

Giving effective presentations

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Why giving great presentations is important:

Consider the example of faculty hiring

What I will cover

1. How to present an engaging story
2. Designing slides: The assertion-evidence template
3. Claus' pet peeves about presentations
4. Bonus topics

1. How to present an engaging story: The onion model

Let's start with an example (a bad one)

Ketogenic diet as supporting treatment option in glioblastoma multiformae

- On a ketogenic diet, the liver produces ketone bodies, in particular β -hydroxybuturate (BHB)
- BHB can cross the blood-brain barrier and serves as alternative fuel for brain cells, replacing glucose
- A diet is ketogenic when carbohydrate intake falls below 20-50 gram/day while fat comprises ~80% of caloric intake
- Glioblastoma multiformae (GBM) needs glucose for growth, and seems inhibited by the presence of BHB
- Several clinical trials are currently ongoing to determine whether ketogenic diets can slow or inhibit GBM growth

Did this get you excited about ketogenic diets?

Why you should eat eggs and bacon, not oatmeal and cornflakes

- Cancer is the leading killer in developed countries
- Despite medical advances, most cancer treatments are gruesome yet only moderately successful
- If we could prevent or treat cancer by a simple change in diet, that would be awesome
- Overwhelming evidence links cancer to high-carbohydrate diets (in particular sugar and starches)
- Eating a high-fat, low-carb diet (like the Atkins diet) may prevent or treat cancer
- Clinical trials of such diets are currently ongoing

Did this get you more excited?

The onion model

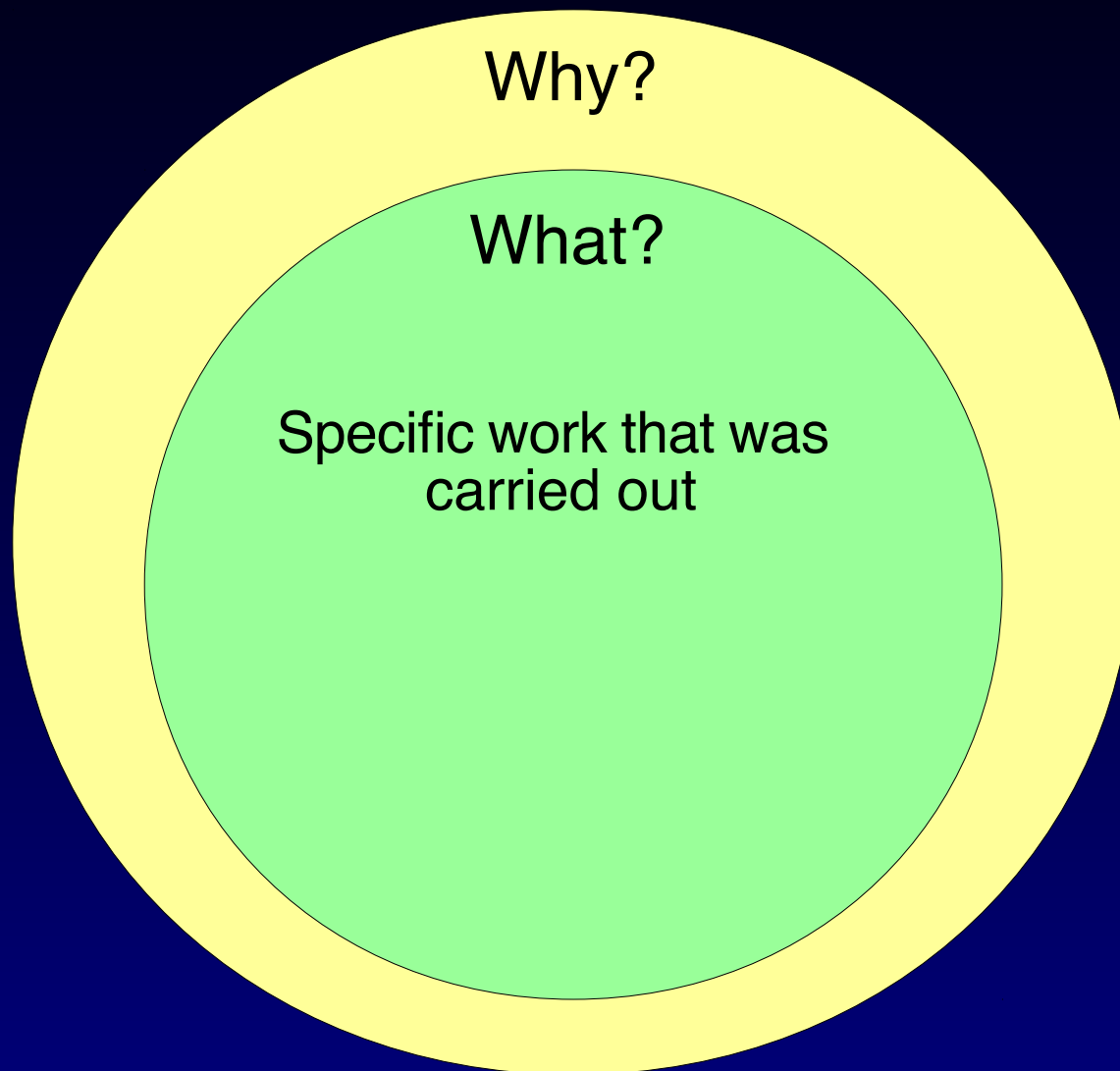
The onion model

Why?

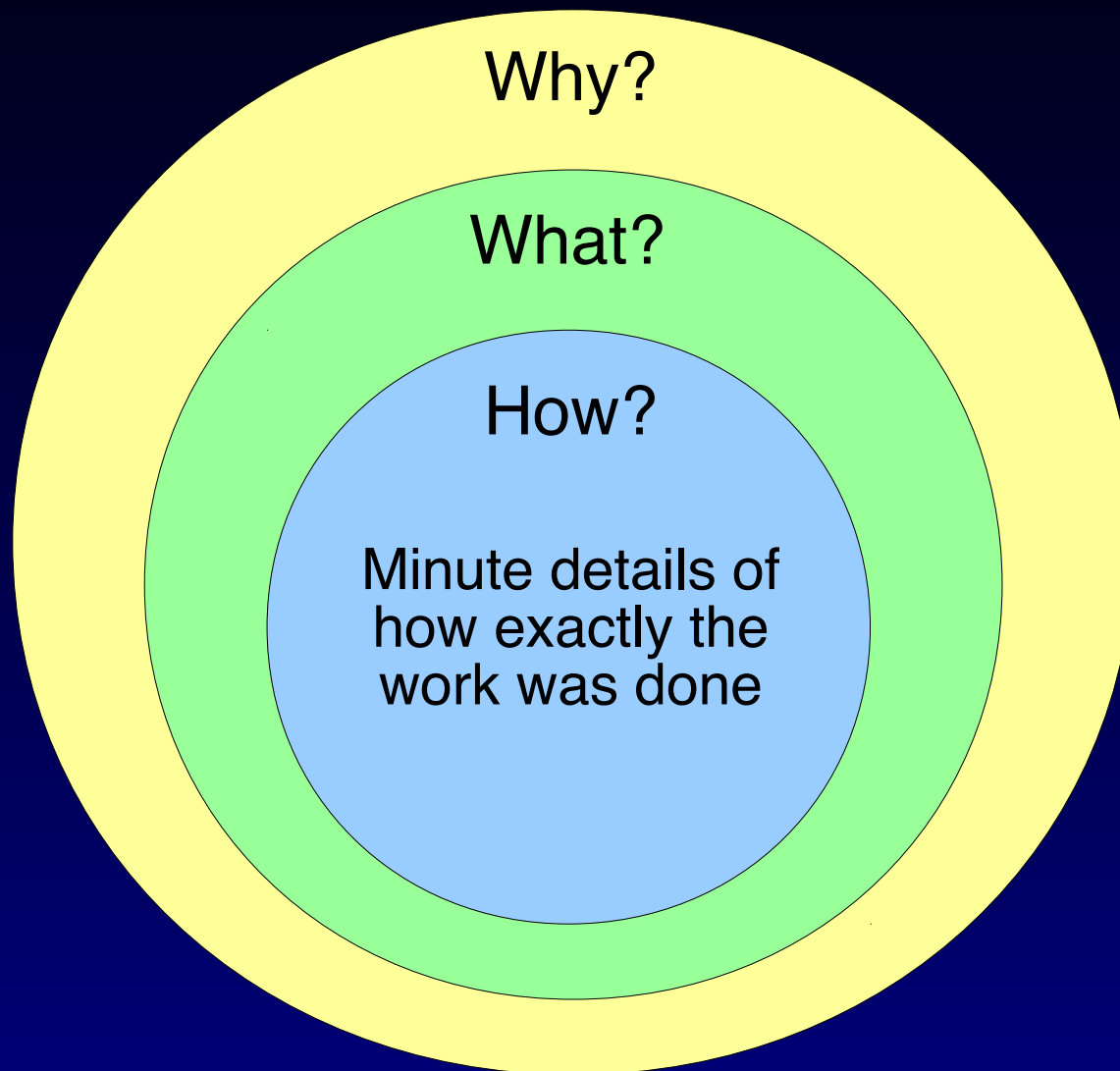
The entire story,
including broader implications and
underlying justifications

10,000 foot perspective

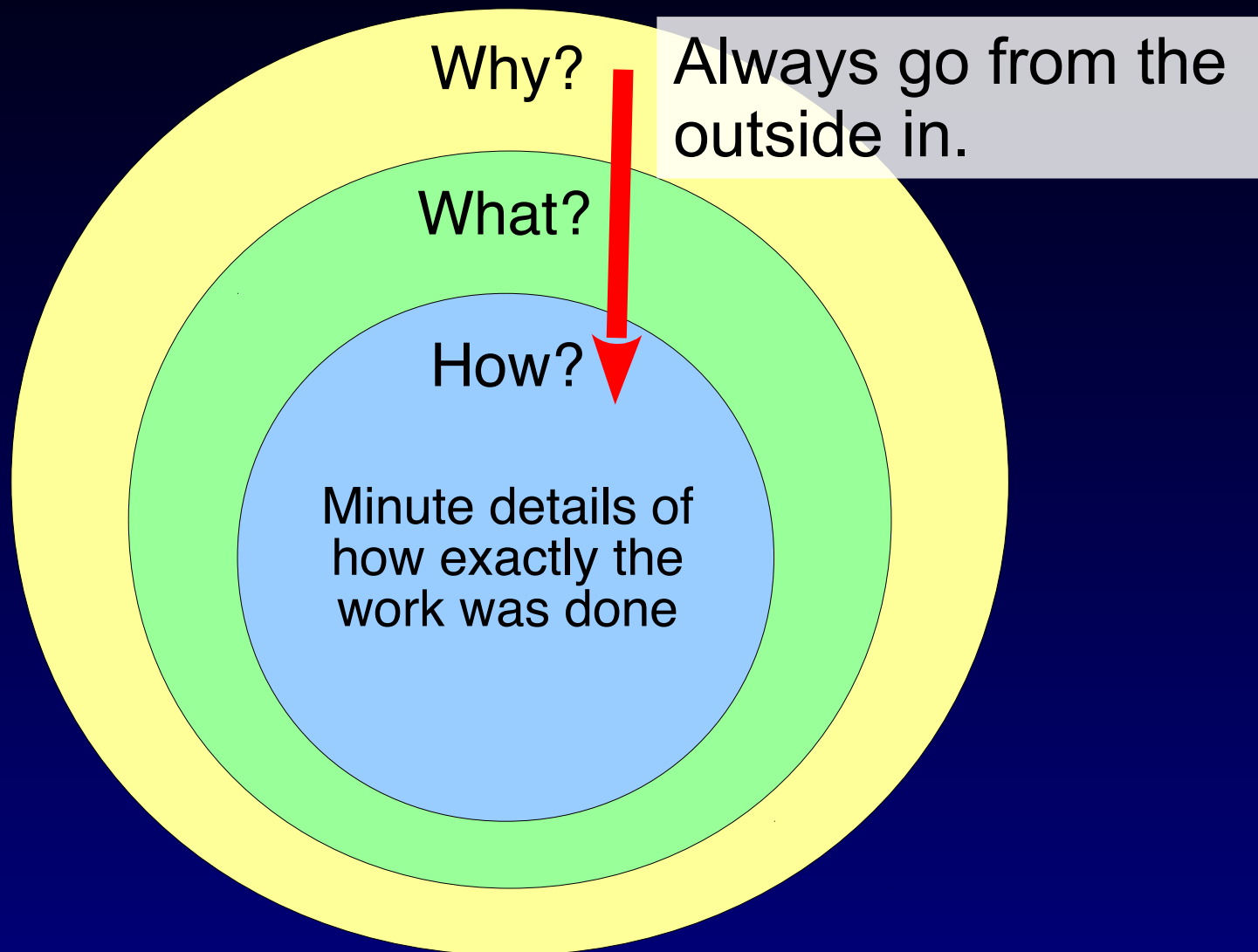
The onion model



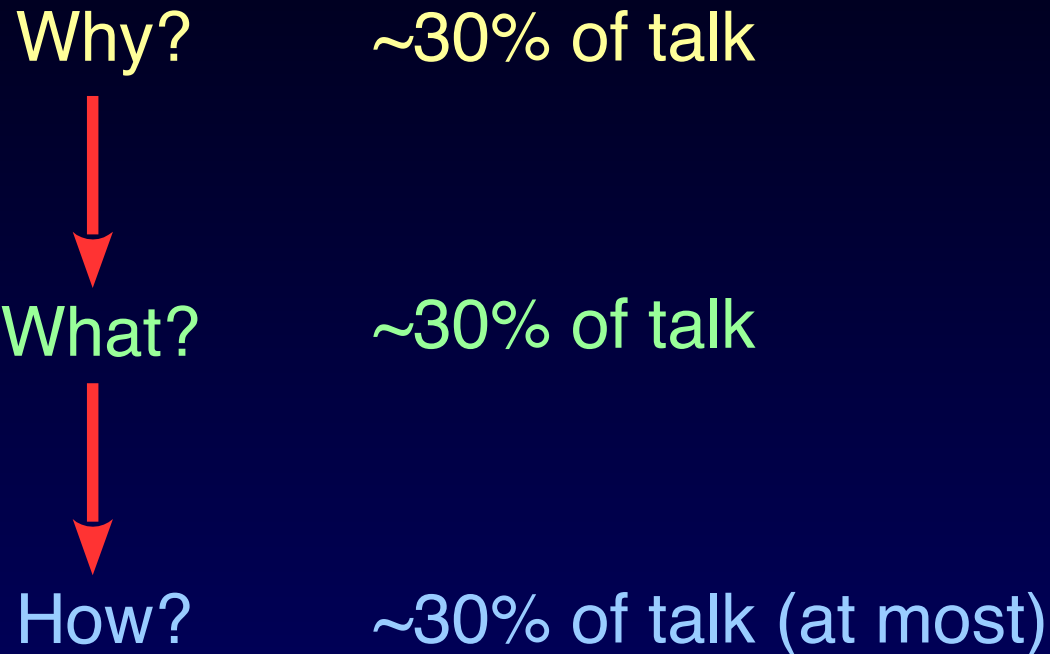
The onion model



The onion model



For maximum impact, use approximately equal amounts of time for each layer



Let's analyze the content of the earlier
ketogenic diet slides

Ketogenic diet as supporting treatment option in glioblastoma multiformae

- On a ketogenic diet, the liver produces ketone bodies, in particular β -hydroxybuturate (BHB) **What?**
- BHB can cross the blood-brain barrier and serves as alternative fuel for brain cells, replacing glucose **What?**
- A diet is ketogenic when carbohydrate intake falls below 20-50 gram/day while fat comprises ~80% of caloric intake **How?**
- Glioblastoma multiformae (GBM) needs glucose for growth, and seems inhibited by the presence of BHB **What?**
- Several clinical trials are currently ongoing to determine whether ketogenic diets can slow or inhibit GBM growth **What?**

Why you should eat eggs and bacon, not oatmeal and cornflakes

- Cancer is the leading killer in developed countries **Why?**
- Despite medical advances, most cancer treatments are gruesome yet only moderately successful **Why?**
- If we could prevent or treat cancer by a simple change in diet, that would be awesome **Why?**
- Overwhelming evidence links cancer to high-carbohydrate diets (in particular sugar and starches) **What?**
- Eating a high-fat, low-carb diet (like the Atkins diet) may prevent or treat cancer **What?**
- Clinical trials of such diets are currently ongoing **What?**

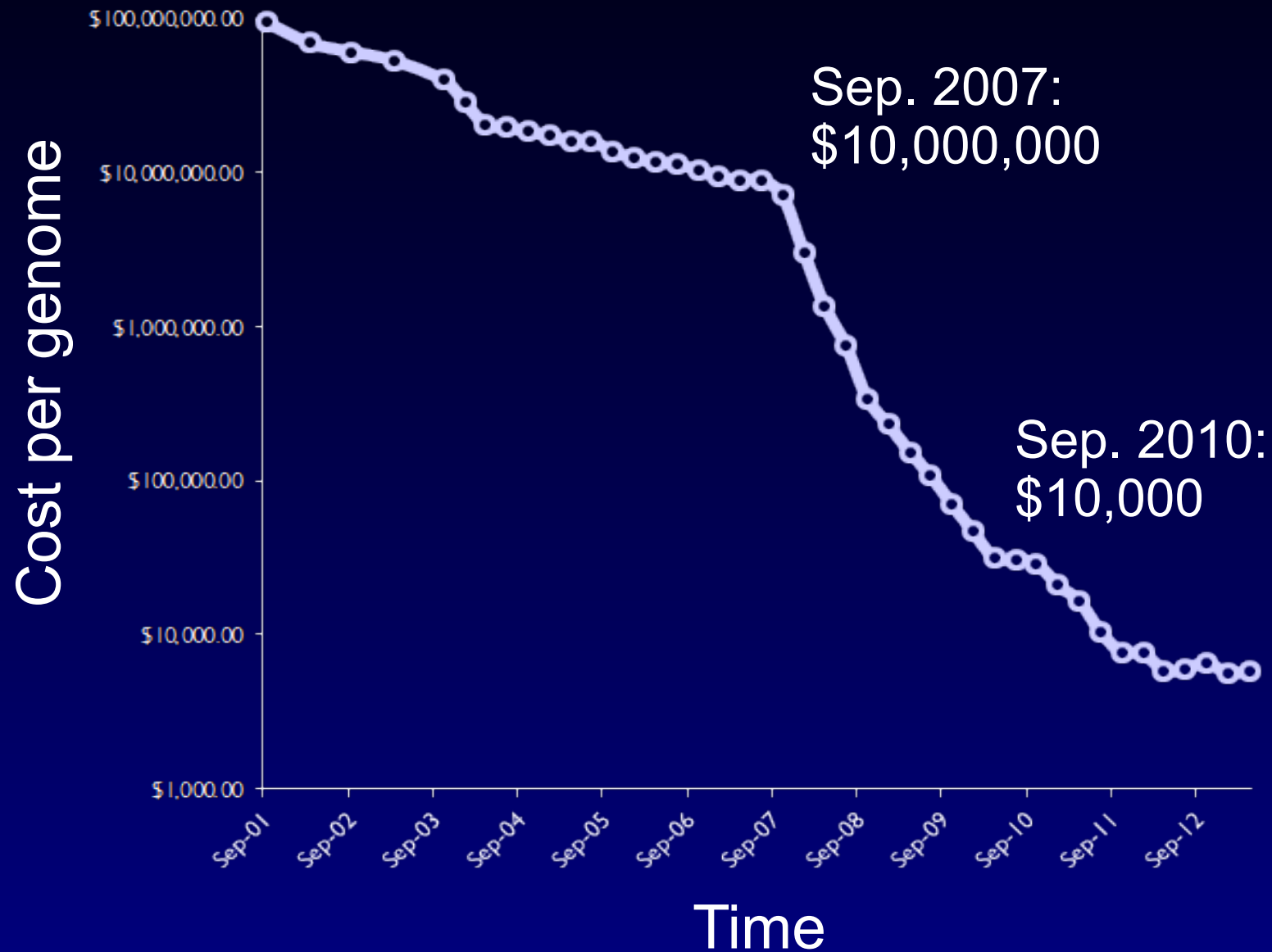
2. Designing slides: The assertion-evidence template

The title of the slide makes an **assertion**

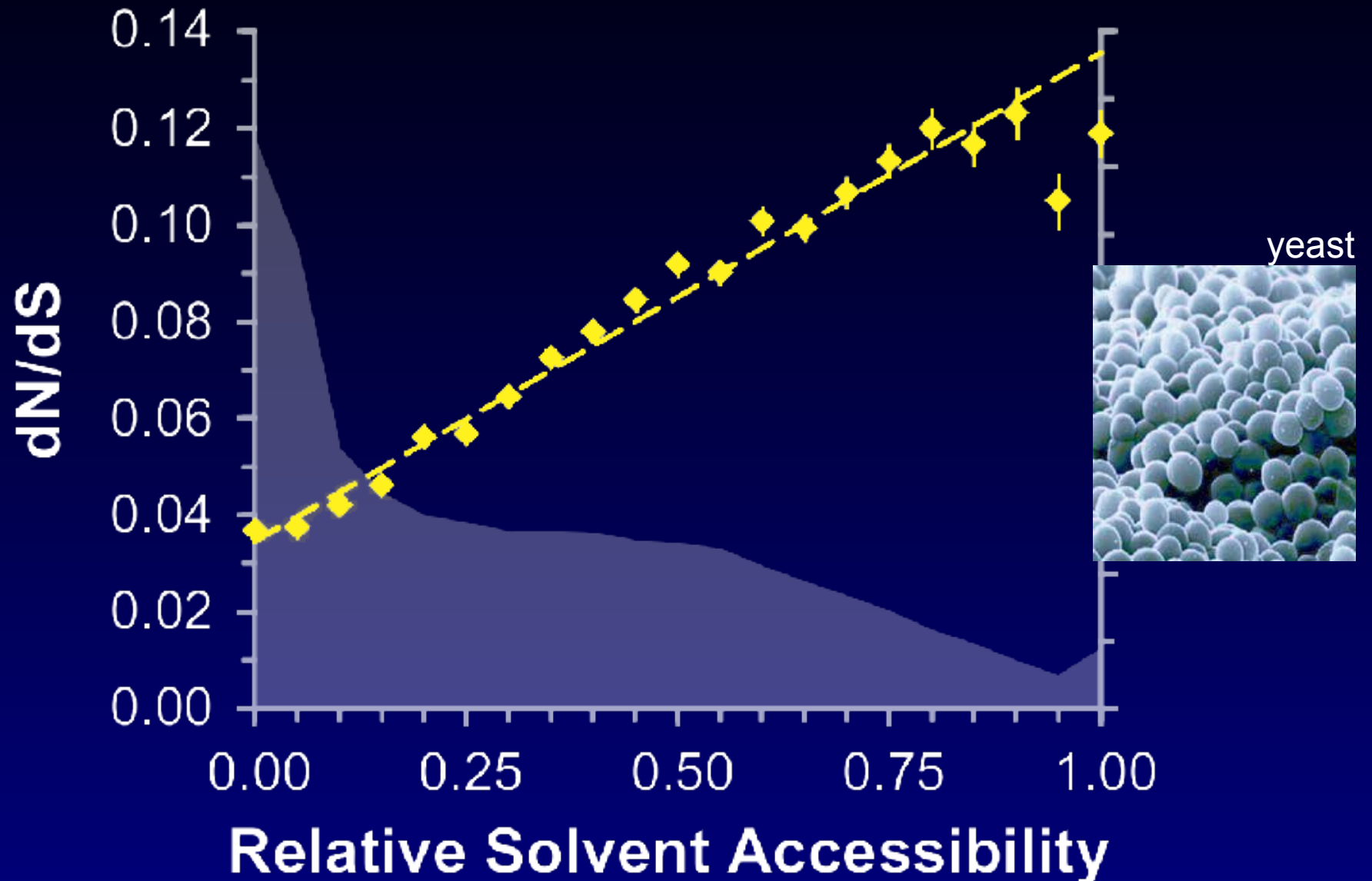
The slide body provides the **evidence** to support the assertion

Examples

Sequencing costs have declined 1000-fold from 2007 to 2010



Evolutionary rate increases linearly with relative solvent accessibility (RSA)



When you make clear assertions,
your audience can follow more easily

3. Claus' pet peeves about presentations

How to ruin a talk and put your audience to sleep in one slide

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Overview

Never!

- Introduction
 - where I will tell you what my talk is about
- Background
 - where I will give some more random background
- Results
 - where I will tell you my results
- Conclusions
 - where I will tell you what I can conclude from my results

Always start your presentation with an engaging story

If needed, you can give an overview later

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Claus' 1st law of presentations: All text on slides needs to be read aloud

While I generally prefer graphical elements over text, there are cases in which text is the preferred visualization aid. For example, summary slides often require some amount of text.

Text is fine as long as you read it word for word. If you start paraphrasing or talking over a text-heavy slide, however, your audience will get confused. They cannot at the same time read the text and listen to you.

Some audience members will read the text and stop listening to you. Others will listen to you but not read.

All will worry that they made the wrong choice and missed something important.

Now an example of how not to do it.

This slide is full of text.

Likely, none of the text, matters, but you can't know for sure unless you read it all.

But if you want to read it, you can't listen to me blathering on about something completely different.

That is because humans cannot process two separate content streams (visual and oral) at the same time.

Next week's winning lottery numbers will be 5, 13, 28, 33, 34, 36, 41. I know because I'm a time traveler from the future.

Which story line were you able to follow?

However, less text is always better

Dark vs light backgrounds, which are preferable?

- Dark background is more elegant, easier on the eye
- Light background is less work to prepare, tends to look Ok even if the projector is weak

Summary

- Tell a story
- Lead from the *why*, then cover the *what* and limit the *how*
- Start the talk strong, for example with an interesting anecdote
- Use the assertion-evidence template
- Don't start your talk with a boring overview slide
- When your slides contain text, read it out

Bonus #1: Use strong, open body language

Bonus #2: Don't visually shock your audience

by switching from dark to light backgrounds.

Bonus #3: Avoid bullet points if at all possible