

Course on effective presentations

Part 1: Presentation design and delivery

Design and planning

What is a presentation (and what are your goals)
Know your audience (and adapt to it)
Keeping interest: opening, surprise elements, aim at audience desires
Types of talks
Structure and hierarchy, story arcs
Rehearsing
Redundancy (color, shape, audio+video)

Delivery

Reducing noise (slides, manners, speech)
Speech
Posture (Face at audience!, point with nothing, or your hand)
Stage fright

Part 2: Elements of graphic design

Graphic design

Reducing noise (slides, manners, speech)

Slide design

Why use slides at all (they are support)
Text vs photos vs video
Large text, sans serif fonts, no header/footer, no animation
1 topic per slide
How many slides?

Part 3: Design for quantitative information

Slide design

Density of information
Increasing doi with alternative axes (Sorensen talk?)
Signal to noise ratio
Do not lie (axes, perspective, shape, bar vs lines vs pies)

Part 4: Rehearse and feedback session

5 minute talks

Intro

Anecdote time.

At the beginning I thought I was good giving talks. But I was terrible, with people falling asleep (even my own thesis advisor in my thesis defense). But the point is I thought I was good, and that's because I compared myself to what I could see -- other students, but mostly speakers at conferences, where a flatline level was mitigated by an occasional good talk. Today learning about good presentations is easy, with books, the internet and youtube, and sites like TED.com. One just needs to start! What for? First, so that less people fall asleep, but most important, so it is an element of progress in your career -- all talks are getting better, so there is more competence. But in general, a better talk serves to communicate your results better, which will lead to more citations, more collaborations, and more job offers. Where to start? This course is a good place, but it is only about the most basic elements: preparation, graphic design, and delivery. The main and most important thing missing: practice !

What is a presentation: a form of communication

The goal of almost all talks: convey your **message** (not the information)

Are there boring subjects?
Maybe. But there is a reason
why you do what you do and
why you are presenting it.
Or why then would you speak?

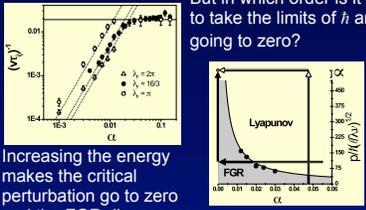
Jay H. Lehr



The quantum to classical transition

Classical chaos presents hypersensitivity to perturbations. Is that recovered in the classical limit of λ_F (or \hbar) going to zero?

But in which order is it correct to take the limits of \hbar and α going to zero?



Increasing the energy makes the critical perturbation go to zero and the FGR disappears

One of my old slides, circa 2003

What is the best way to make it work? Passion (lookup Let there be stoning, by Jay H. Lehr)

Passion is what must come from within you. For the technicals, let's see...

Design and planning

Prepare and think: **WHAT IS THE MAIN TOPIC?** If *you* don't know, your audience can't find out.

Prepare with **PLENTY OF TIME** (between 36 to 90 hs for 30 min talk)

It's a communication, so adapt to the audience:

- What are they like?
- Why are they here?
- What keeps them up at night?
- How can you solve their problem?
- What do you want them to do?
- How might they resist?
- How can you best reach them?

Imagine a typical person to create a connection

STRUCTURE

We are born storytellers (and listeners) => So **make it a story!**

A story is a conflict between subjective expectation and reality



Nancy Duarte is a presentation designer, famously known by the presentation of Al Gore *An Inconvenient Truth*

Story arcs

Simple

1. Setup (intro): all main characters are introduced. The main problem is presented and moves the story forward.
2. Conflict (chorus): Bulk of the story. Starts after characters go through major changes
3. Resolution (coda): Problem boils over and characters confront it. All elements come together and lead to an end

Complex

1. *Stasis* (The background, Cinderella cleaning ashes)
2. *Trigger* (Something beyond control sparks the story)
3. *The quest* (The trigger releases a quest to improve or maintain stasis)
4. *Surprise* (Most of the middle part, maybe good elements, obstacles, complications, conflicts. Present as not too random but not too predictable)
5. *Critical choice* (Here we find who the character really is. Not by chance, the character must choose)
6. *Climax* (Choice results in climax, the highest peak of tension in the story -- a fight, a discussion, the glass slipper of Cinderella)
7. *Reversal* (A consequence of the choice and the climax, it changes the status of the characters. Reversal can be good, the character realizes has power. It should be inevitable and probable)
8. *Resolution* (Return to new stasis with changed characters -- maybe wiser)

Other comments

Linear and non-linear narrative (think Pulp Fiction)

The narrator adds layers of meaning to the text non-verbally

Types of narrative (rhetorical modes): exposition (best for presentations), argumentation, and description



Ira Glass has a radio show on PBS, *This American Life*. Look it up and listen to a show or two, it's great. Also his video about creativity.

Recommendations (by Ira Glass)

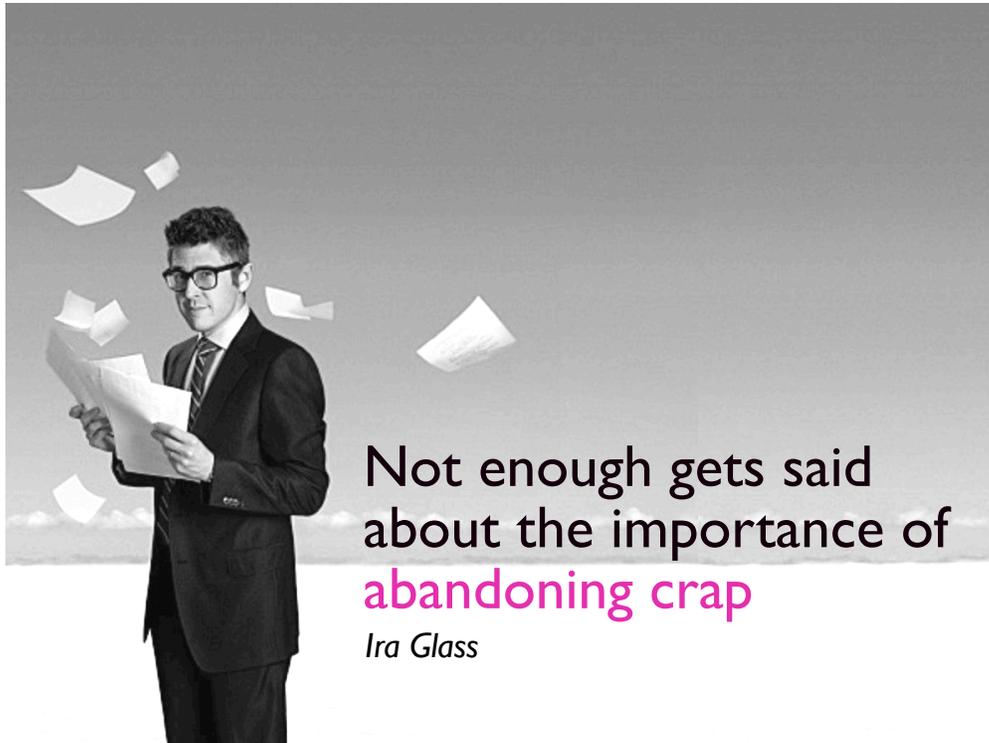
Have a topic or statement and fill out the facts that support the statement.

Use the following building blocks:

- The anecdote (simple structure: raise questions and answer them)
- Moment of reflection (what is the key point? What does it mean? interweave w/above)
- Edit OUT irrelevant bits

"Not enough gets said about the importance of abandoning crap"

- Good taste and perseverance. At the beginning “*taste is killer but production is not*”. Persevere and practice, keep good taste as a high bar.
- Talk like yourself, it will be more compelling



Not enough gets said
about the importance of
abandoning crap

Ira Glass

Generating ideas

Create LOTS of ideas --- at this point **quantity** counts, not quality

Use pencil and paper, use sticky notes and sharpie

Go with WILD ideas, do not be afraid

- words in the data
- word association
- mind-mapping
- word storming
- Get ideas from film, pages, ads

Only THEN choose ideas that better convey message (now it's **quality of communication**)

Make a storyboard - sketch ideas best as images, doodles really, but **very many**

Some new ideas will come up, most difficult you can cut.

Don't worry about throwing ideas away, that's why you generated lots of them (*Nancy Duarte*)

Important: **Editing and restraint:**

Does this contribute to the key point? It doesn't matter how cool it is...

ONLY THE ABSOLUTELY CRUCIAL

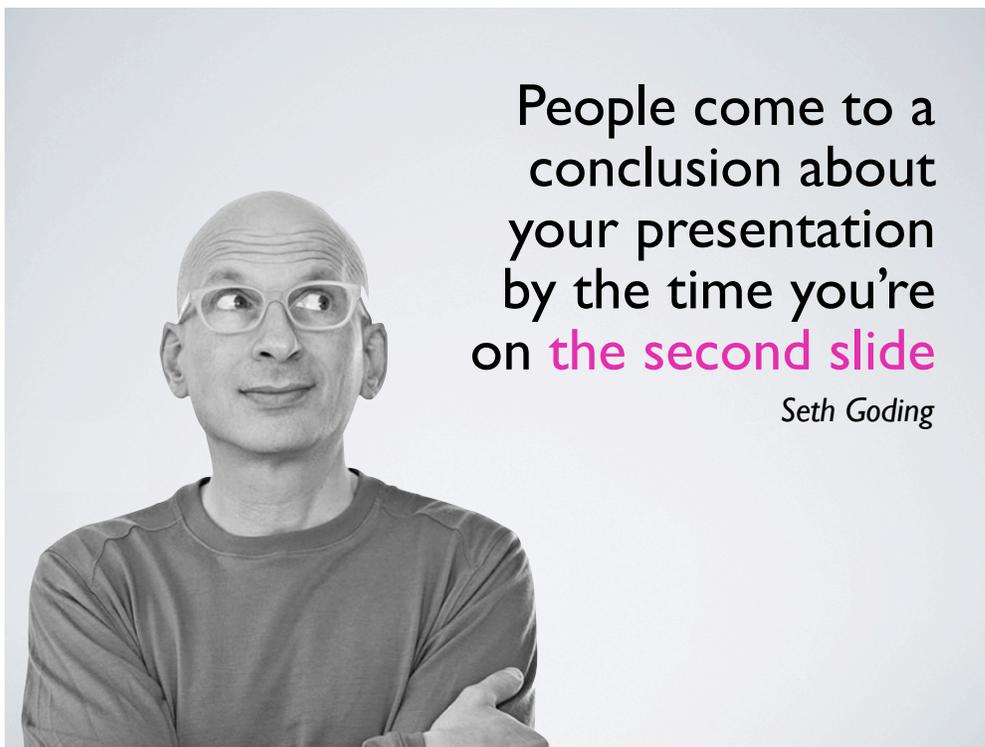
Ruthless editing is the hardest part

Aim for Simplicity -> But simple for end user

Simplicity is the ultimate form of sophistication (Leonardo da Vinci)

Idea might be 1 slide, or many -- just choose what communicates best (never 2 ideas=1 slide)

In what ways presentations are different from normal stories?



DO NOT WASTE YOUR FIRST 2 MINUTES

Start quickly, no formalities,
no background intro,
no filler talk,
no apologies (I didn't prepare well, I hoped this would be different, I'm nervous)
no structure of the talk (unless it's very long and w/different parts)

Elements for a good start:

Personal anecdote / story

Unexpected or surprise

Novel (data, facts)

Challenge (fresh or counterintuitive question)

Humor (not jokes - irony, anecdote, story, with points relevant and that set the tone)

Delivery

Delivery is what we say (content), how we say it (audio), and what we show with it (visual support and gestures).

Presentation is a performance -> We need to engage with the audience -> it's a two way communication

How to engage with audience?:

- Evoke emotions and memory
- Smile for real
- Curiosity (Do you see that? Look here! This is amazing!)
- Do not use podium
- Use a remote
- Use B and W keys
- Leave lights on
- Point with hand
- Look at audience, facing them with BODY
- Way to dress - Better than tem
- Eye contact -- with everyone or some select people
- Show interest and PASSION

Posture:

- Move around with purpose (**do not** wander back and forth)
- talk ---> walk → elaborate → talk →
- Clear, accurate wording
- Confident stance
- Sharp, deliberate gestures
- Know outline but do not memorize (rehearse, rehearse, rehearse)
- An interesting idea: **SAY IT THEN SHOW IT**
- Remain yourself through practice
- Rehearse as realistic as possible, come early

Eliminate verbal noise (you know, um...)

- Foreign accents are ok (maybe you have to speak slow at the beginning)
- Not loud enough? Try speaking exercises, or use a microphone (well)
- In audio, we control the tone, the rate, and the volume.
- Intonation must be that of a normal conversation (not monotone, not recitation)
- Careful with some wordings:

- I think that...
- I hope I can convince you
- This xxxx did not come out as I hoped
- I will explain to you that...
- I don't have time to explain how this works...

Eliminate visual noise

No mannerisms (rubbing hands) take away pens and rings and etc., put hands in neutral position when not using them, use facial gestures properly, and make eye contact.

Don't lean

Don't read

Slow down

One hand in pocket is ok but empty your pockets

Improve the room: lights up, close to slides, maintain visibility

Do not apologize for mistakes

Avoiding bad behavior: 1) Become aware, 2) replace habit with good one, 3) practice to automate

CRUCIAL (and I can't stress this more): Don't overuse time

State of no mind. Don't think about the situation or the problems or anything else, just be there performing.

Practice helps but you must surrender to the moment, like athletes

Fright management:

There is no better or measurement of bad and good, it's just you in the moment



Ben Zander is an orchestra director famous also for his work on motivation

When passion takes hold, you communicate better

Tips

Make room your own

- know it
- get early
- rearrange places, lights, etc
- Use your computer
- lucky charm objects
- don't drink coffee or alcohol

Anxiety is good, it shows you care

Prepare and rehearse

Pace breathing

Make pauses, slow deep breath

Imagine yourself succeeding in the situation

Imagine it as an opportunity



Go see Ken Robinson's talks on TED.com

Finally, don't take it too seriously

Managing questions

You have to remain at **the same level of focus** during the question session

Listen and let finish

Repeat

Think for a moment

Answer (to everybody)

Prepare for possible questions

Difficult questions: go discuss later, next/previous speaker

do not know (*do not fear to say like in school, email discuss later, does somebody know, make a guess*)

Hostile questions: practice only, remain calm (don't attack), make a little silence. Empathy "*I see where you are coming from, but...*"

Elements of graphic design

Design (and the meaning of things)



Design starts at the beginning, not at the end, **it is not** an afterthought



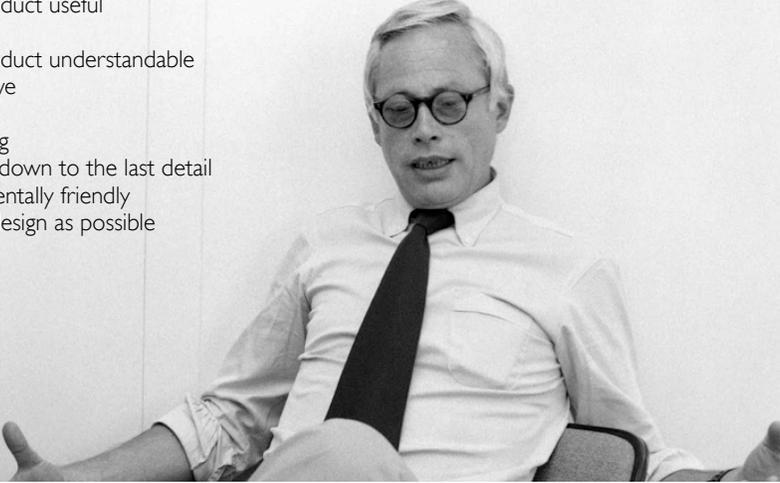
Design must go unnoticed

Zen principles: Simplicity, Subtlety, Elegance, Suggestive rather than descriptive, Naturalness, Empty space, Stillness, tranquility, Eliminate the non-essential

Good design

1. Is innovative
2. Makes a product useful
3. Is aesthetic
4. Makes a product understandable
5. Is unobtrusive
6. Is honest
7. Is long-lasting
8. Is thorough down to the last detail
9. Is environmentally friendly
10. Is as little design as possible

Less, but better
Dieter Rams



Dieter Rams changed industrial design by creating beautiful and desirable products for Braun, and influenced some of the most successful companies of today (including Apple, as you can see from Rams speaker on the left)

Salvador Dali like finding inspiration and designing in the most uncommon places, not in front of the keyboard.



Designing slides

Avoid the most common error: Do not overuse text

Most common error

- ❑ *Avoid* most common error in presentations
- ❑ Text must not be *overused*
- ❑ People are *not good* at listening and reading at the same time
- ❑ It's not a document ← Details belong in the paper or handout
- ❑ People came to see *you*, not your slides

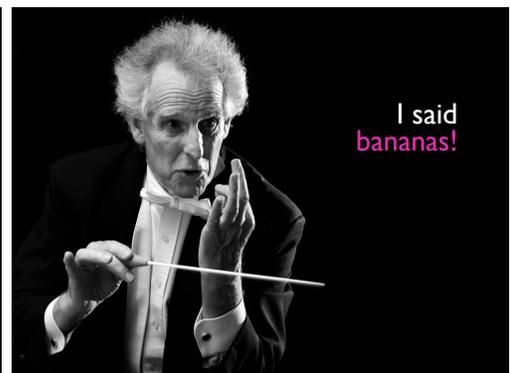
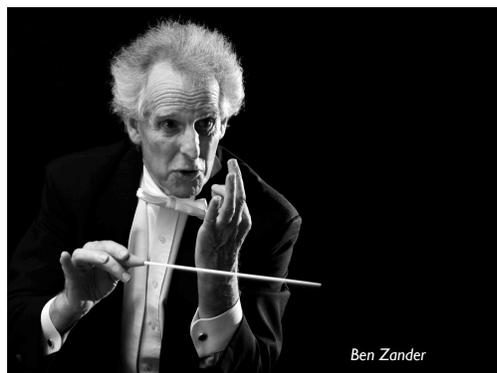
It is **not** a document, it's about you



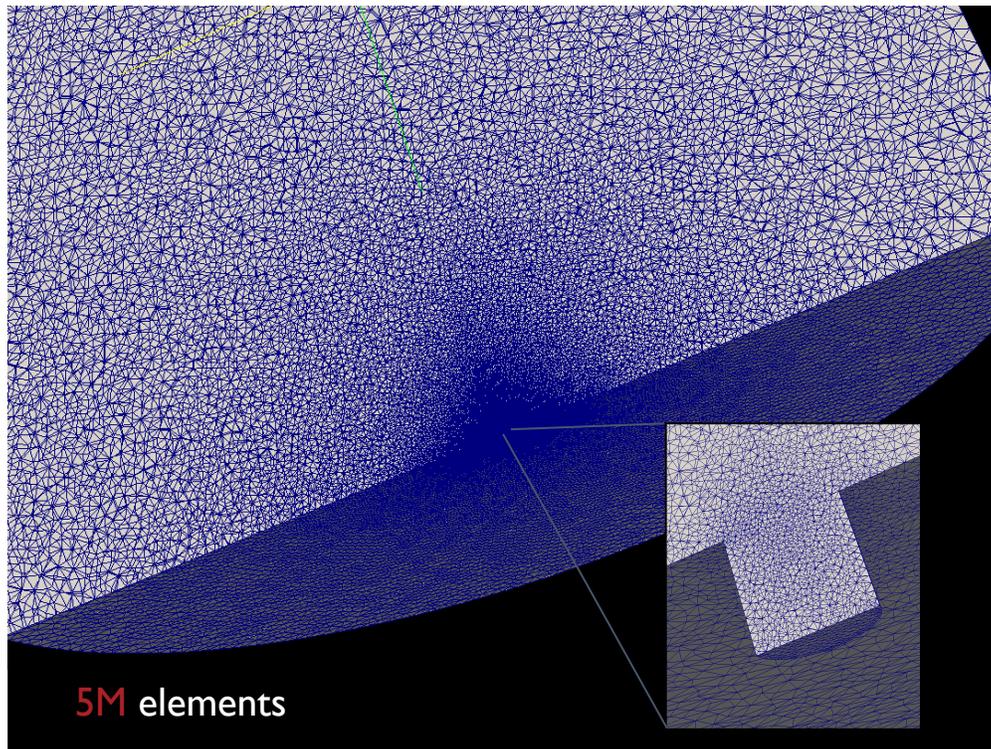
Slides must complement or help your speech -- **YOU ARE THE STAR**



Slides reinforce your words, not repeat: *"Demonstrate with emotional proof that what you are saying is true, not just accurate"*.



Photographs connect with us at an emotional level, reinforcing the message



Emotional response can also be created with scientific data: In the slide above, to be projected at full screen, the overpowering mesh transmits a sense of largeness and detail, even though the mesh is only 5 million elements. The sense of size is also helped by the small empty space left at the bottom of the slide (it chokes), and because it doesn't fit in the screen (it is sooo large...). Because it hangs from above, it creates the feeling of anxiety and tension -- as opposed to standing firmly on the ground.

Decide on abstract or realistic depiction, and stick to it for the whole presentation.

Simplicity :

Clarity, restraint, use of empty space, only the essential, slides are part of the talk (not reminders), used to help tell a story, and interacted in a dynamic and natural way, flowing with the words.

By contrast: Unnecessary ornament or decoration, off to the side.

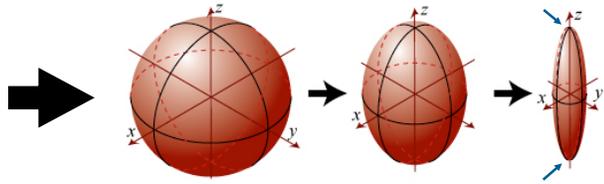
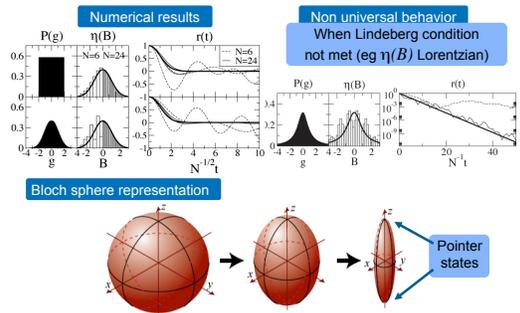
If your story matters, so do your visuals

Consistency

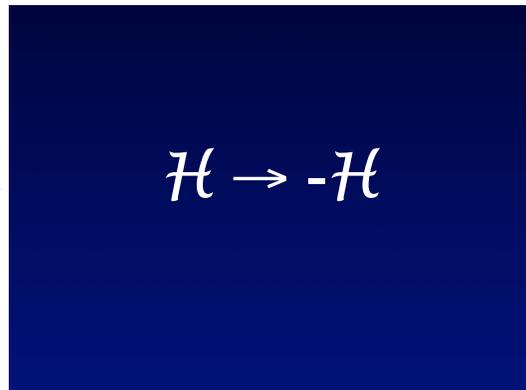
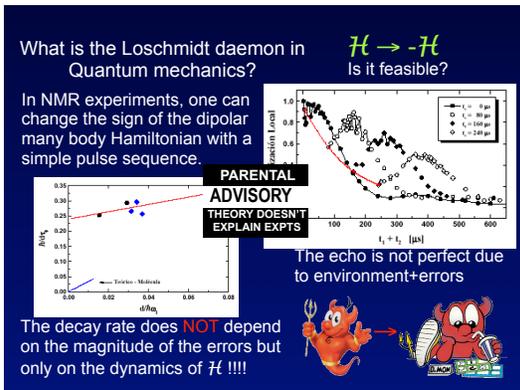
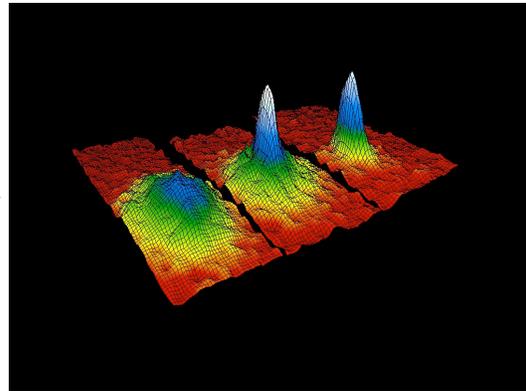
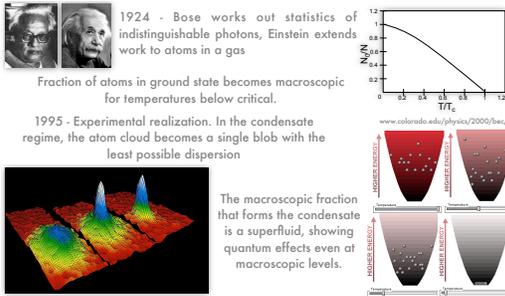
Work your presentation so that color, composition, fonts, all look consistent across your presentation. You can use this to your advantage so you can highlight something powerfully by going out of the scheme (but for this to work you must use it sparingly)

Left, some of my old slides. Right, the most important point makes for a simpler story, more powerful, and directs the attention to the speaker.

Static central spin model



Bose-Einstein condensates



It is better to have **no slides** than bad slides

How many slides? All it matters is the story (see Ken Robinson, no slides, vs Sky McCloud, over 200 slides for a few minutes. Really, go look their talks up in Youtube)

No need to put the company logo on every slide, also not a header or anything superfluous -- it is a reminder for you, not for the audience (that should be listening to you, not reading the slide)

DO NOT USE BULLET POINTS

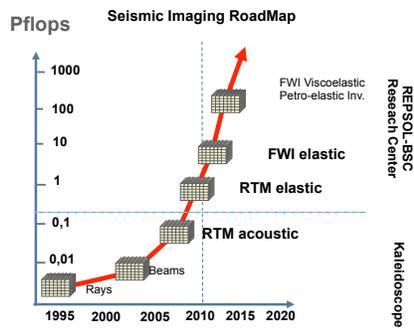
Instead make many slides, or use a grid with images



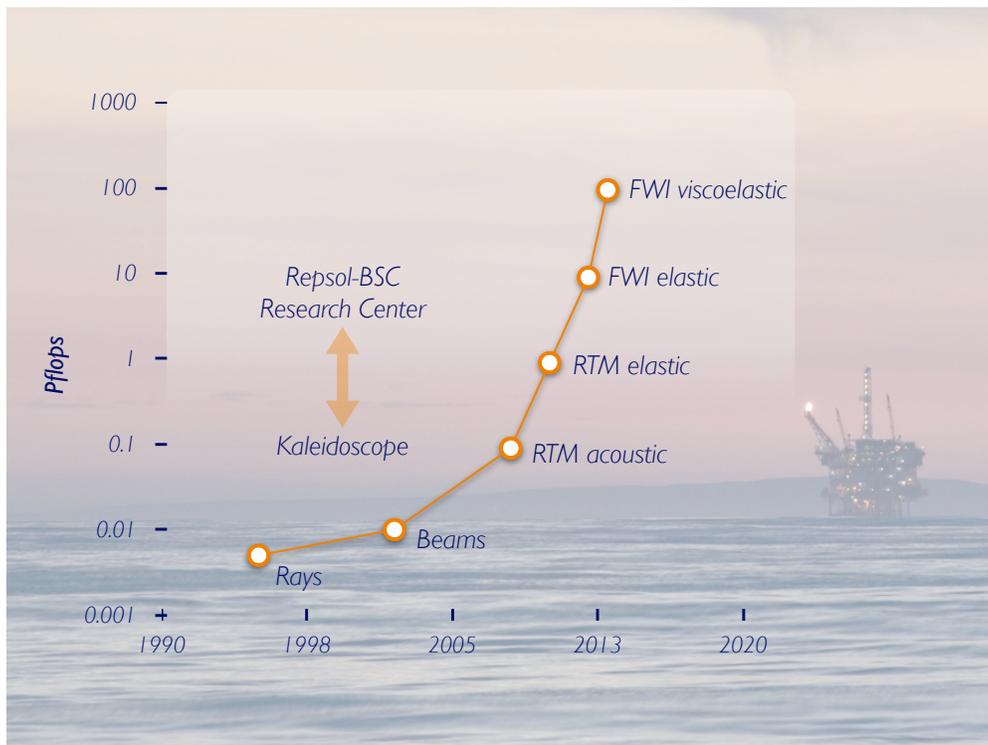
DO NOT waste space with headers and footers, or frames around images.

An example of a redesign

- 2011-2015: REPSOL-BSC Research Center
- Contrato marco para definir la relación BSC-REPSOL
 - Seismic Imaging with elastic waves (FM,RTM,FWI)
 - Controlled Source Electromagnetic Methods



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Design fundamentals

Visual elements

Background

Color

Text

Images

Arrangement

Contrast

Flow (create intentionally)

Hierarchy

Unity

Proximity

White space

Movement

Timing

Pace

Distance

Direction

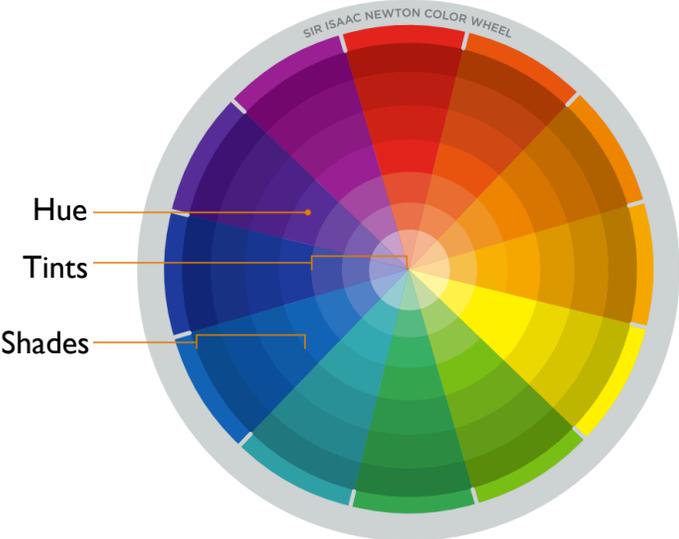
Eye flow

Background: Again, careful with using frames, headers, and footers



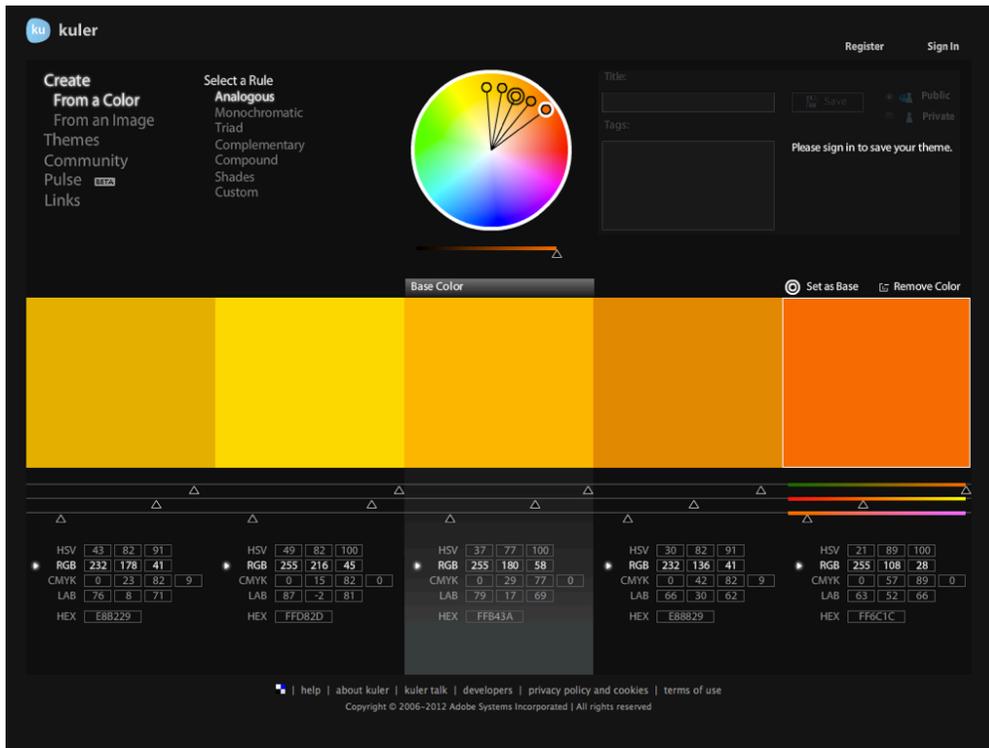
Frames take up valuable space and fill it with non-information pixels, decreasing your signal to noise ratio, and reducing the impact of your visuals

Color: Color wheel theory (Hues, shades (add black), tints (add white), saturation)



Color schemes
Pick from photos (and choose mood)





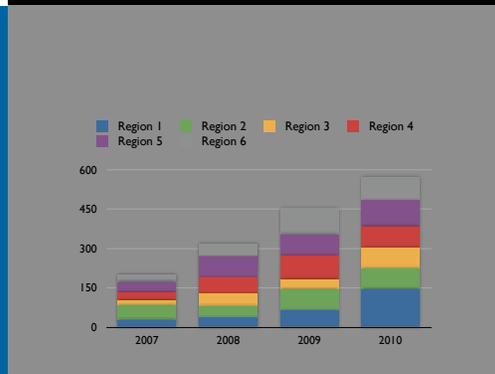
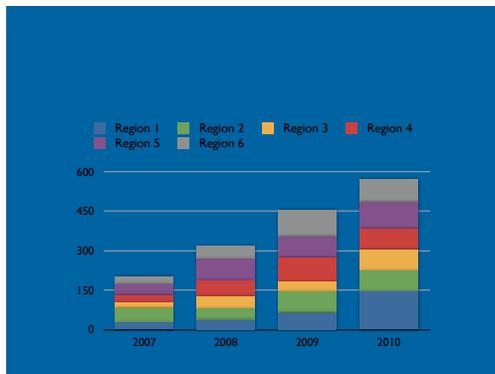
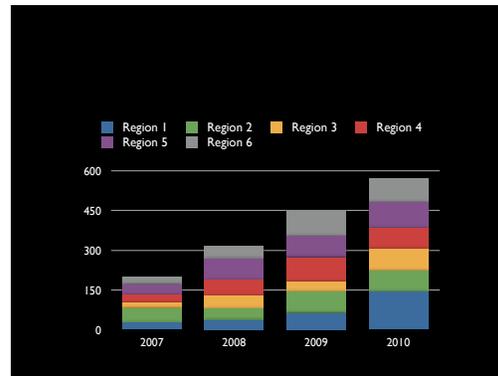
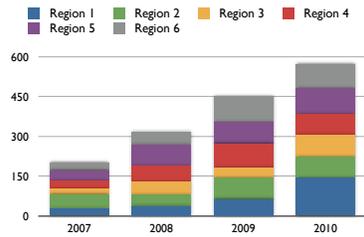
use kuler.adobe.com

Be careful with color blind people
 Color is powerful and dangerous, try to say more with less



Never overuse
 Use light and dark color for contrast
Use with purpose

Color depends on background, and many times on the lighting of the room. Be careful to make enough contrast so that your presentation is not ruined by external factors.



Fonts: Make them **Big**

Serif

vs

Sans Serif

Serif fonts are better for long texts, sans serif for short sentences.

Hello Times

Hello Garamond

Hello Baskerville

Hello Helvetica

Hello Futura

Hello Gill Sans

Traditional fonts are a safe choice

Do not mix fonts unless you really know what you are doing. No more than two (headlines, and blocks of text)

Instead, choose a family with many weights

Gill Sans Regular

Gill Sans Light

Gill Sans Italic

Gill Sans Light Italic

Gill Sans Bold

Gill Sans Bold Italic

Fonts set the tone. What do these two invitations tell you about the weddings?

Tenemos el placer de comunicarles nuestra boda que se celebrará el próximo 12 de Noviembre a las 13 horas en la Iglesia parroquial del pueblo.

Deseamos que nos acompañen en este día tan especial.

Tenemos el placer de comunicarles nuestra boda que se celebrará el próximo 12 de Noviembre a las 13 horas en la Iglesia parroquial del pueblo.

Deseamos que nos acompañen en este día tan especial.

How many words? As few as possible.

Try to control some aspects of fonts: Typesetting: ligatures, kerning, letterspacing

final

final

Ligatures

ALYA

ALYA

Kerning

Make sure everything is well aligned
Size uniformity -- throughout the whole talk. Choose one size for texts, other for references and such, and another for big messages, and always use those.
Rotate text to add dynamics

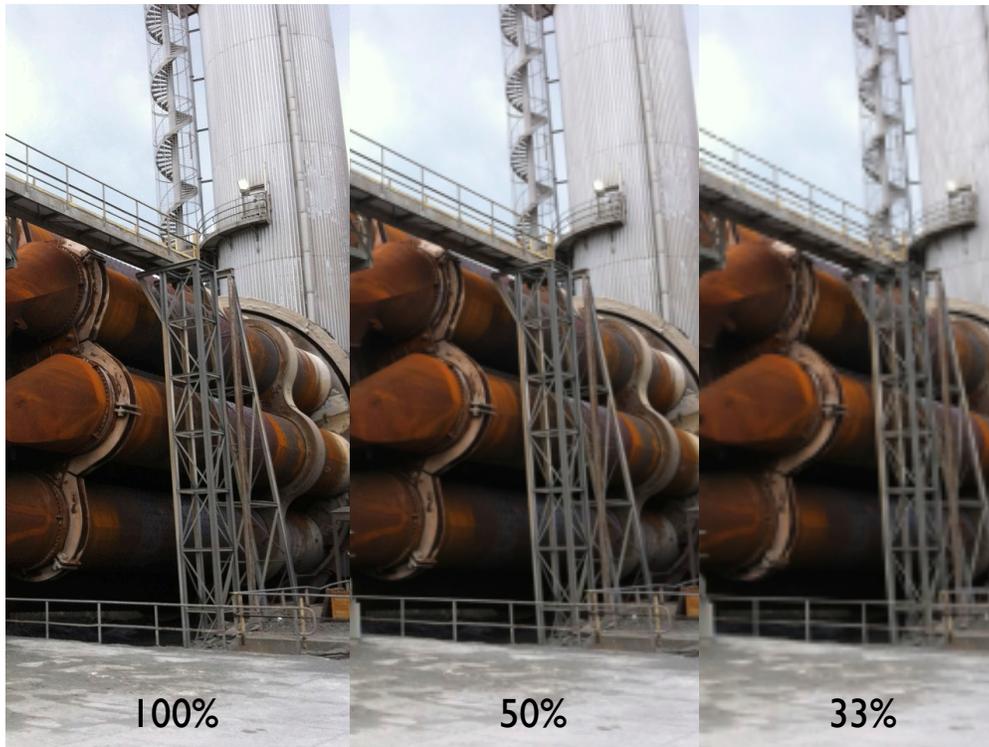
Text box behind to improve readability



Text + images to reinforce or change message

Images:

Important for impact and memory



Always use high quality images, **avoid small photos and low resolution**
They will look TERRIBLE projected on a large screen.

Use web resources, but be careful of copyright if your talk is to be distributed.
Think what you want and then search (or do your own)



Try to use full screen pictures, the impact is much better. Frames (even white space) looks like a window and creates distance between people and the image. This also helps to keep only 1 point per slide

Crop photos to remove distractions or focus on specific things (see below how the focus changes to the little stalker)



Faces draw attention (focus points) (see eye tracking plots)
Make eyes look at text



An eye tracking experiment, notice how the text is read more intensely when the baby looks at it

Common Errors when using images

- Almost full screen, but not quite
- Distortion
- Clip Art (doesn't make you look professional)
- Cliché images (ex: two people shaking hands)
- Distracting (too much visual noise)

Arrangement

Empty space: The most important thing in design.



Empty space is the most powerful way to increase the importance of something. Use it to your advantage, and DON'T be afraid of "empty-looking" slides. They will actually strike more.

Symmetry is boring and static, but more formal
Asymmetry is dynamic, and adds complexity and movement to the composition

Effective presentations

Fernando Cucchietti

September 2012



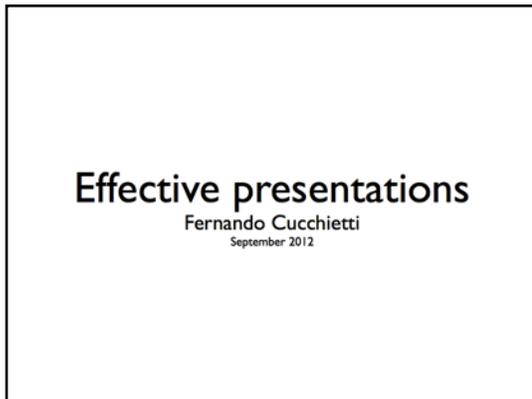
Effective presentations

Fernando Cucchietti

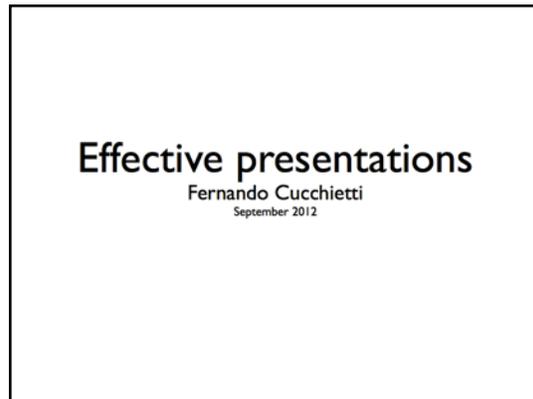
September 2012



Slight vertical asymmetry is pleasing to the eye: Visual center is not at the same height as the mathematical center



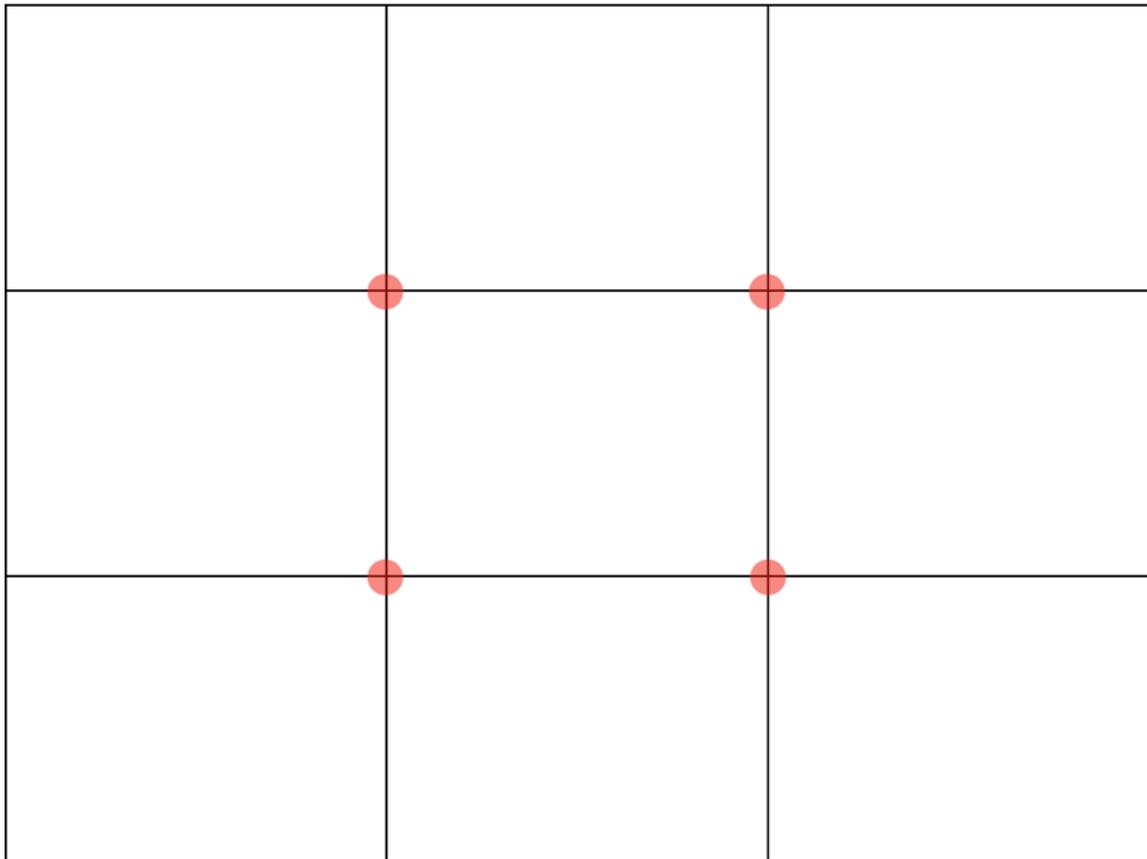
Mathematical center of screen



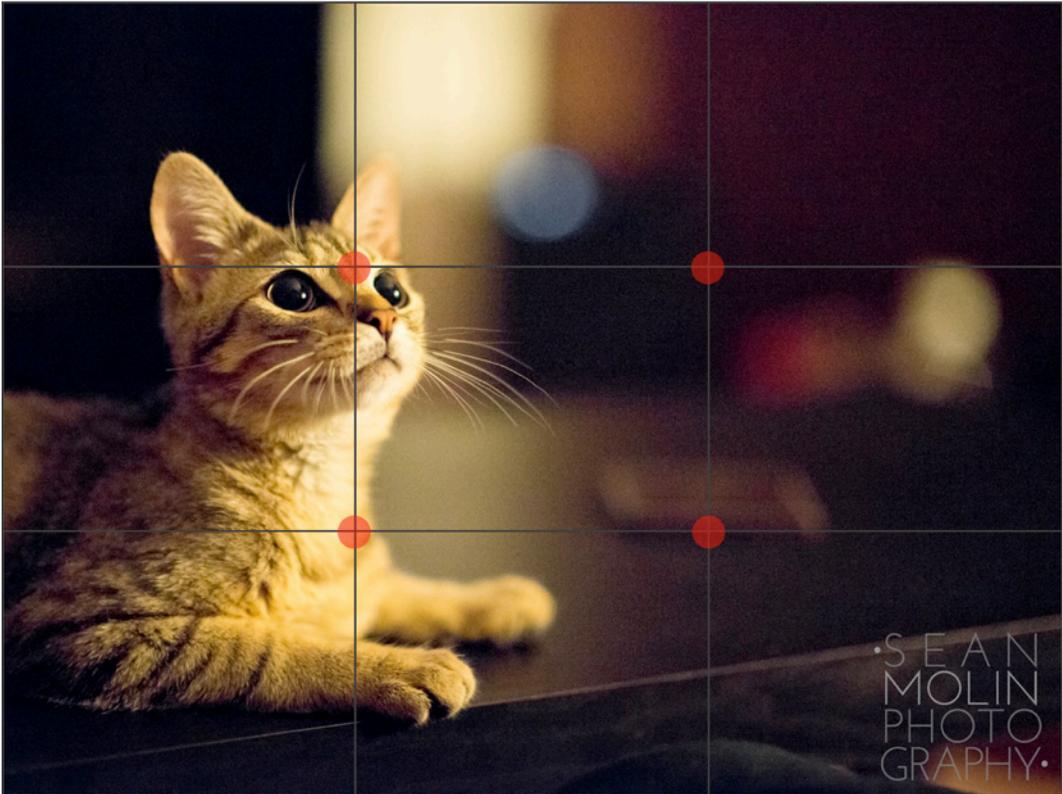
Visual center is a little higher

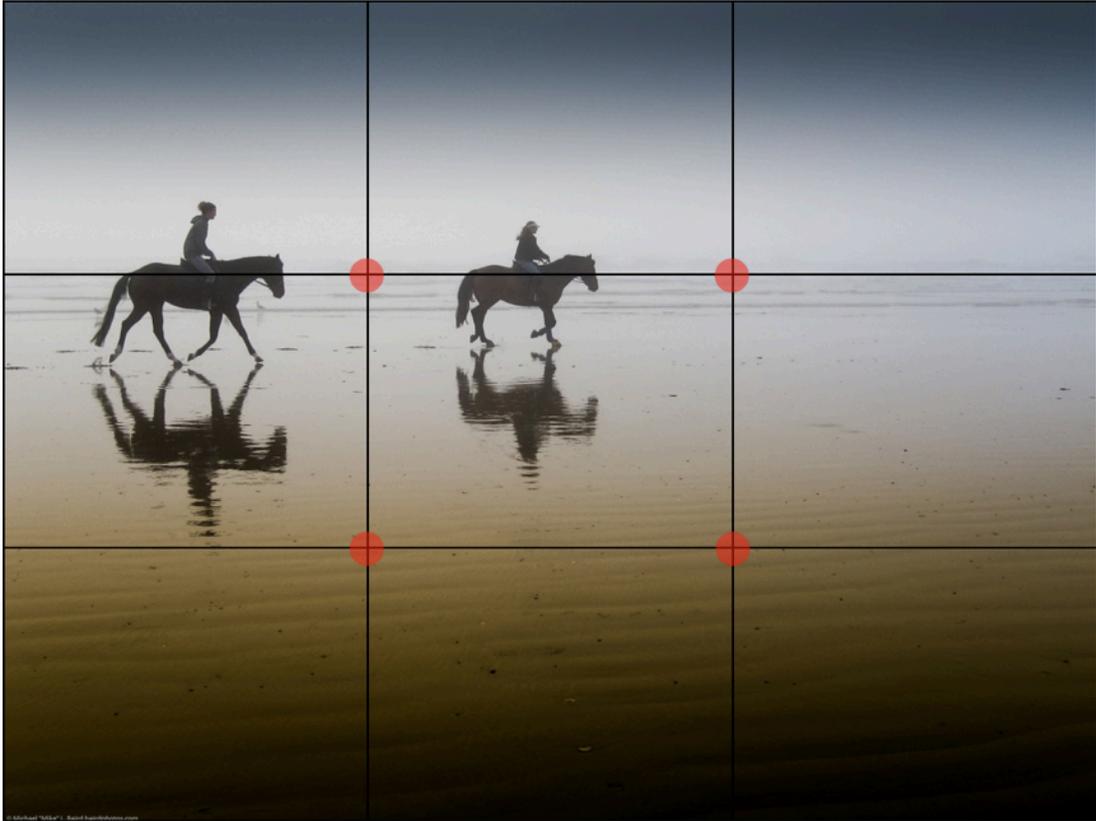
Composition

An area divided into the golden ratio has the most appealing properties. A close approximation to this is to divide the area into three parts, the so called rule of thirds.

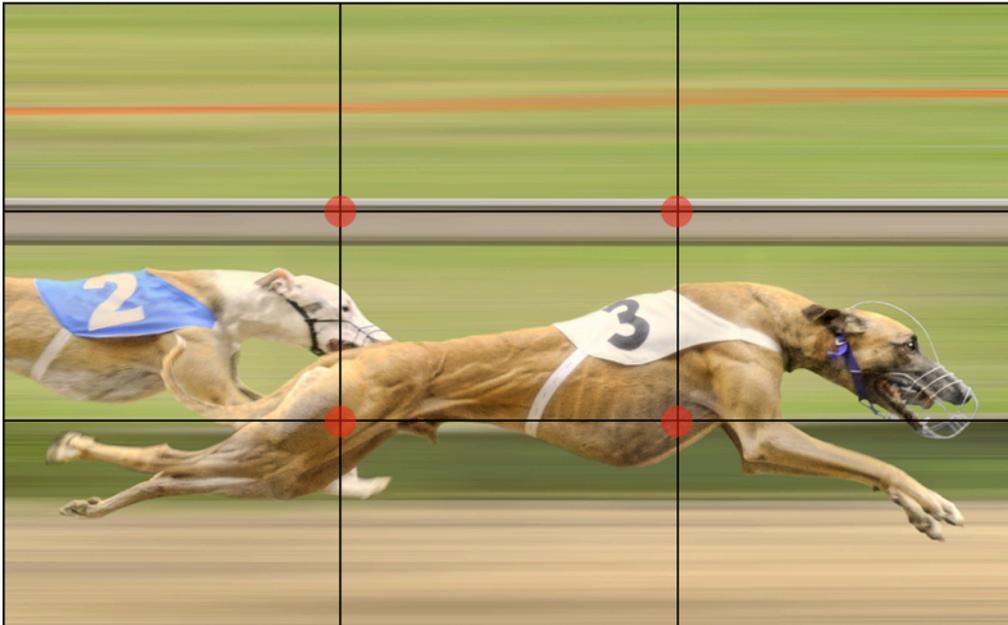


The points where the thirds intersect are natural points of interest -- items positioned there attract the most attention.

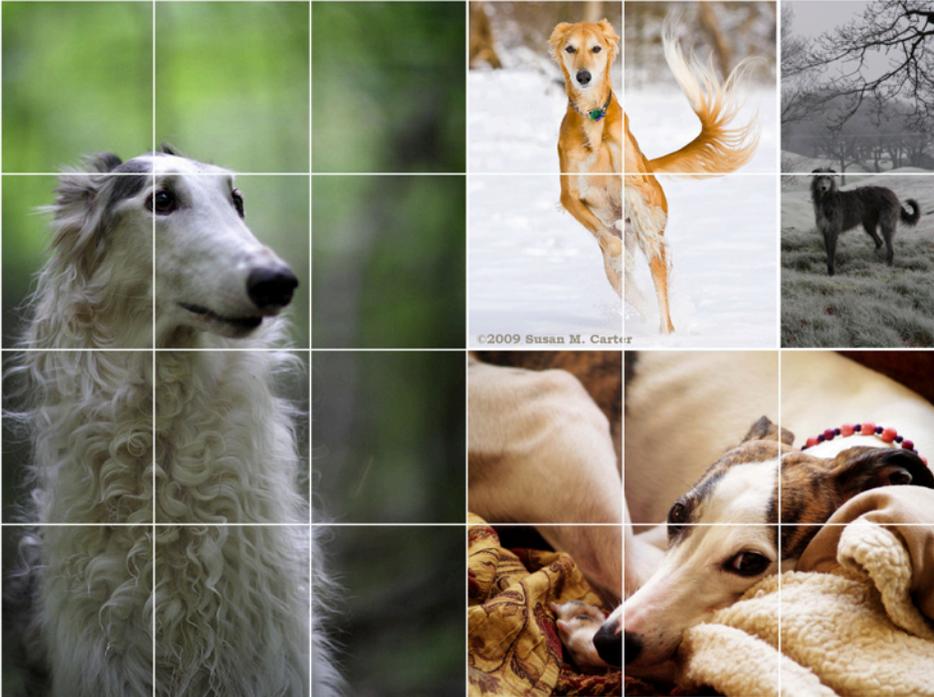




Place horizons at the thirds lines



To compose and arrange many images, or images with blocks of text, try to make a grid. Stick to the grid positions to align ALL elements in the composition.



A 6x4 grid. Notice that by using different sizes of grid blocks, we can add dynamism to the composition. A regular arrangement (all images the same size) can be used to create a feeling of underlying structure and repetition.

Alignment: It is very important to align elements properly. Small misalignments create a bad feeling even if they are not obvious to the eye.

Visual elements	Arrangement	Movement
<i>Background</i>	<i>Contrast</i>	<i>Timing</i>
<i>Color</i>	<i>Flow</i>	<i>Pace</i>
<i>Text</i>	<i>Hierarchy</i>	<i>Distance</i>
<i>Images</i>	<i>Unity</i>	<i>Direction</i>
	<i>Proximity</i>	<i>Eye flow</i>
	<i>Empty space</i>	

Contrast

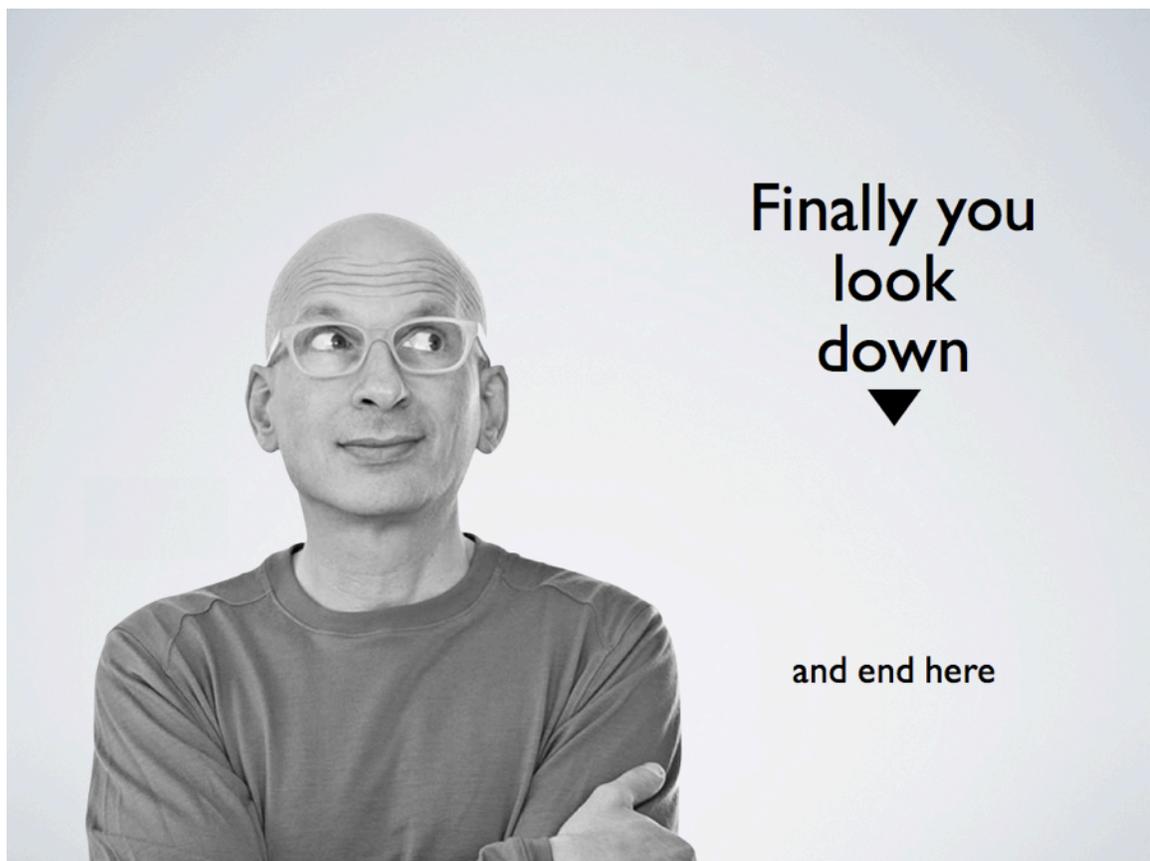
You can create contrast with everything in the toolset: size, shape, color, texture, space, type, hue, etc. Contrast is good for calling attention.



When doing a composition, remember the Gestalt concept that the whole is different than the sum of the parts. For slides, this means that different items (images, text, you) will work very differently when put together.

When people first look at a composition, their eyes focus first on one point, then another, and so on. In this sense we can say that a composition has a “flow”. Since this will happen anyway, it is in your advantage to control that flow, so that the correct message goes through.

Even when displaced from the natural focus points of the composition, some things can be forceful focal points: large objects, backgrounds, people and faces, contrast, and motion. They will call attention first. Afterwards, features of the image will control where the eyes go next, establishing the flow. These features can be direction of faces, straight lines coming out of the central focus point, arrows, lights, direction of hands, and movement.



In the above example, the focal point is the face, because of its position and because faces are too important (remember that this can go the other way around, don't include faces if they are not important). The eyes take us to the upper right text box, which points down (through its shape and the small triangle). The smaller text is the last thing you read.

Gestalt theory is a very interesting source of choices for calling attention. For example we are strongly drawn to incomplete shapes and figures, which presented this way can be much more powerful than complete.

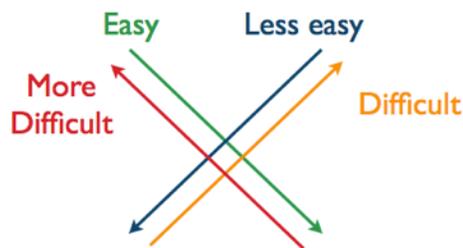
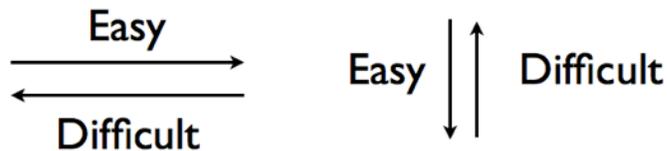
Movement

Because of our biological nature, we are very hard wired to detect movement and focus on it (is that a tiger trying to eat me?). Therefore, movement is among the most powerful thing you can do with your slides. Because of this, it is also the most dangerous and badly used feature of presentation software. Unless you know very well why and how to include movement, it is better to leave it out (in fact, for technical reasons it is also good because in this way you can just use a PDF file instead of a proprietary format that only works with some software and version of)

If you still want to include movement, plan it very well so it helps your goals. Use movement sparingly or it will become boring or steal the attention from you. And remember the following basic guidelines about what movement can mean and how it can be used to convey a message.

Use of movement can be roughly classified for: Indicate a change in relationship, show direction, show a change in object, present a sequence.

The directions of movement can cause (and be used to cause) different feelings. The rule of thumb (for western culture) is as follows



Designing for quantitative information

(Most of this material is from pioneer Edward Tufte)

Remember this: It's not just showing the data, it's always about **the meaning** of the data

Graphical displays should:

Show the data

Tell the truth

Help the viewer think about the information rather than the design

Encourage the eye to compare the data

Make large data sets coherent

Tips to do this:

1. Tell the truth

1. Avoid bar plots, pie charts, and other 3d plots, scatter plots tend to be the best.

2. Show, whenever possible, the origin of the axis

2. Get to the point (highlight important aspect)

1. Use design principles for subtle contrast

2. Discard anything that does not contribute to the story

3. Pick the right tool (plot might not be best tool)

1. A table is sometimes more efficient and precise

2. Linear dependency is better described in text and not in plots

4. Keep it simple (eliminate chart junk like lots of horizontal and vertical lines, figures, text)

1. Erase non-data ink, and redundant data-ink, within reason

Have a properly chosen format and design

Use words, numbers, and drawing together

Reflect a balance, a proportion, a sense of relevant scale

Display an accessible complexity of detail

Have a story to tell about the data

Draw in a professional manner

Avoid content-free decoration

Examples of where to find beautiful and effective presentation of data:

• Hans Rosling (see his TED talks): "*Data is like musical notes: show it alone and you can't understand it, but the full music is appreciated by everyone*"

• Meteorologists almost everywhere in the world have developed great ways to show high amounts of data in short time and space.

• <http://www.informationisbeautiful.net/>

• Edward Tufte books