Presentation
With examples of success and failure.

Peter Košovan
peter.kosovan@natur.cuni.cz

Department of Physical and Macromolecular Chemistry

Department seminar, 22.11.2017
Why should I bother?

- Why do research?
- It’s interesting.
- Brings new insights.
- How will others know it’s interesting?
- They should read my papers.
- I can tell them in a presentation!

Sharing the results is as important as obtaining them. And it’s fun!
Why should I bother?

- Why do research?
- It’s interesting.
- Brings new insights.
- How will others know it’s interesting?
- They should read my papers.
- I can tell them in a presentation!

Sharing the results is as important as obtaining them.
Why should I bother?

• Why do research?
• It’s interesting.
• Brings new insights.
• How will others know it’s interesting?
• They should read my papers.
• I can tell them in a presentation!

Sharing the results is as important as obtaining them.

And it’s fun!
How do I make a good presentation?

- Practice
- Watch who gives good presentations
- Think what makes them good, learn the rules
- Copy
- Practice
- Add creativity
- Practice
- Get feedback
- Practice

Takes time and effort.
How do I make a good presentation?

- Practice
- Watch who gives good presentations

Takes time and effort.
How do I make a good presentation?

• Practice
• Watch who gives good presentations
• Think what makes them good, learn the rules

Takes time and effort.
How do I make a good presentation?

- Practice
- Watch who gives good presentations
- Think what makes them good, learn the rules
- Copy

Takes time and effort.
How do I make a good presentation?

- Practice
- Watch who gives good presentations
- Think what makes them good, learn the rules
- Copy
- Practice

Takes time and effort.
How do I make a good presentation?

- Practice
- Watch who gives good presentations
- Think what makes them good, learn the rules
- Copy
- Practice
- Add creativity

Takes time and effort.
How do I make a good presentation?

- Practice
- Watch who gives good presentations
- Think what makes them good, learn the rules
- Copy
- Practice
- Add creativity
- Practice
How do I make a good presentation?

- Practice
- Watch who gives good presentations
- Think what makes them good, learn the rules
- Copy
- Practice
- Add creativity
- Practice
- Get feedback
How do I make a good presentation?

- Practice
- Watch who gives good presentations
- Think what makes them good, learn the rules
- Copy
- Practice
- Add creativity
- Practice
- Get feedback
- Practice

Takes time and effort.
How do I make a good presentation?

- Practice
- Watch who gives good presentations
- Think what makes them good, learn the rules
- Copy
- Practice
- Add creativity
- Practice
- Get feedback
- Practice

Takes time and effort.
Outline

Standard scientific talk (seminar, conference):

1. Outline
2. Motivation (Introduction)
3. Methods
4. Results
5. Conclusions
6. Acknowledgment
Outline

Standard scientific talk (seminar, conference):

1. Outline
2. Motivation (Introduction)
3. Methods
4. Results
5. Conclusions
6. Acknowledgment

- Save your time for something more useful (short talk).
- Give an outline, when it’s not trivial (long talk).
- After the motivation.
Outline of a good talk

1. (Acknowledgment – use the title slide)
2. Motivation (Introduction)
3. Main research question
4. Problem 1
5. Answer 1 (method 1)
6. Problem 2
7. Answer 2 (method 2)
8. ...
9. Conclusion – Main answer (answer 1 + answer 2 + ...)

Picture from http://www.scientificleaders.com/presentations
Outline of a good talk

1. (Acknowledgment – use the title slide)
2. Motivation (Introduction)
3. Main research question
4. Problem 1
5. Answer 1 (method 1)
6. Problem 2
7. Answer 2 (method 2)
8. ...
9. Conclusion – Main answer (answer 1 + answer 2 + ...)

Tell a story, not a list of results
Acknowledgment

- Florian Fahrenberger (ICP, Stuttgart)
Acknowledgment

• Florian Fahrenberger (ICP, Stuttgart)
  
  **Rule 1:** Know the rules!

• Georg Rempfer (ICP, Stuttgart)
  
  **Rule 2:** Violate them deliberately.

• There are no rules. Presentation is a matter of taste.

• NO!

• Rule 3:** Never apply Rule 2 before Rule 1!
  
  First comes the routine, then creativity.

• We know all the rules, right?

• So why do we see so many poor presentations?
Acknowledgment

- Florian Fahrenberger (ICP, Stuttgart)
  
  **Rule 1:** Know the rules!

- Georg Rempfer (ICP, Stuttgart)
Acknowledgment

- Florian Fahrenberger (ICP, Stuttgart)
  **Rule 1:** Know the rules!

- Georg Rempfer (ICP, Stuttgart)
  **Rule 2:** Violate them deliberately.
Acknowledgment

- Florian Fahrenberger (ICP, Stuttgart)
  **Rule 1:** Know the rules!

- Georg Rempfer (ICP, Stuttgart)
  **Rule 2:** Violate them deliberately.

- There are no rules. Presentation is a matter of taste.
Acknowledgment

- Florian Fahrenberger (ICP, Stuttgart)
  Rule 1: Know the rules!
- Georg Rempfer (ICP, Stuttgart)
  Rule 2: Violate them deliberately.
- There are no rules. Presentation is a matter of taste.
- NO!
Acknowledgment

- Florian Fahrenberger (ICP, Stuttgart)
  
  **Rule 1:** Know the rules!

- Georg Rempfer (ICP, Stuttgart)
  
  **Rule 2:** Violate them deliberately.

- There are no rules. Presentation is a matter of taste.

- **NO!**
  
  **Rule 3:** Never apply Rule 2 before Rule 1!
Acknowledgment

- Florian Fahrenberger (ICP, Stuttgart)
  
  **Rule 1:** Know the rules!

- Georg Rempfer (ICP, Stuttgart)
  
  **Rule 2:** Violate them deliberately.

- There are no rules. Presentation is a matter of taste.

- **NO!**
  
  **Rule 3:** Never apply Rule 2 before Rule 1!

  *First comes the routine, then creativity.*
Acknowledgment

- Florian Fahrenberger (ICP, Stuttgart)
  **Rule 1:** Know the rules!

- Georg Rempfer (ICP, Stuttgart)
  **Rule 2:** Violate them deliberately.

- There are no rules. Presentation is a matter of taste.

- **NO!**
  **Rule 3:** Never apply Rule 2 before Rule 1!

  First comes the routine, then creativity.

- We know all the rules, right?
Acknowledgment

- Florian Fahrenberger (ICP, Stuttgart)
  
  **Rule 1:** Know the rules!

- Georg Rempfer (ICP, Stuttgart)
  
  **Rule 2:** Violate them deliberately.

- There are no rules. Presentation is a matter of taste.

- **NO!**
  
  **Rule 3:** Never apply Rule 2 before Rule 1!

  *First comes the routine, then creativity.*

- We know all the rules, right?

- So why do we see so many poor presentations?
Who is my audience?

Your desire
- Know the subject

Reality
- Heard about the subject
Who is my audience?

Your desire
- Know the subject
- Familiar with the notation

Reality
- Heard about the subject
-Forgot the notation
### Who is my audience?

<table>
<thead>
<tr>
<th>Your desire</th>
<th>Reality</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Know the subject</td>
<td>• Heard about the subject</td>
</tr>
<tr>
<td>• Familiar with the notation</td>
<td>• Forgot the notation</td>
</tr>
<tr>
<td>• Know the relevant theory</td>
<td>• Hardly heard about the theory</td>
</tr>
</tbody>
</table>
Who is my audience?

Your desire
- Know the subject
- Familiar with the notation
- Know the relevant theory
- Have read recent papers

Reality
- Heard about the subject
- Forgot the notation
- Hardly heard about the theory
- Read none of the papers
Who is my audience?

Your desire
- Know the subject
- Familiar with the notation
- Know the relevant theory
- Have read recent papers
- Ready for the latest advances

Reality
- Heard about the subject
- Forgot the notation
- Hardly heard about the theory
- Read none of the papers
- Need to revise the basics
Who is my audience?

**Your desire**
- Know the subject
- Familiar with the notation
- Know the relevant theory
- Have read recent papers
- Ready for the latest advances

**Reality**
- Heard about the subject
- Forgot the notation
- Hardly heard about the theory
- Read none of the papers
- Need to revise the basics

*Tune in!*
Who is my audience?

Your desire

• Know the subject
• Familiar with the notation
• Know the relevant theory
• Have read recent papers
• Ready for the latest advances

Reality

• Heard about the subject
• Forgot the notation
• Hardly heard about the theory
• Read none of the papers
• Need to revise the basics

Tune in!

Typical situations

• Specialists in your own subject
• Specialists in various subjects, including your own
• Specialists in various subjects, not in your own
Adopting contents to the audience.

Frans Leermakers (Fysko, Wageningen):
1. 30% what you say should be trivial
2. 30% should be well known
3. the rest can be new
Adopting contents to the audience.

Frans Leermakers (Fysko, Wageningen):

1. 30% what you say should be trivial
2. 30% should be well known
3. the rest can be new

- What is trivial / known / new is defined by the audience!
Adopting contents to the audience.

Frans Leermakers (Fysko, Wageningen):
1. 30% what you say should be trivial
2. 30% should be well known
3. the rest can be new
   - What is trivial / known / new is defined by the audience!

**Intro and motivation**
- How does it fit in a broader context?
  - Of my research group?
  - Of the field in general?
  - Of science / mankind?
- Why am I doing this?
Motivation: why to study weak polyelectrolytes?

- Polyelectrolytes have attracted attention of researchers for many decades.
- Polyelectrolytes have been studied in our research group since 1994.
- There are numerous publications about polyelectrolytes in recognized journals.
- They have a lot of applications:
  - applications in nanomedicine
  - applications in cosmetics
  - applications in agriculture
- They can be used as smart nanomaterials.
- We already have several suitable samples available in the lab, provided by our friend prof. XYZ.
- Research question? (Supervisor told me to study this, we will see what happens.)
Items on a slide

- Keywords, not sentences
- Essential vocabulary, phrases, collocations
- They are the backbone, you add the flesh.
- Put everything that you cannot omit.
Items on a slide

- Keywords, not sentences
- Essential vocabulary, phrases, collocations
- They are the backbone, you add the flesh.
- Put everything that you cannot omit.

What to leave out.

- Articles, pronouns, auxiliary verbs, ... all verbs
- Never put more than you can say.
- Split a busy slide in two
- Or uncover it sequentially
Motivation: why to study weak polyelectrolytes?

- They have been studied for decades
- In our group since 1994.
- Numerous publications in recognized journals
- A lot of potential applications:
  - nanomedicine
  - cosmetics
  - agriculture
- Smart nanomaterials
- Samples available in the lab, provided by prof. XYZ
- My supervisor told me to work on this problem
Motivation: why to study block copolymers?

- They have been studied for decades
- In our group since 1994.
- Numerous publications in recognized journals
- A lot of potential applications:
  - nanomedicine
  - cosmetics
  - agriculture
- Smart nanomaterials
- Samples available in the lab, provided by prof. XYZ
- My supervisor told me to work on this problem
Motivation: why to study zeolites?

• They have been studied for decades
• In our group since 1994.
• Numerous publications in recognized journals
• A lot of potential applications:
  • nanomedicine
  • cosmetics
  • agriculture
• Smart nanomaterials
• Samples available in the lab, provided by prof. XYZ
• My supervisor told me to work on this problem
Motivation and introduction

• Define the key vocabulary
• Give a hint on what is known
• Give specific examples, not just a list of buzzwords
• State the open problem
• Formulate your research question!
• Be specific!
• Avoid general phrases
• Use pictures and schemes (not as decorations!)
• Make the audience feel they want to hear more
Motivation and introduction

• Define the key vocabulary
• Give a hint on what is known
• Give specific examples, not just a list of buzzwords
• State the open problem
• Formulate your research question!
Motivation and introduction

- Define the key vocabulary
- Give a hint on what is known
- Give specific examples, not just a list of buzzwords
- State the open problem
- Formulate your research question!
- Be specific!
- Avoid general phrases
- Use pictures and schemes (not as decorations!)
- Make the audience feel they want to hear more
Motivation: why to study weak polyelectrolytes?

- Weak polyelectrolytes – polymers containing weak acids or bases
- Coupling between ionization and conformation
- Applications:
  - pH-triggered self-assembly
  - controlled release (salt, pH)
  - sensors
- Too complex for theory. Simulations can help
Motivation: why to study zeolites?

- Weak polyelectrolytes – polymers containing weak acids or bases
- Coupling between ionization and conformation
- Applications:
  - pH-triggered self-assembly
  - controlled release (salt, pH)
  - sensors
- Too complex for theory. Simulations can help
Do you want to be respected or understood?

**What you want**
- Make them feel they understood

**What you don’t want**
- Make them feel you’re the only one who understands
Do you want to be respected or understood?

**What you want**
- Make them feel they understood
- Share your idea

**What you don’t want**
- Make them feel you’re the only one who understands
- Say everything you know
Do you want to be respected or understood?

<table>
<thead>
<tr>
<th>What you want</th>
<th>What you don’t want</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make them feel they understood</td>
<td>Make them feel you’re the only one who understands</td>
</tr>
<tr>
<td>Share your idea</td>
<td>Say everything you know</td>
</tr>
<tr>
<td>Excite them.</td>
<td>Give all the technical details</td>
</tr>
</tbody>
</table>
Do you want to be respected or understood?

What you want
• Make them feel they understood
• Share your idea
• Excite them.
• Provoke.

What you don’t want
• Make them feel you’re the only one who understands
• Say everything you know
• Give all the technical details
• Impress with complexity
<table>
<thead>
<tr>
<th>What you want</th>
<th>What you don’t want</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Make them feel they understood</td>
<td>• Make them feel you’re the only one who understands</td>
</tr>
<tr>
<td>• Share your idea</td>
<td>• Say everything you know</td>
</tr>
<tr>
<td>• Excite them.</td>
<td>• Give all the technical details</td>
</tr>
<tr>
<td>• Provoke.</td>
<td>• Impress with complexity</td>
</tr>
<tr>
<td>• Engage to learn more.</td>
<td></td>
</tr>
</tbody>
</table>
Do you want to be respected or understood?

**What you want**
- Make them feel they understood
- Share your idea
- Excite them.
- Provoke.
- Engage to learn more.

**What you don’t want**
- Make them feel you’re the only one who understands
- Say everything you know
- Give all the technical details
- Impress with complexity

**Hallmark of a good presentation?**
- It stimulates a discussion.
Ionization of acids (and bases)

- Schematic chemical reaction

\[ HA \rightleftharpoons A^- + H^+ \]

- Acidity constant

\[ pK_A = -\log_{10} K_A \]

- Degree of ionization

\[ \alpha \equiv [A^-]/([HA] + [A^-]) \]

- Ideal titration curve

\[ 1/\alpha = 1 + 10^{pK_A - pH} \]
Guiding the audience (and yourself)

- Use schemes to illustrate what you say
Guiding the audience (and yourself)

- Use schemes to illustrate what you say
- Compare the known with the new
Guiding the audience (and yourself)

- Use schemes to illustrate what you say
- Compare the known with the new
- Use examples
Guiding the audience (and yourself)

- Use schemes to illustrate what you say
- Compare the known with the new
- Use examples
- Provide intuitive feeling (not necessarily full understanding)
Guiding the audience (and yourself)

- Use schemes to illustrate what you say
- Compare the known with the new
- Use examples
- Provide intuitive feeling (not necessarily full understanding)
- Emphasize the most important
Guiding the audience (and yourself)

- Use schemes to illustrate what you say
- Compare the known with the new
- Use examples
- Provide intuitive feeling (not necessarily full understanding)
- Emphasize the most important
- If everything is important, emphasize nothing
Guiding the audience (and yourself)

- Use schemes to illustrate what you say
- Compare the known with the new
- Use examples
- Provide intuitive feeling (not necessarily full understanding)
- Emphasize the most important
- If everything is important, emphasize nothing
- Repeat the key points
Guiding the audience (and yourself)

- Use schemes to illustrate what you say
- Compare the known with the new
- Use examples
- Provide intuitive feeling (not necessarily full understanding)
- Emphasize the most important
- If everything is important, emphasize nothing
- Repeat the key points
- Uncover information incrementally – control the attention
Guiding the audience (and yourself)

- Use schemes to illustrate what you say
- Compare the known with the new
- Use examples
- Provide intuitive feeling (not necessarily full understanding)
- Emphasize the most important
- If everything is important, emphasize nothing
- Repeat the key points
- Uncover information incrementally – control the attention
- Use slide counter / progress bar
Ionization of star polyelectrolytes

- Star centre – source of non-ideal ionization
- High concentration of charge
- Electrostatic repulsion prevents ionization

Ideal titration curve

- Star centre – source of non-ideal ionization
- High concentration of charge
- Electrostatic repulsion prevents ionization

Ideal titration curve

- Star centre – source of non-ideal ionization
- High concentration of charge
- Electrostatic repulsion prevents ionization

Ideal titration curve
Ionization of star polyelectrolytes

- Star centre – source of non-ideal ionization
- High concentration of charge
- Electrostatic repulsion prevents ionization
- Experiment – strong deviation from ideal titration

**Ideal titration curve vs Experiment**

- Simulation – well reproduces the experiment

**Degree of Ionization, \( \langle \alpha \rangle \)**

**pH - pK_A**

- Ideal
- Exp. f = 5
Ionization of star polyelectrolytes

- Star centre – source of non-ideal ionization
- High concentration of charge
- Electrostatic repulsion prevents ionization
- Experiment – strong deviation from ideal titration
- Simulation – well reproduces the experiment
Examples, schemes

- Help imagination and intuitive perception
- Use examples to illustrate a general result

Animations and movies

- Use animations if they add useful information
- Misused animations only distract attention
- Run the animation once or twice
- Avoid running in infinite loops

Later I will give an example of a useful movie.
Examples, schemes

- Help imagination and intuitive perception
- Use examples to illustrate a general result
- If time is short, omit the general result, not the example.
Examples, schemes

- Help imagination and intuitive perception
- Use examples to illustrate a general result
- If time is short, omit the general result, not the example.

Animations and movies

- Use animations if they add useful information
Examples, schemes

- Help imagination and intuitive perception
- Use examples to illustrate a general result
- If time is short, omit the general result, not the example.

Animations and movies

- Use animations if they add useful information
- Misused animations only distract attention
Examples, schemes

- Help imagination and intuitive perception
- Use examples to illustrate a general result
- **If time is short, omit the general result, not the example.**

Animations and movies

- Use animations if they add useful information
- Misused animations only distract attention
- Run the animation once or twice
- Avoid running in infinite loops
Examples, schemes

• Help imagination and intuitive perception
• Use examples to illustrate a general result
• **If time is short, omit the general result, not the example.**

Animations and movies

• Use animations if they add useful information
• Misused animations only distract attention
• Run the animation once or twice
• Avoid running in infinite loops
• Later I will give an example of a useful movie.
Monte Carlo and SCF

MC

- Explicit particles
- Random changes to configurations
- Densities by averaging over configurations
Monte Carlo and SCF

**MC**
- Explicit particles
- Random changes to configurations
- Densities by averaging over configurations

**SCF**
- Self-Consistent Field
- Radial variation of density
- Classical density functional theory
Now we are ready again for new information

- MC yields good agreement with experiment
- SCF yields correct overall picture
- But fails in finer details.
Mind the viewing angle and resolution

- 28" LCD at home – viewing angle $\sim 60^\circ - 90^\circ$, res. 1920x1080
- 100" screen in CH3 – viewing angle $\sim 10^\circ - 40^\circ$, res. 1024x760
Mind the viewing angle and resolution

- 28" LCD at home – viewing angle $\sim 60^\circ - 90^\circ$, res. 1920x1080
- 100" screen in CH3 – viewing angle $\sim 10^\circ - 40^\circ$, res. 1024x760
- Details look good on your home screen
- They are lost on the big screen
LCD vs. projection

- White is white.
- LCD: Black is black.
- Projection: Black is white (on bright white – contrast).
LCD vs. projection

- White is white.
- LCD: Black is black.
LCD vs. projection

- White is white.
- LCD: Black is black.
- Projection: Black is white
**LCD vs. projection**

- White is white.
- LCD: Black is black.
- Projection: Black is white (on bright white – contrast).
Plots

- Avoid copy-paste from papers
- Adopt font size, aspect ratio, line width, point size, colours
- Self-explanatory axis labels
- Too many curves in one plot
- Mind the actual plot size – check in a small window
Plots

- Avoid copy-paste from papers
- Adopt font size, aspect ratio, line width, point size, colours
- Self-explanatory axis labels
- Too many curves in one plot
- Mind the actual plot size – check in a small window

Fonts (not only in plots)

- Size: large normal small footnote sub/super-script tiny
- Sanserif
Plots

- Avoid copy-paste from papers
- Adopt font size, aspect ratio, line width, point size, colours
- Self-explanatory axis labels
- Too many curves in one plot
- Mind the actual plot size – check in a small window

Fonts (not only in plots)

- Size: large normal small footnote sub/super-script tiny
- Sanserif
- Serif
Plots

- Avoid copy-paste from papers
- Adopt font size, aspect ratio, line width, point size, colours
- Self-explanatory axis labels
- Too many curves in one plot
- Mind the actual plot size – check in a small window

Fonts (not only in plots)

- Size: large normal small footnote sub/super-script tiny
- Sanserif
- Serif
- Italic
Plots

- Avoid copy-paste from papers
- Adopt font size, aspect ratio, line width, point size, colours
- Self-explanatory axis labels
- Too many curves in one plot
- Mind the actual plot size – check in a small window

Fonts (not only in plots)

- Size: large normal small footnote sub/super-script tiny
- Sanserif
- Serif
- Italic
- Calligraphic
Plots

- Avoid copy-paste from papers
- Adopt font size, aspect ratio, line width, point size, colours
- Self-explanatory axis labels
- Too many curves in one plot
- Mind the actual plot size – check in a small window

Fonts (not only in plots)

- Size: large normal small footnote sub/super-script tiny
- Sanserif
- Serif
- Italic
- Calligraphic

\[ l = l + \Xi \text{ Sanserif math} \]
Plots

- Avoid copy-paste from papers
- Adopt font size, aspect ratio, line width, point size, colours
- Self-explanatory axis labels
- Too many curves in one plot
- Mind the actual plot size – check in a small window

Fonts (not only in plots)

- **Size:** large normal small footnote sub/super-script tiny
- Sanserif $l = I + \Xi$ Sanserif math
- Serif $l = I + \Xi$ Serif math
- *Italic*
- Calligraphic
Ionization along the chain contour

http://www.natur.cuni.cz/chemie/fyzchem

Faculty of Science, Charles University, Prague

P. Košovan

Presentation

23/32
Ionization along the chain contour

MC

SCF

\[ f = 2 \]

\[ f = 10 \]

---

Faculty of Science, Charles University, Prague

P. Košovan

Presentation 23/32
Ionization along the chain contour

Distance from the centre, s/N

Local degree of ionization, $\alpha(s)$

MC, 2 arms

$\langle \alpha \rangle$

0.99
0.76
0.54
0.34
0.19
0.041

MC, 10 arms

$\langle \alpha \rangle$

0.94
0.77
0.51
0.30
0.16
0.018

SCF, 2 arms

$\langle \alpha \rangle$

0.99
0.76
0.54
0.34
0.19
0.041

SCF, 10 arms

$\langle \alpha \rangle$

0.94
0.77
0.51
0.30
0.16
0.018
Ionization along the chain contour

MC, 2 arms

MC, 10 arms

Local degree of ionization, $\alpha(s)$

Distance from the centre, $s/N$

$\langle \alpha \rangle$

0.99
0.76
0.54
0.34
0.19
0.041

0.94
0.77
0.51
0.30
0.16
0.018
Ionization along the chain contour

Local degree of ionization, $\alpha(s)$

Distance from the centre, $s/N$

<table>
<thead>
<tr>
<th>$s/N$</th>
<th>MC, 2 arms</th>
<th>SCF, 2 arms</th>
<th>MC, 10 arms</th>
<th>SCF, 10 arms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>0.2</td>
<td>0.99</td>
<td>0.99</td>
<td>0.94</td>
<td>0.94</td>
</tr>
<tr>
<td>0.4</td>
<td>0.76</td>
<td>0.76</td>
<td>0.77</td>
<td>0.77</td>
</tr>
<tr>
<td>0.6</td>
<td>0.54</td>
<td>0.54</td>
<td>0.51</td>
<td>0.51</td>
</tr>
<tr>
<td>0.8</td>
<td>0.34</td>
<td>0.34</td>
<td>0.30</td>
<td>0.30</td>
</tr>
<tr>
<td>1</td>
<td>0.19</td>
<td>0.19</td>
<td>0.16</td>
<td>0.16</td>
</tr>
</tbody>
</table>

$\langle \alpha \rangle$

Distance from the centre, $s/N$
Tables

- Beware of tables!
Tables

- Beware of tables!
- You **CAN** use tables
- Provide enough time to read them
- Highlight the important

<table>
<thead>
<tr>
<th></th>
<th>$f = 2$</th>
<th></th>
<th>$f = 10$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\langle \alpha \rangle$</td>
<td>0.54</td>
<td>0.34</td>
<td>0.19</td>
</tr>
<tr>
<td>pH MC</td>
<td>6.04</td>
<td>5.23</td>
<td>4.47</td>
</tr>
<tr>
<td>pH SCF</td>
<td>7.23</td>
<td>6.64</td>
<td>6.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$f = 10$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\langle \alpha \rangle$</td>
<td>0.51</td>
<td>0.30</td>
<td>0.16</td>
</tr>
<tr>
<td>pH MC</td>
<td>6.50</td>
<td>5.65</td>
<td>4.87</td>
</tr>
<tr>
<td>pH SCF</td>
<td>8.07</td>
<td>7.64</td>
<td>7.08</td>
</tr>
</tbody>
</table>
Time to examine the contents $\sim$ number of possible pairs $\mathcal{O}(N^2)$

Cannot analyze trends

<table>
<thead>
<tr>
<th>$\langle \alpha \rangle$</th>
<th>$f = 2$</th>
<th>$f = 3$</th>
<th>$f = 5$</th>
<th>$f = 10$</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH SCF</td>
<td>0.99</td>
<td>0.98</td>
<td>0.97</td>
<td>0.94</td>
</tr>
<tr>
<td></td>
<td>0.93</td>
<td>0.90</td>
<td>0.85</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td>0.76</td>
<td>0.70</td>
<td>0.62</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>0.54</td>
<td>0.47</td>
<td>0.40</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>0.34</td>
<td>0.29</td>
<td>0.23</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>0.19</td>
<td>0.16</td>
<td>0.12</td>
<td>0.084</td>
</tr>
<tr>
<td></td>
<td>0.096</td>
<td>0.079</td>
<td>0.061</td>
<td>0.042</td>
</tr>
<tr>
<td></td>
<td>0.041</td>
<td>0.034</td>
<td>0.026</td>
<td>0.018</td>
</tr>
<tr>
<td>pH MC</td>
<td>8.98</td>
<td>8.98</td>
<td>9.10</td>
<td>9.11</td>
</tr>
<tr>
<td></td>
<td>8.32</td>
<td>8.39</td>
<td>8.46</td>
<td>8.53</td>
</tr>
<tr>
<td></td>
<td>7.75</td>
<td>7.84</td>
<td>7.94</td>
<td>7.56</td>
</tr>
<tr>
<td></td>
<td>7.23</td>
<td>7.32</td>
<td>7.48</td>
<td>5.80</td>
</tr>
<tr>
<td></td>
<td>6.64</td>
<td>6.76</td>
<td>6.91</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td>6.00</td>
<td>6.05</td>
<td>6.08</td>
<td>4.26</td>
</tr>
<tr>
<td></td>
<td>5.40</td>
<td>5.37</td>
<td>5.34</td>
<td>3.57</td>
</tr>
<tr>
<td></td>
<td>4.80</td>
<td>4.74</td>
<td>4.65</td>
<td>2.94</td>
</tr>
<tr>
<td></td>
<td>3.77</td>
<td>3.68</td>
<td>3.57</td>
<td>2.79</td>
</tr>
</tbody>
</table>
Present data graphically

- If you can plot data from your table …
Present data graphically

- If you can plot data from your table … Do it!
<table>
<thead>
<tr>
<th>Short vs. long talk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short</strong></td>
</tr>
<tr>
<td>- No room to stop or lose track</td>
</tr>
<tr>
<td>- Tight flow of information</td>
</tr>
<tr>
<td>- Know your slides!</td>
</tr>
<tr>
<td>- One key message</td>
</tr>
<tr>
<td>- Should be rehearsed</td>
</tr>
<tr>
<td><strong>Long</strong></td>
</tr>
<tr>
<td>- More relaxed timing</td>
</tr>
<tr>
<td>- Often cannot be rehearsed</td>
</tr>
<tr>
<td>- Difficult to know all slides</td>
</tr>
<tr>
<td>- More messages</td>
</tr>
<tr>
<td>- Be prepared to skip some things</td>
</tr>
</tbody>
</table>

**Backup slides**
- Possibly important content which won’t fit in your time
- For discussion
- Technical details, parameters
Short vs. long talk

Short
- No room to stop or lose track
- Tight flow of information
- Know your slides!
- One key message
- Should be rehearsed

Long
- More relaxed timing
- Often cannot be rehearsed
- Difficult to know all slides
- More messages
- Be prepared to skip some things

Lecture for teaching is different . . .
- Full understanding is desired
- All necessary details need to be provided
- What does not fit in time, can be postponed to next lecture
The night before

Target: 15min

1. Rehearse
   - Note when you get stuck
   - Look up the missing vocabulary, check pronunciation
   - Remove what you cannot say
   - Shuffle your slides, split them
   - Result: 35min
The night before

Target: 15min

1. Rehearse
   • Note when you get stuck
   • Look up the missing vocabulary, check pronunciation
   • Remove what you cannot say
   • Shuffle your slides, split them
   • Result: 35min

2. Rehearse
   • Check the natural flow, be aware what comes next.
   • Smooth transitions between the slides
   • Watch the timing
   • Result: 22min
The night before

**Target: 15min**

1. **Rehearse**
   - Note when you get stuck
   - Look up the missing vocabulary, check pronunciation
   - Remove what you cannot say
   - Shuffle your slides, split them
   - Result: 35min

2. **Rehearse**
   - Check the natural flow, be aware what comes next.
   - Smooth transitions between the slides
   - Watch the timing
   - Result: 22min

3. **Off we go . . . 15min**
When presenting

- Be enthusiastic.
- Speak up.
- Speak slow and clear
- Watch the audience.
- Communicate with them.
- **Wake them up:** speed up / slow down / ask a question / tell a joke
- Watch the chairman.
- Be absolutely on time!
- The key to being on time is fluency and preparation, not speed: https://www.youtube.com/watch?v=OPhvrLm2dSo
Where to learn more

- YouTube: TED/TEDx channels
- My favourite on TEDx: How to avoid death by PowerPoint
  https://www.youtube.com/watch?v=Iwpi1Lm6dFo
- Scientific leaders
  http://www.scientificleaders.com/presentations
- My own web page (pdf of this presentation):
  http://web.natur.cuni.cz/~kosovan1/
- Go to conferences, watch good speakers live
Where to learn more

- YouTube: TED/TEDx channels
  https://www.youtube.com/watch?v=Iwpi1Lm6dFo
- My favourite on TEDx: How to avoid death by PowerPoint
  https://www.youtube.com/watch?v=Iwpi1Lm6dFo
- Scientific leaders
  http://www.scientificleaders.com/presentations
- My own web page (pdf of this presentation):
  http://web.natur.cuni.cz/~kosovan1/
- Go to conferences, watch good speakers live
- Critically review any recommendation
- Some rules for business presentations do not apply in science
Conclusion

- Samples were prepared
- Experiments were performed
- Results were obtained
- Data was analyzed
- Results were presented
Conclusion

- Samples were prepared
- Experiments were performed
- Results were obtained
- Data was analyzed
- Results were presented

Where is the message?
Summary

- Good presentations require effort and practice
- It’s worthwhile and it’s fun
- What’s good is a matter of taste.
- Follow the rules to make good presentations.
- Violate them to be outstanding.
Summary

• Good presentations require effort and practice
• It’s worthwhile and it’s fun
• What’s good is a matter of taste.
• Follow the rules to make good presentations.
• Violate them to be outstanding.
• The take-home message:
Summary

• Good presentations require effort and practice
• It’s worthwhile and it’s fun
• What’s good is a matter of taste.
• Follow the rules to make good presentations.
• Violate them to be outstanding.
• The take-home message:

Do not forget to provide a take-home message.
Thank you for your attention!