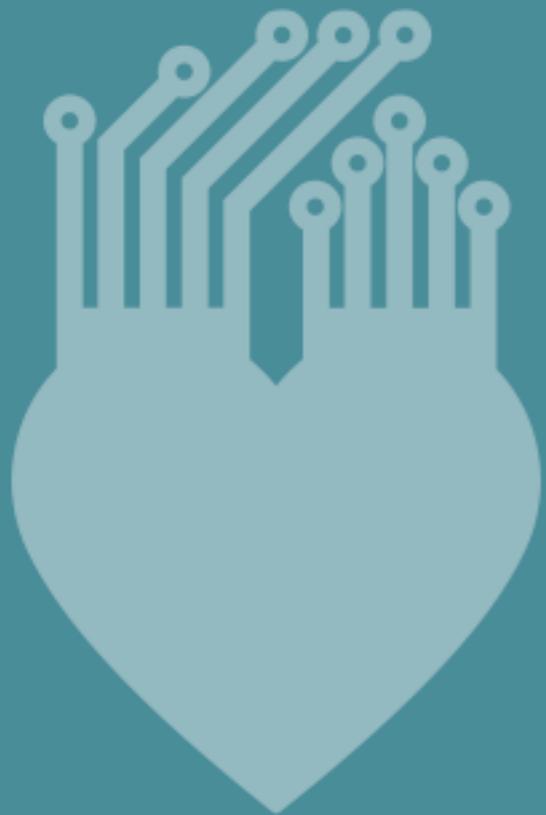


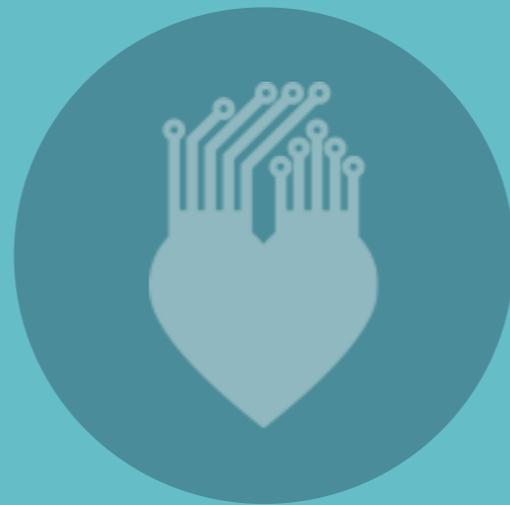
Dr. med. Christina Czeschik  
[www.serapion.de](http://www.serapion.de)



# Storytelling in Infosec

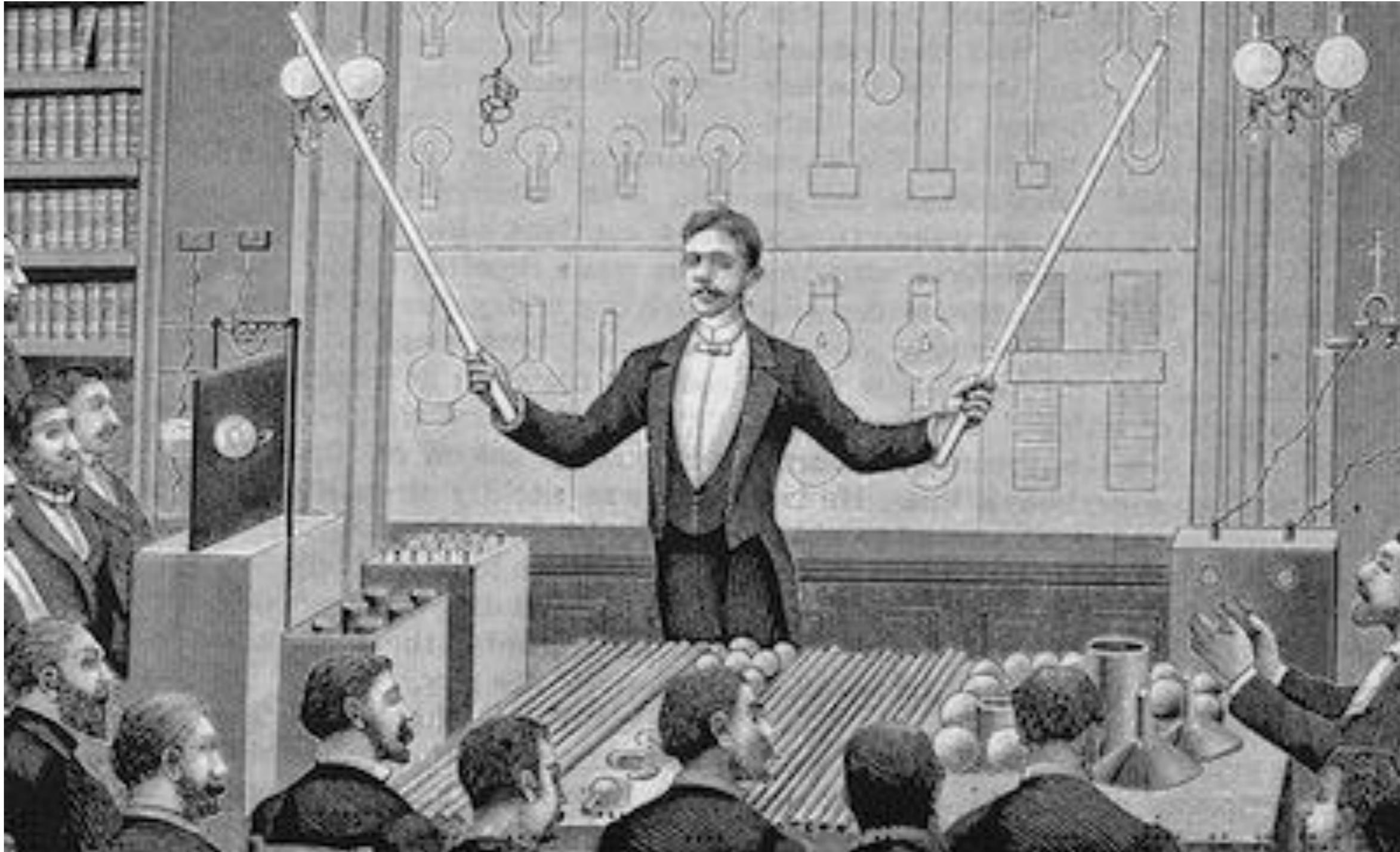
(Draft of) a Practical Guide

BalCCon 2k17  
Sept 16, 2017, Novi Sad

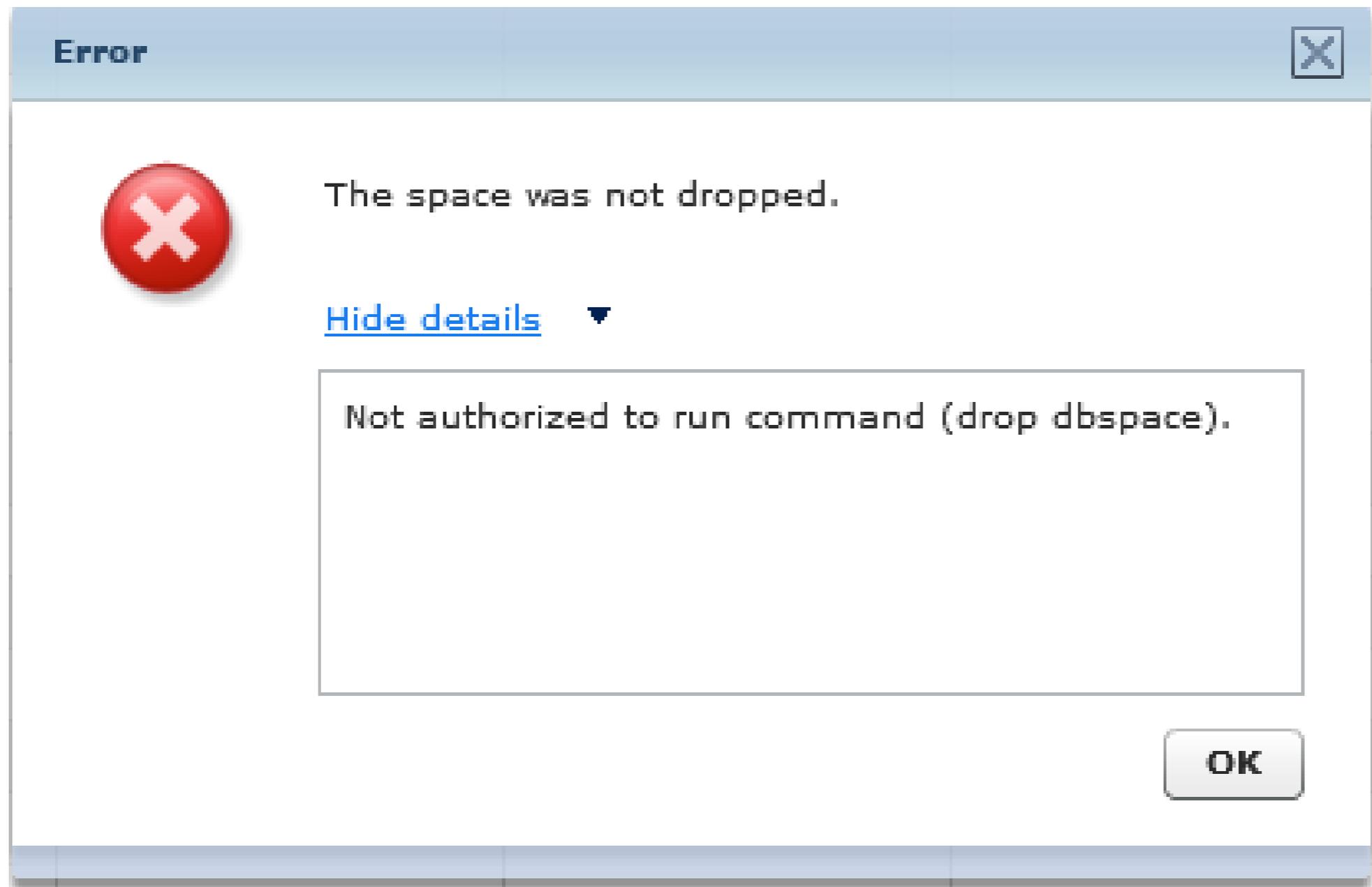


# How to Make Users Behave Safely?

# Explain things to them?



# Take away their permissions?

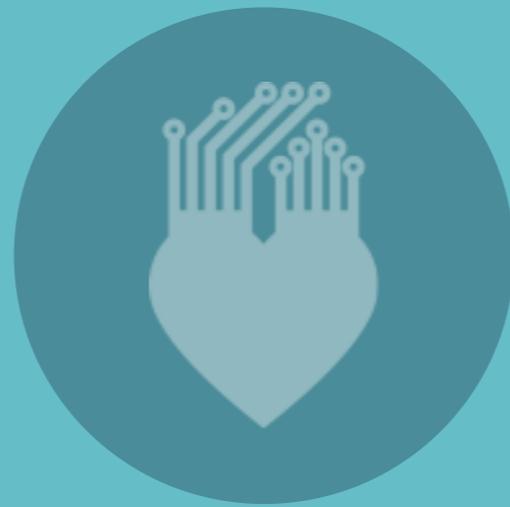


**Threaten them with heavy objects?**



**A better way:**

**Tell a story.**



# Why Storytelling Works

# Evolutionary Advantage?





# Evolutionary Advantage!



Sources: <http://untappedcities.com/2013/06/20/discover-cave-paintings-in-baja-california-mexico-near-loreto/>,  
<https://owlcation.com/stem/The-Saber-Tooth-Tiger>

# Why we remember stories...

... better than stand-alone facts:

## 1. They raise attention!



# Why we remember stories...

... better than stand-alone facts:

**2. They organize knowledge.**



# Why we remember stories...

... better than stand-alone facts:

**3. They offer self-reference.**



# Why we remember stories...

... better than stand-alone facts:

## 3. They offer self-reference.

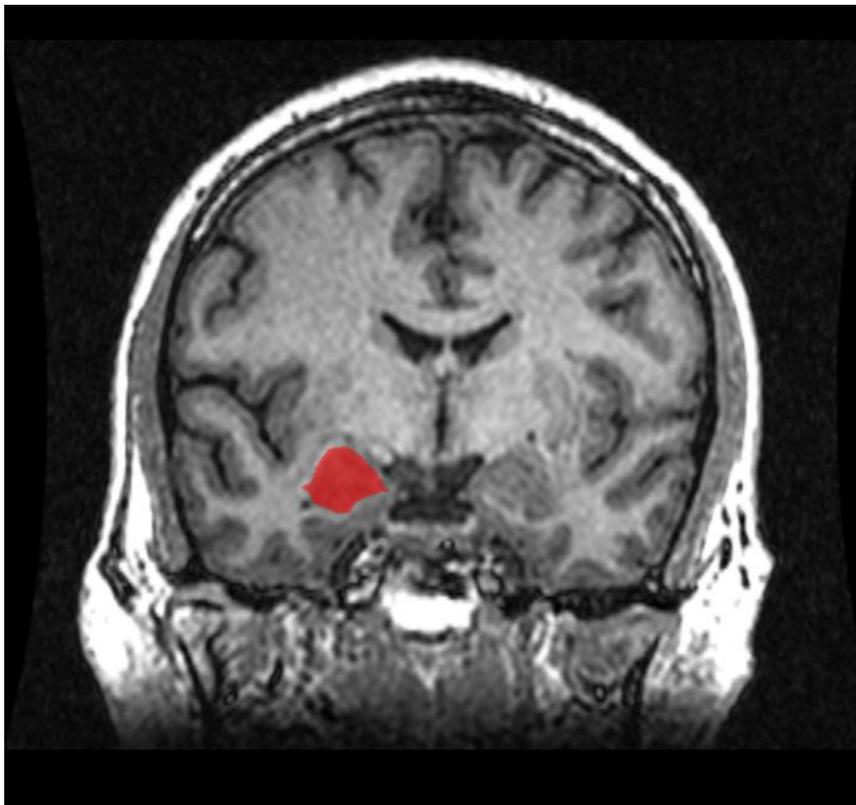


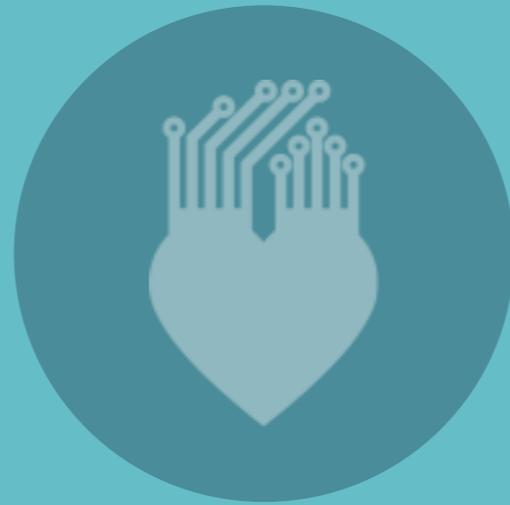
... commonly known as the answer to the question:  
"WTF will I **ever** need that for?"

# Why we remember stories...

... better than stand-alone facts:

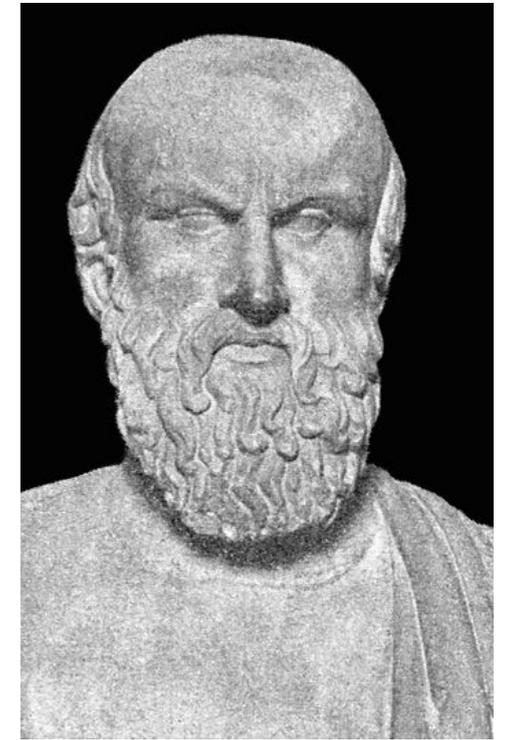
**4. They invoke emotions.**



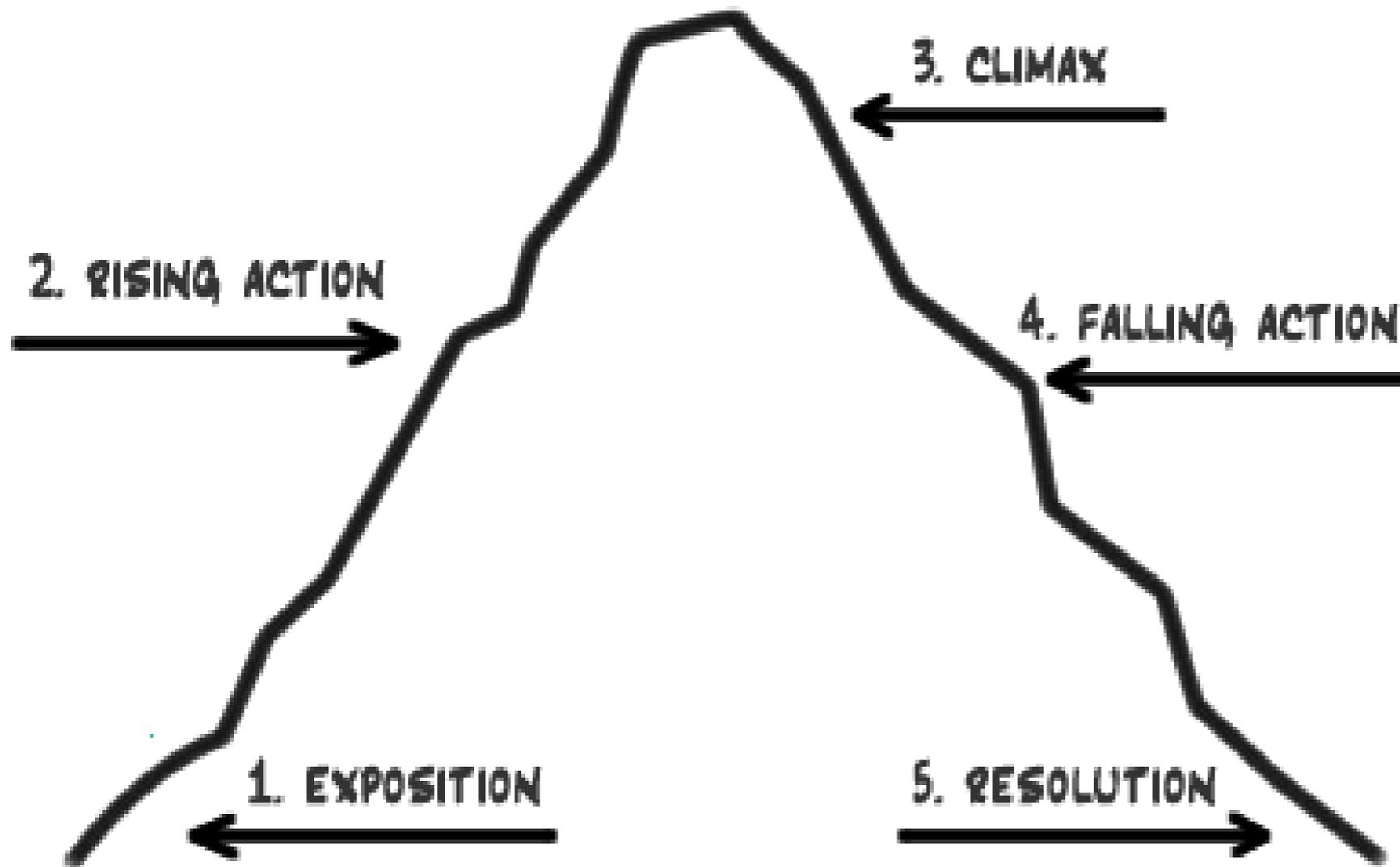


# What Is a Story?

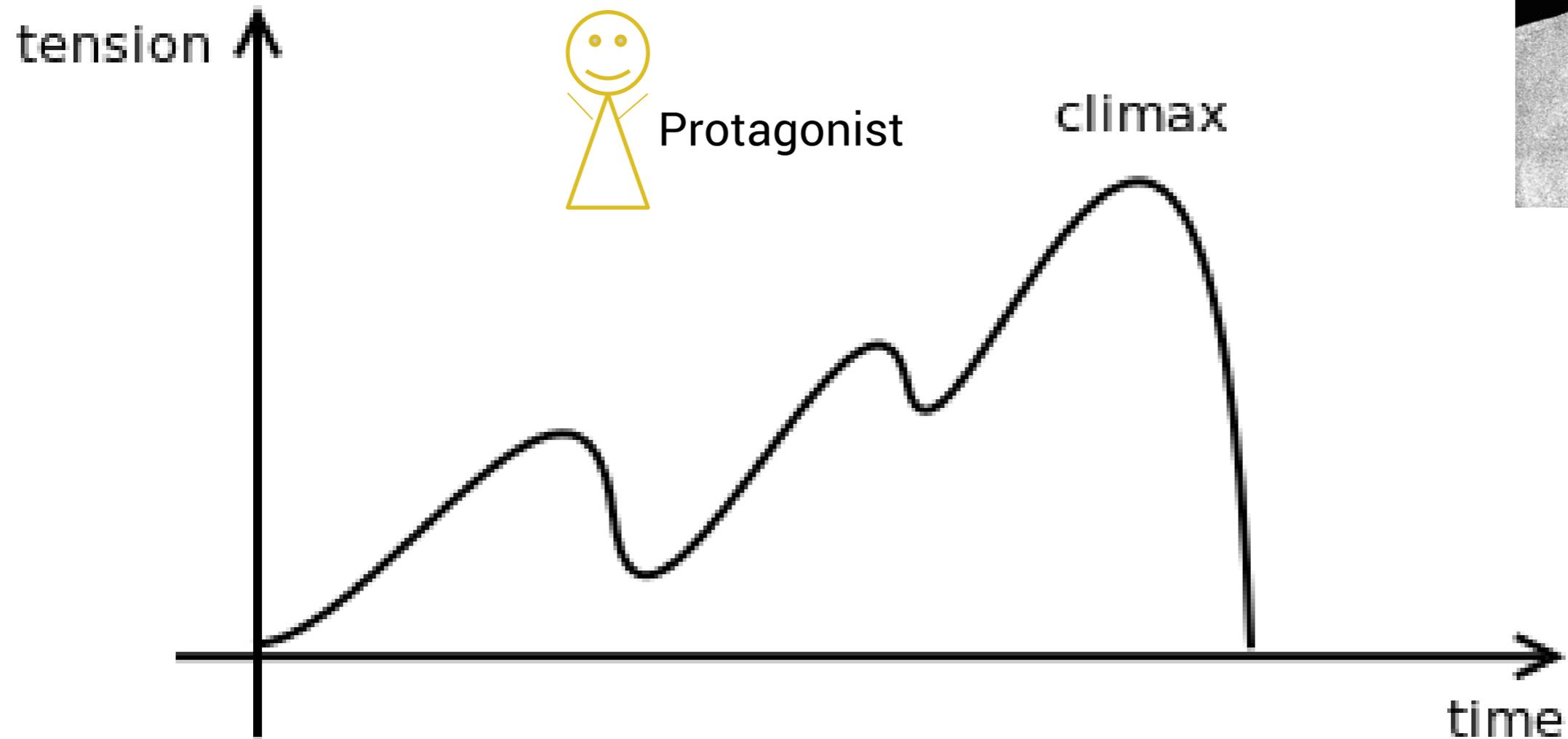
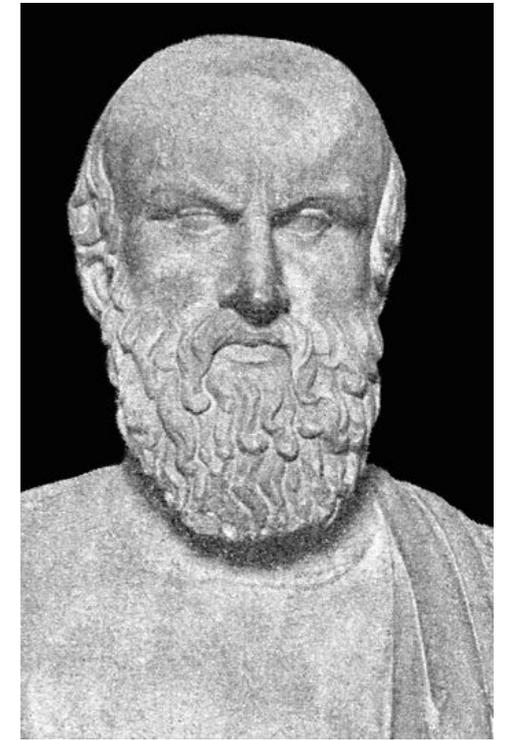
# What is a story?



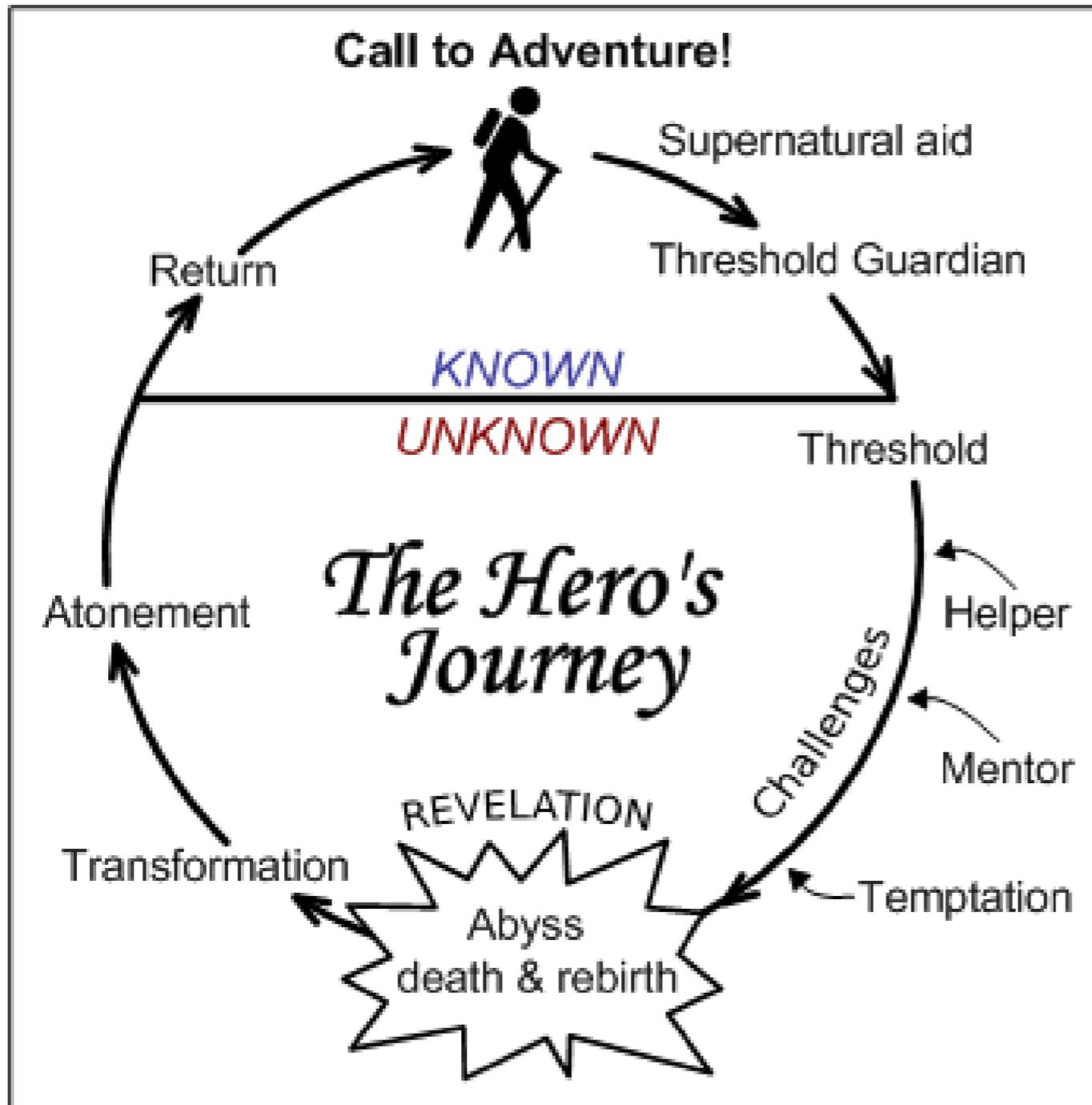
## THE PLOT DIAGRAM



# What is a story?



# What is a story?



Joseph Campbell,  
*The Power of Myth*  
(1988)

**Working definition:**

**Humans**

**Working definition:**

**Humans**

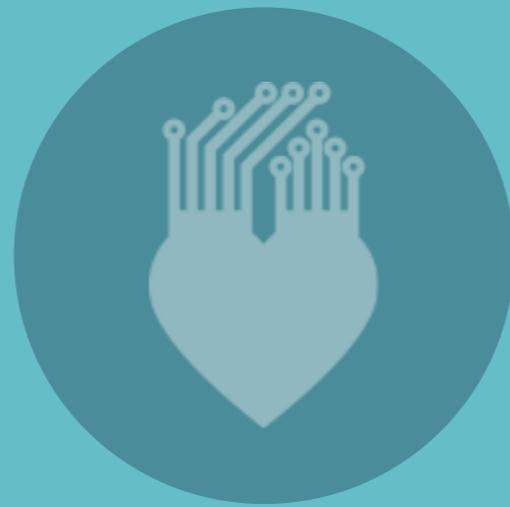
**doing**

**Working definition:**

**Humans**

**doing**

**stuff.**



# Types of Stories

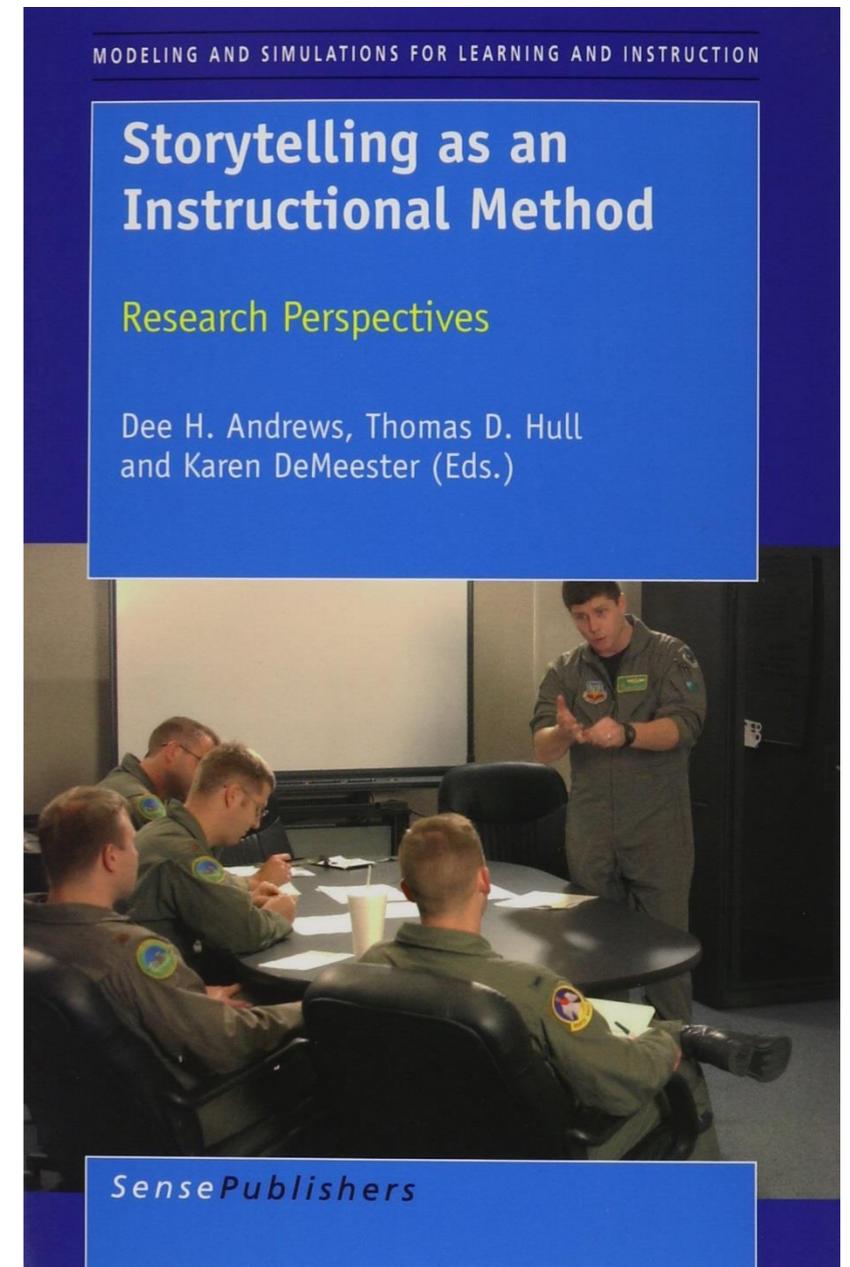
# Types of Stories

Narrative

Case Study

Scenario

Problem-based Learning



# Types of Stories

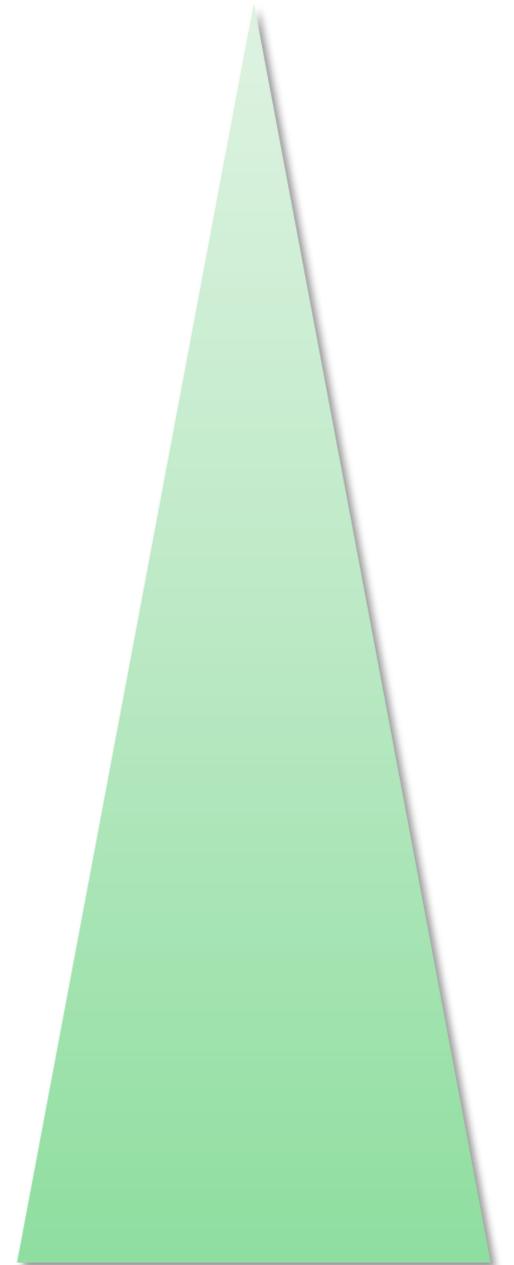
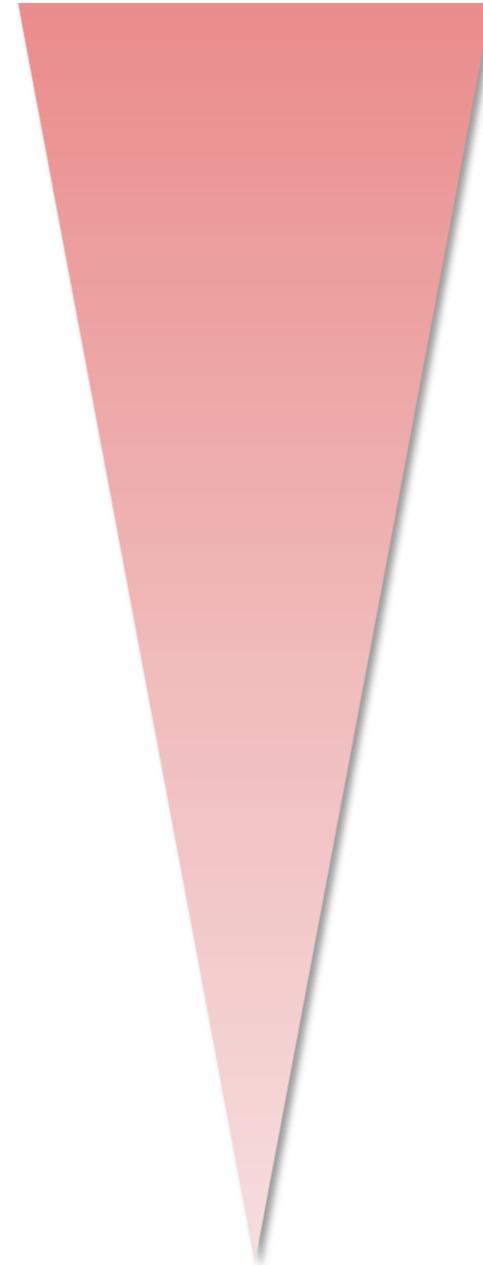
Narrative

Case Study

Scenario

Problem-based Learning

Emotion



Analysis

# Narrative

Example:

JOSEPH GORDON-LEVITT  
SHAILENE WOODLEY

# SNOWDEN

NOW IN THEATERS

GET TICKETS

SOLDIER  
TRAITOR  
SPY  
HERO  
HACKER  
PATRIOT

“  
ONE OF THE BEST  
MOVIES OF THE YEAR  
- FOX TV

// DIRECTED BY:  
OLIVER STONE

// SCREENPLAY BY:  
KIERAN FITZGERALD & OLIVER STONE

YOU DON'T HAVE TO PICK A SIDE. BUT YOU WILL.

HOME

-01

-02

-03

-04

-05

CREDITS

// RUN

#SNOWDENMOVIE

+

Source: <https://snowdenfilm.com>

# Case Study

Example:



Source: <https://www.heise.de/newsticker/meldung/Trojaner-im-OP-wie-ein-Krankenhaus-mit-den-Folgen-lebt-3617880.html>

# Scenario

## Example:



The image shows a ransomware lock screen for Petya. At the top left is the logo with a hammer and sickle and the text "ПЕТЯ РАНСОМВЯЗ". To the right are navigation links: "Start", "Payment", "FAQ", and "Support". On the far right is a language selector set to "English". The main text reads "Your computer has been encrypted". Below this is a paragraph explaining that the hard disks are encrypted with a military-grade algorithm and that a special key is needed for decryption. A countdown timer indicates that the price will be doubled in 6 days, 13 hours, 43 minutes, and 10 seconds. At the bottom center is a red button with a checkmark icon and the text "Start the decryption process".

ПЕТЯ  
РАНСОМВЯЗ

Start Payment FAQ Support

English

# Your computer has been encrypted

The hard disks of your computer have been encrypted with an military grade encryption algorithm. It's impossible to recover your data without an special key. This page will help you with the purchase of this key and the complete decryption of your computer.

⌚ The price will be doubled in:

6 days 13 hours 43 minutes 10 seconds

✓ Start the decryption process

Source: [http://news.softpedia.com/news/petya-ransomware-uses-dos-level-lock-screen-prevents-os-boot-up-502166.shtml#sgal\\_2](http://news.softpedia.com/news/petya-ransomware-uses-dos-level-lock-screen-prevents-os-boot-up-502166.shtml#sgal_2)

# Problem-based Learning

## Example:

OPINION

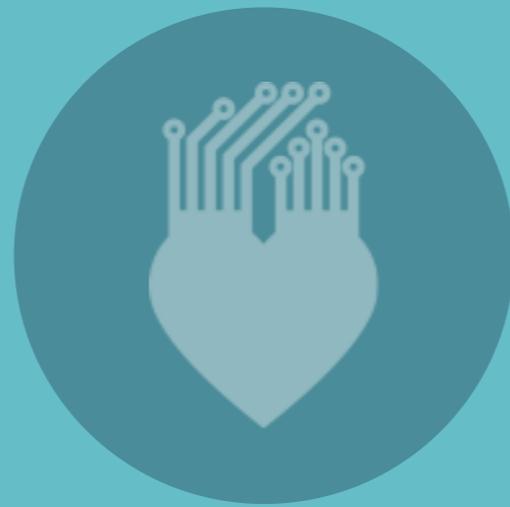
### Congrats - you're the new CISO...now what

You need foundational visibility into your security posture regarding what's working and what's not.



**MORE LIKE THIS**

- What football teaches us about cybersecurity
- What some cybersecurity vendors don't want you to know
- Before you buy another cybersecurity buzzword
- VIDEO  
How to Hack a Smartphone, Part 2



# Metaphors and Analogies

# Narratives, Case Studies and Scenarios

... can be real, but don't have to be.

They can also be **analogies** from other fields than infosec.

# Narratives, Case Studies and Scenarios

... can be real, but don't have to be.

They can also be analogies from other fields than infosec.

In fact, that may be **better**.



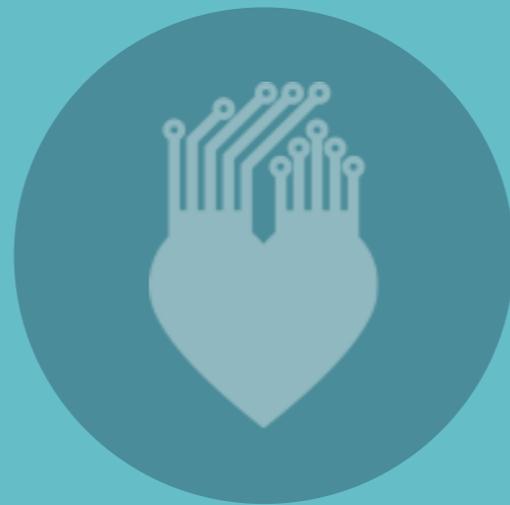
Source: [http://memory-alpha.wikia.com/wiki/Q\\_Continuum?file=Q\\_Continuum\\_ranch\\_house.jpg](http://memory-alpha.wikia.com/wiki/Q_Continuum?file=Q_Continuum_ranch_house.jpg)

**(By the way...)**



**Happy 30th Birthday, Q!**

... on September 28, 2017



**So... Where Do We Get  
Our Stories From?**

# Myths and Legends



(Of course.)

# Myths and Legends

Peace be within your walls and security within your towers!

Psalm 122:7



# Myths and Legends

For you say, I am rich, I have prospered, and I need nothing, not realizing that you are wretched, pitiable, poor, blind, and naked.

Revelation 3:17



# The Analogies Project



Finding The Hidden InfoSec Story

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[About »](#) [Latest Updates »](#) [Analogies Library](#) [Contributors](#) [Participate »](#) [Contact Us](#)



JUL  
17



## A Password Manager is Like an Accountant

Posted by Dr Christina Czeschik on Jul 17, 2017

JUL  
03



## Security with Teeth

Posted by Tom Fairfax on Jul 3, 2017

JUN  
26



Evolution Since 1995

JUN  
19



## Infosec is Like Sun Protection

[www.theanalogiesproject.org](http://www.theanalogiesproject.org)

# The Analogies Project

## Literature Initiative Analogies



### Shakespeare's Sonnets and Policy Statements

POSTED BY DAVE BROOKS ON JUL 20, 2015

Dave Brooks compares the language used in Shakespeare's Sonnets with that of our Policy Statements and asks if we're really being as clear as we could be.



### Rumpelstiltskin – A Lesson in Password Security

How do you crack the seemingly impossible? Paul Farmer takes a look at the Brothers Grimm tale 'Rumpelstiltskin' and what it can teach us about password security.



### The North Wind and The Sun

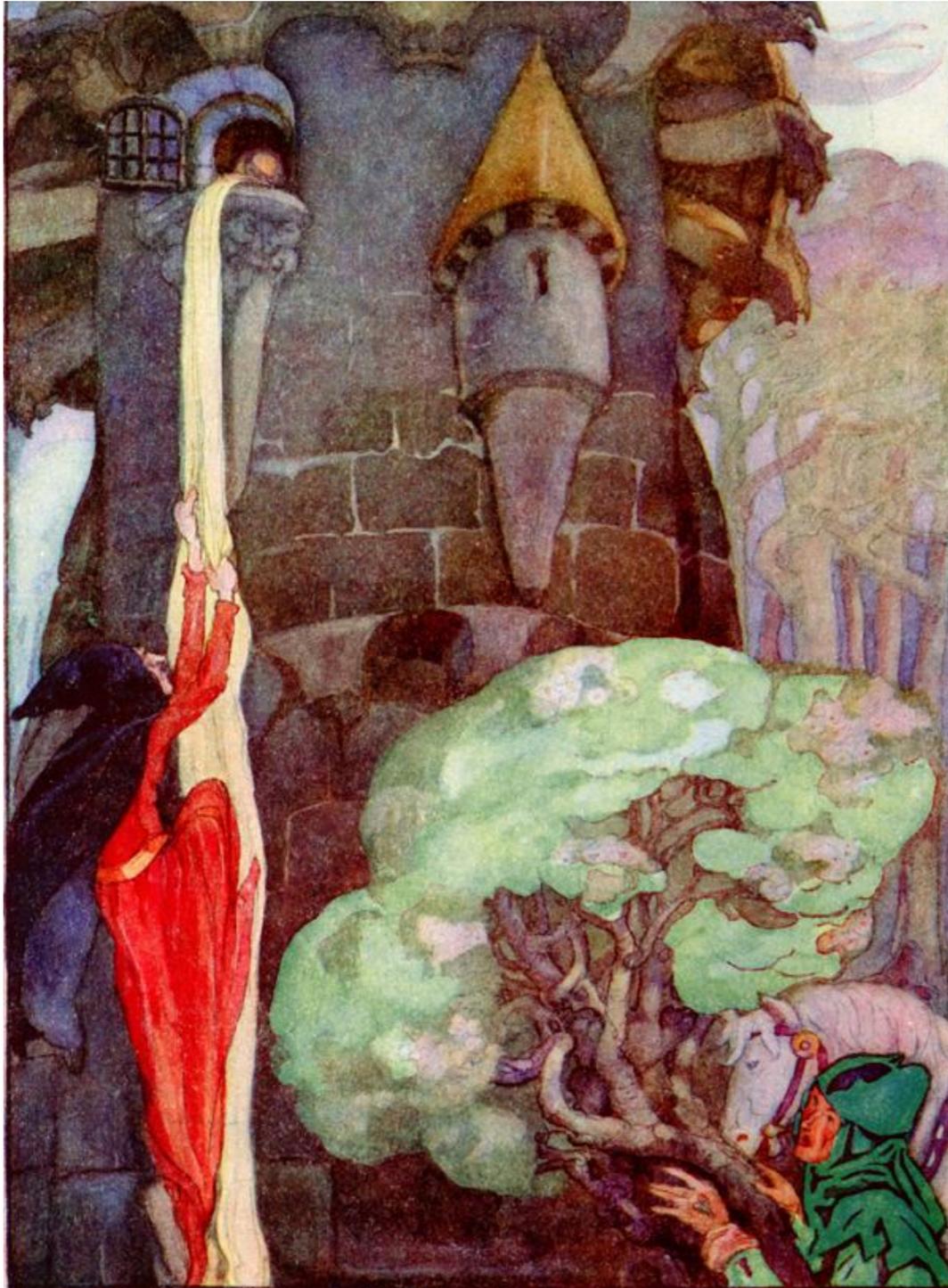
Dave Brooks looks at Aesop's 'The North Wind and The Sun' and looks at whether the wind or the sun present the best technical hack.



### Cymbeline

With issues around identity and authenticity Dave Brooks explores what Shakespeare's 'Cymbeline' can tell us about phishing.

# The Analogies Project



Rapunzel –  
lessons learned:

**Biometric access  
control can be fooled.**

~~Even if~~ Especially when  
the system is human.

# The Analogies Project



Rumpelstiltskin –  
lessons learned:

**Do not sing your  
passwords when  
dancing around a  
campfire.**

(Not even on BalCCon.  
Seriously.)

# The Analogies Project



Infosec is like sun protection:

**Lotion** won't prevent heatstroke

**Hat** won't prevent sunburn

⇒ You need more than one protection.

(Or you can just stay offline – lock yourself in your apartment all summer...)

# TV Tropes



[www.tvtropes.org](http://www.tvtropes.org)

# TV Tropes

A trope is a

- storytelling device or convention,
- **a shortcut for describing situations**

the storyteller can reasonably assume the audience will recognize.

# TV Tropes

## Magical Computer

Share ↗

Main

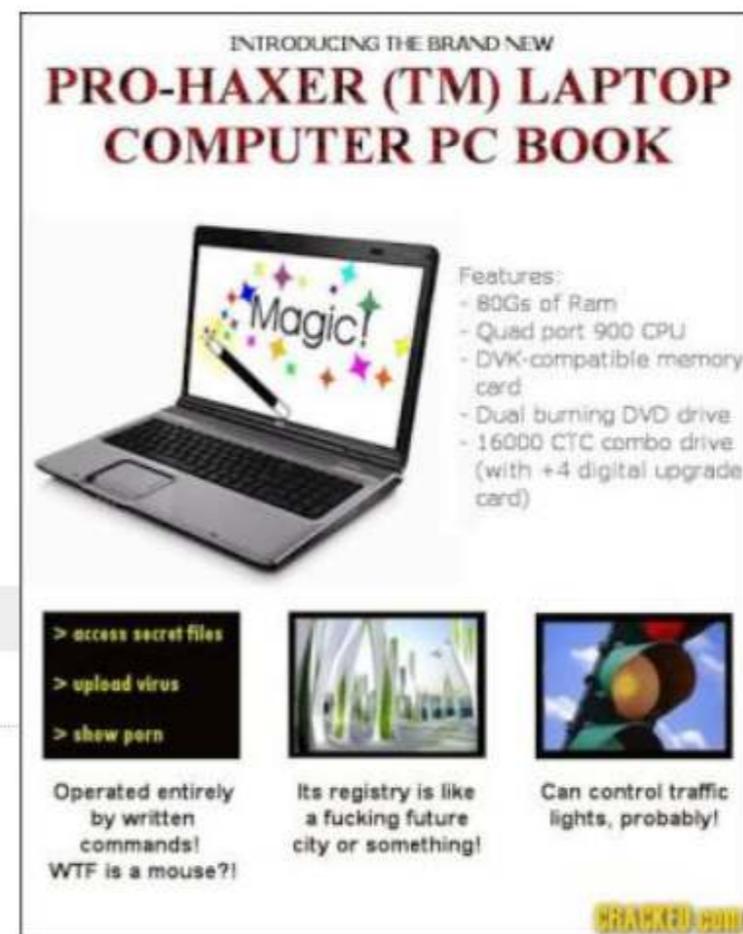
Quotes

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"Quite exciting, this computer magic."

Computers on TV often bear only superficial resemblance to their real life counterparts. In fact, they are often just a [21st-century substitute for magic](#). A [Computer Wizard](#) is a literal wizard. Evoking arcane words with their keyboard, they cast spells into the infinite (and physically real) realms of [Cyberspace](#).

For computers which are *literally* magical see [Magitek](#). See also [Clarke's Third Law](#). If a computer is shoddy, and not magical in any way (except maybe magically *terrible*), it's [The Alleged Computer](#).



### Tropes:

- [The Altnet](#)
- [Artificial Intelligence](#)
  - [A.I. Is a Crapshoot](#)
  - [Benevolent A.I.](#)
- [Beeping Computers](#)
- [Billions of Buttons](#)
- [Computer Equals Monitor](#)



"Hollywood thinks that computers run on black magic and hackers are wizards."

# TV Tropes

## Hollywood Hacking

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Main

Laconic

Quotes

PlayingWith

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"Our webs are down, sir. We can't log in!"

"Which webs?"

"All of them."

"They've penetrated our code walls. They're stealing the internet!"

"We'll need to hack all IPs simultaneously."

— **Penny Arcade** (critiquing the verisimilitude of [Live Free or Die Hard](#))

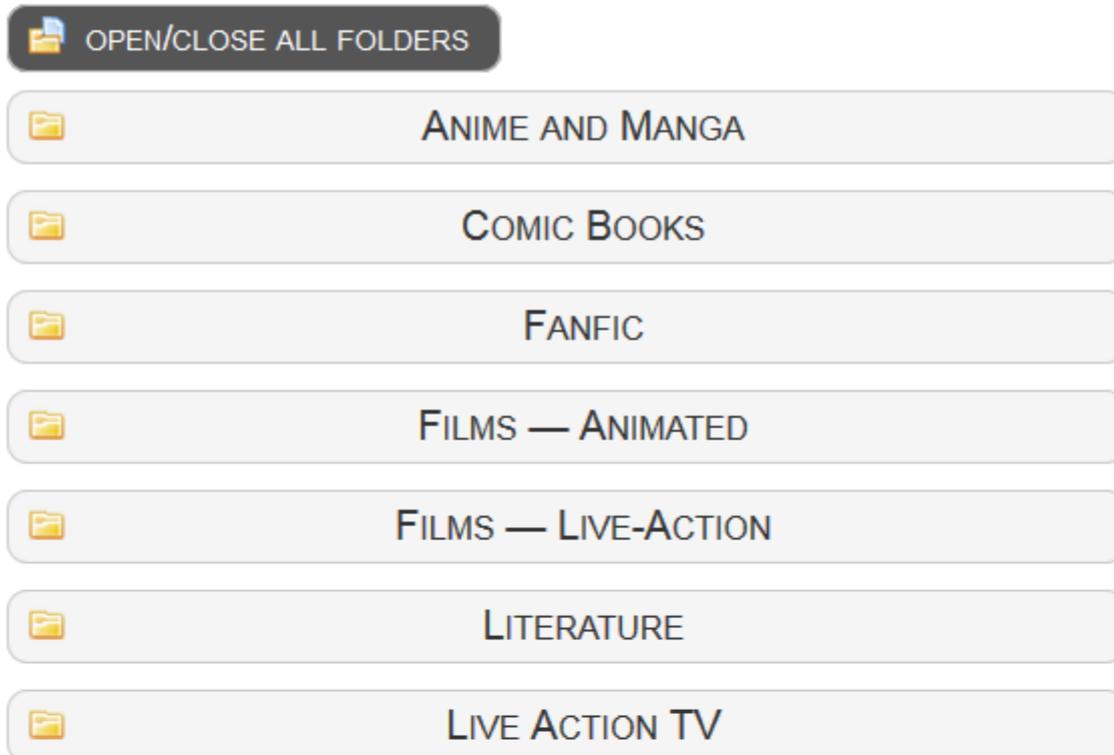
Real hacking is boring. Hollywood *hates* boring. (And how many real life hackers would want to be responsible for [The CSI Effect](#)?) Instead of exploiting security flaws, you guide a little 3D version of yourself through a fiery maze that somehow represents the firewall, without forgetting to [leave a Skull and Crossbones image that takes the entire screen of the hacked computer](#). It's nothing like real hacking, although either way, you may have to use [Rapid-Fire Typing](#). That last part also means that any AI or robot that can directly interface with a computer is automatically the greatest hacker in the universe that can instantly take over any system no matter how secure, because it doesn't need to type.

Hollywood Hacking is when some sort of convoluted metaphor is used not only to describe hacking, but actually to put it into practice. Characters will come up with [rubbish](#) like, "Extinguish the firewall!" and "I'll use the Millennium Bug to launch an [Overclocking Attack](#) on the whole Internet!" - even hacking [light switches and electric razors](#), which is even sillier if said electric razor is unplugged. The intent is to employ a form of [Artistic License](#) or [hand waving](#) which takes advantage of presumed technophobia among the audience. You can also expect this trope to annoy those within the audience whose occupation involves computers or the Internet.



We should feel lucky they even know what Django is.

# TV Tropes



- *Bones* has Angela for their typical Hollywood Hacking needs. Recurring villain Christopher Pelant manages to accomplish some truly outrageous feats with computers. He can do almost anything. Some of the things he managed to do are: fool an ankle monitor, corrupt/modify security footage, take down cellphone networks and traffic lights, hijack a predator drone in Afghanistan, wipe his own identity and create a new one to get [Diplomatic Impunity](#), and infiltrate a private army. Oh and in his first appearance he manages to *carve bones* in such a way that when a 3D model of them is created it infects the computer with malware that changes the fan speeds and causes the **CP Us** to catastrophically overheat.
  - He's so good that Hodgins, who is admittedly a bit paranoid, worries that even if they use a system not connected to the internet Pelant will infect it with a worm by using the power grid.
- *CSI: New York*: "I'll create a GUI interface using Visual Basic. See if I can track an IP address [\[1\]](#)."
- This was handwaved (lampshaded?) in *Nikita* with the explanation of, "I even made it look like a video game so your little tween brains can handle it."

# TV Tropes

## Apologises a Lot

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Laconic

Quotes

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**Sorry!** This article has two quotes on the main page instead of just one.

*"This sentence wishes to apologize for all the needless apologies found in this story (this one included), which, although placed here ostensibly for the benefit of the more vexed readers, merely delay in a maddeningly recursive way the continuation of the by-now nearly forgotten story line."*

— "This Is the Title of This Story, Which Is Also Found Several Times In the Story Itself", **David Moser**

*"The thing with an apology is that it's something precious, like diamonds. If it happens once in a while, it's meaningful. If it only rarely happens, it can be a surprise. But if it happens too much, it loses its value, and thus loses its impact."*

— **Mackenzie DeBruin**

Wait, are we [describing Apologizes A Lot Here](#) already? Ahh, oh no!! I'm so sorry, I'll get started!

Alright, this trope is about a character who [apologizes a lot](#). When called on it, may actually apologize for being so apologetic. Often a trait of a [Cute Clumsy Girl](#) and not out of place on a [Shrinking Violet](#). Often comes with [Self-Deprecation](#). Some [Apologetic Attackers](#) do this, some only apologize once or twice. [Sorry I Fell on Your Fist](#) is an extreme example. Sometimes associated with [Canada, Eh?](#) types.

Can also be a trait of real people. <sup>note</sup> In some cases, can be a warning sign that someone is a victim of [abuse](#). For the trope's opposite, see [The Unapologetic](#).

Sorry, was that okay??



I'm sorry! I can't think of a better caption for this image!

Sorry, sorry! Thank you for waiting! I'm here with the examples!

# TV Tropes

## You Didn't Ask

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Laconic

Quotes

Fr

PlayingWith

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**Sarge:** You mean you could have turned the bomb off any time!? Why didn't you tell us? And don't say I didn't—

**Gary:** YOU DIDN'T ASK.

— *Red vs. Blue*

A character on the show has been **less than forthcoming** about information that would have certainly helped the protagonist **figure things out faster**. Often, there's a good reason—a **Big Secret** or an **Awful Truth**, for example. In reality, the writers just needed a way to protract the story or build the suspense.

There are two ways this trope is generally employed:

- **Version one:** The detectives or crime labs find evidence that their main suspect in the crime couldn't possibly have committed the murder because he had some other alibi. Usually, the secret they are keeping is illegal, immoral or highly embarrassing to such an extent that they would rather go to prison for the primary crime. It is usually used in crime dramas to get the **Red Herring** out of the way and move suspicion off of the patsy.

**Cop:** You didn't tell us that you were having an illicit affair with your secretary while betting on backroom cockfights.

**Perp:** You didn't ask.

- **Version two:** A **Forgotten Superweapon** is in the pocket of a non-primary character. This can feel like **Deus ex Machina** if the viewer was not given enough advanced warning that the character had this in their pocket.

**Hero:** Why didn't you tell me you had that **Applied Phlebotinum** in your pocket?

**Sidekick:** You didn't ask.



Dave's a jerk.<sup>note</sup>

# TV Tropes

## Race Against the Clock

Share ↗

aka: You Have 48 Hours

[Main](#)

[Laconic](#)

[Quotes](#)

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*"Whatever was due to happen at 00:00:00 was unlikely to be good."*

— *Swellhead*

In many cases, for whatever reason — be it the alignment of planets, a scheduled public event to sabotage, a "you have one hour to comply or..." threat, or just a plain old [Time Bomb](#) — the villain's plot is time sensitive: It will succeed at a given moment and not one second sooner. The hero has until that moment to stop the villain.

Naturally, things will go down to the wire and the hero will foil the evil scheme at the [last possible second](#). It's especially powerful when combined with [Real Time](#)... even if it takes a [Magic Countdown](#) to line things up properly. This is a frequently used but still effective method of adding more tension to the story. Compare [When the Clock Strikes Twelve](#) and [Right on the Tick](#).

One variant is that a specific time isn't the point of success; the villain must instead be stopped before he collects all the [Plot Coupons](#) or kills all of his intended victims. In this case, the hero will stop [the last, and only the last](#), step in the evil plan. This sucks in the case of victims, since all but the last victim are still dead, but hey, at least the villain didn't *win*...

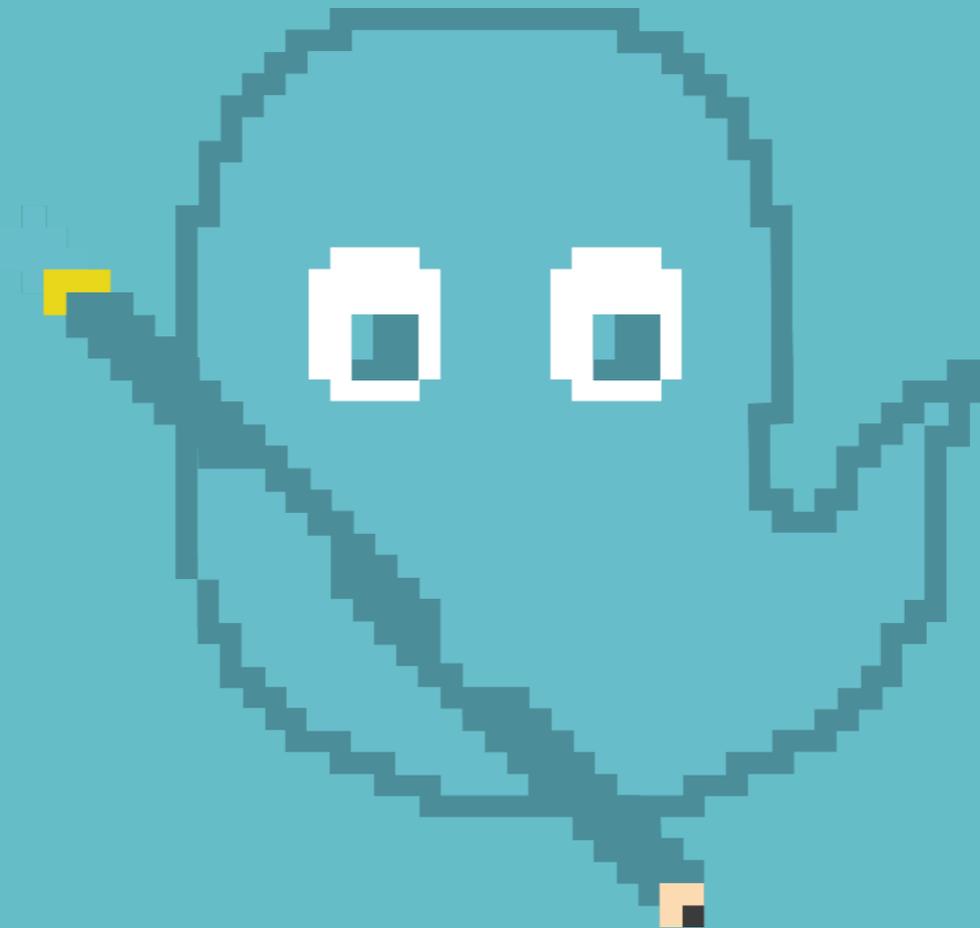
In other cases, time itself is the foe with the help of some [random coincidences](#) that impede the hero's progress. Interestingly, the audience will probably buy these coincidences since they come off, if done well, as an application of [Finagle's Law](#). Usually, such a sequence will serve as a dramatic finale.



You have no chance to survive make your time.

Source: <http://tvtropes.org/pmwiki/pmwiki.php/Main/RaceAgainstTheClock>

# Thank you for your attention!



**Christina Czeschik**

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