confused: a curveball actually curves unlike the illusion here so the batter is looking straight forward. When the ball curves he is still looking forward (away from the ball). The spinning of the ball, as illustrated by the illusion, exaggerates the curve.

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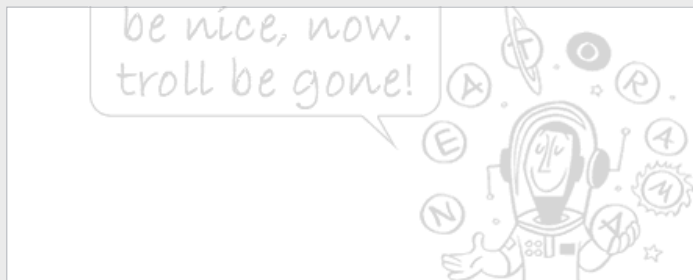
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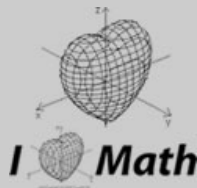
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