

Mach's Principle

If you think about [Mach's Principle](#), it actually brings attention to some logical contradictions. If you accept a universal coordinate system, then the contradictions are gone.

If you are alone in an empty universe, how is rotation defined? For that matter, how is acceleration defined?

You are standing in a field looking at the stars. Your arms are resting freely at your side, and you see that the distant stars are not moving. Now start spinning. The stars are whirling around you and your arms are pulled away from your body. Why should your arms be pulled away when the stars are whirling? Why should they be dangling freely when the stars don't move?

Why do we resist the possibility of a universal frame of reference?

[Newton's Bucket argument](#) was meant to bring attention to the need for a universal frame of reference.

The theory of relativity is ultimately a war of [reference frames](#). Each gravitational body attempts to control its own reality and the majority wins (democracy). Physicists call it [frame dragging](#). Does this sound a little bit like truth is relative to the observer - "*your truth*" and "*my truth*"?

Could it be there is a philosophical reason people are drawn to relativity?

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