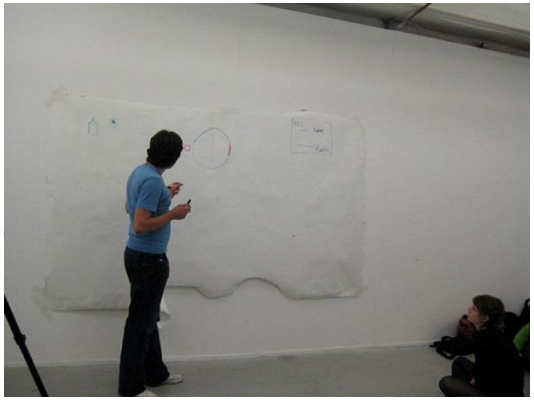
SCIENTIFIC TALKS



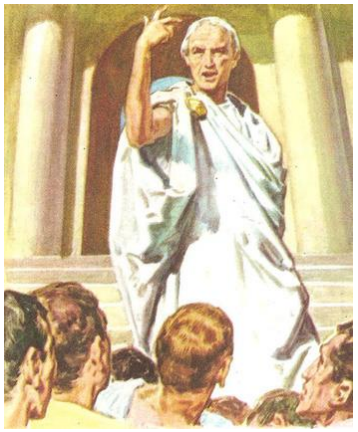
A Short History of Rhetorics - the Art of Talking

Rhetorics is rooted in Ancient Greece
- political and legal system fostered art of oral communication

Highpoint in Rome
- one of the seven high arts
- Cicero *De oratore*
- Quintilian, first professor of rhetorics

“Rediscovery” in Scholastics

Modern Rhetorics
- intermingled with literary sciences
- political agitation



Five Production Stages of a Talk (based on Cicero/Quintilian)

inventio	researching arguments
dispositio	structuring the talk
elecutio	putting ideas into words, using various style elements (*ornatus*); using illustrations
memoria	memorizing the talk
actio/pronuntiatio	giving the talk

A Canonical Talk has 5 Parts:

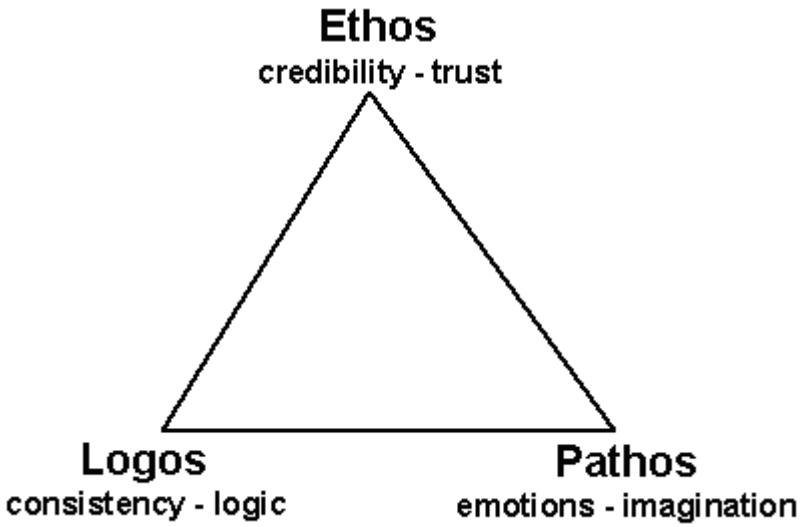
Proemium	Introduction
Narratio	Description of situation/facts
Argumentatio	Proof of a thesis, refutation of counter arguments
Disgressio	Disgression and additional explanations
Peroratio	Finalizing epilog

Officia Oratoris – Aim of a Talk:

Docere	Teach, Conveying of information
Delactare	Entertain
Movere	Move (emotionally), Convince

The Speaker may convince the audience by:

ethos	authority and personality
pathos	eloquence, power of presentation
logos	logic of the argument



…. all this is still true for a modern Science talk
(often a mixture of sermon and political speech)

Types of Speeches for Scientists:

- Research Seminar
- Conference Talk

- Keynote Lecture and Co

- Speaker Introduction
- Moderation

- Ceremonial Talks
- Social Talks

YOUR SCIENTIFIC TALK

inventio

Collect experimental data

Read relevant papers

Put individual papers into context (e.g. start with review paper)

Educate yourself (you should know more than you talk about)

Starting to Structure Your Talk

Who is the audience; what are they interest in, what do they already know?

What is your aim (impress them, get a job, get valubale feedback on your work..)?

What are your main points (less than 10!)

What does the audience need to know to appreciate your main points?

How long will the talk be (rule of thumb: 1 slide per 1.5 minutes)?

Before the talk

make yourself familiar with the room (if possible)

have the presentation technique running and preview your talk
(especially if you have movies)

inquire about the dresscode (before arriving)

always have a backup copy of your talk (memory stick, Cloud)

I personally like to use my own computer

Remove (too) personal files from your desktop/screensaver

Memorizing your talk

do not write the talk down – free speech is a must!

use your slides as a guide

do not fear to forget something – if it is crucial you won't

practice your talk, especially if timing is essential and you are still inexperienced

Giving the Talk

„There are two types of speakers: those that are nervous and those that are liars“ (Mark Twain)

Dress for the occassion

Avoid reading from your slides or your notes

Use the microphone, have a glass of water at hand

Realize that people want you to succeed.
They don't want you to fail.
Audiences want you to be interesting, stimulating, informative, and entertaining.
They are on your side!

Don't apologize.
If you mention your nervousness or apologize for any problems you think you have with your speech, you may be calling the audience's attention to something they hadn't noticed.

Concentrate on the message -- not the medium.
Focus your attention away from your own anxieties, and outwardly toward your message and your audience.Your nervousness will dissipate.

Turn nervousness into positive energy.
Harness your nervous energy and transform it into vitality and enthusiasm.

Gain experience.
Experience builds confidence, which is the key to effective speaking.

disposito / elecutio

Scientific Talks have a common structure:

-1.	Title	catchy but academic
0.	Preintro	thanking the organizers making a joke personal connection
1.	Introduction	what does the audience need to know to get the story why is it important FOR THE AUDIENCE what is already known, why do we need to know more get personal; your own motivation
2.	Methods	keep it simple, often omitted and mixed in with results
3.	Results	better fewer data but concise
4.	Conclusion	very concise
5.	Outlook	what comes next

How to start a talk

the first impression is important for winning over the audience

many options:

- anecdote
- effect
- question
- overview of the talk
- historical
- relevance

never force it; if in doubt choose the talk overview

Language

Emphasize important points

Try to be entertaining and show your enthusiasm

Use emotional words

Introduction

Give all the information that the audience needs to appreciate your talk

Avoid acronyms or (if necessary) explain them well

Emphasize the relevance and the open questions to be answered

Make it personal and emotional (why do you love your subject?)

Do not make an extensive survey of the literature

The introduction should be less than a third of your talk

Methods

only devote a dedicated section to your methods when they are:

innovative, hard to understand or in some way unusual or crucially important for the following results

Results (1)

This is the main part of your talk!

Only show data that you will discuss – only graphs that are part of the story

Explain graphs well – including the axes

Keep it sweet and simple – there is always time to expand in the discussion

Make small conclusions after each subsection

Find links between subsections

Avoid tables

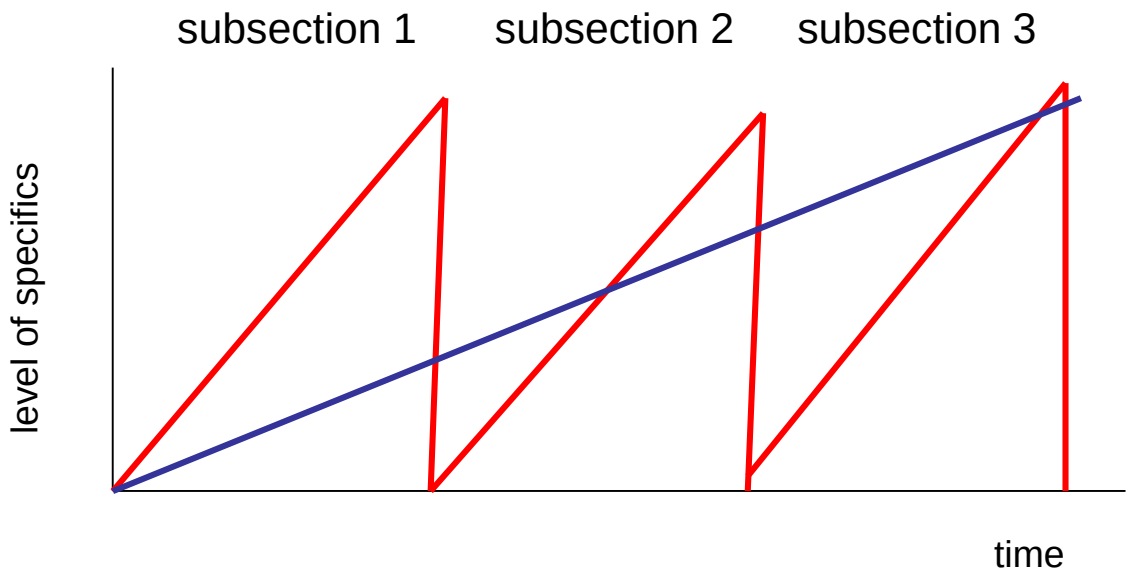
Results (2)

You are telling a story; think about the storyline (plot)

chronological, inductive, deductive, dialectic, hypothesis driven ....

Results (3)

try to serve both specialists and non-specialists in the audience

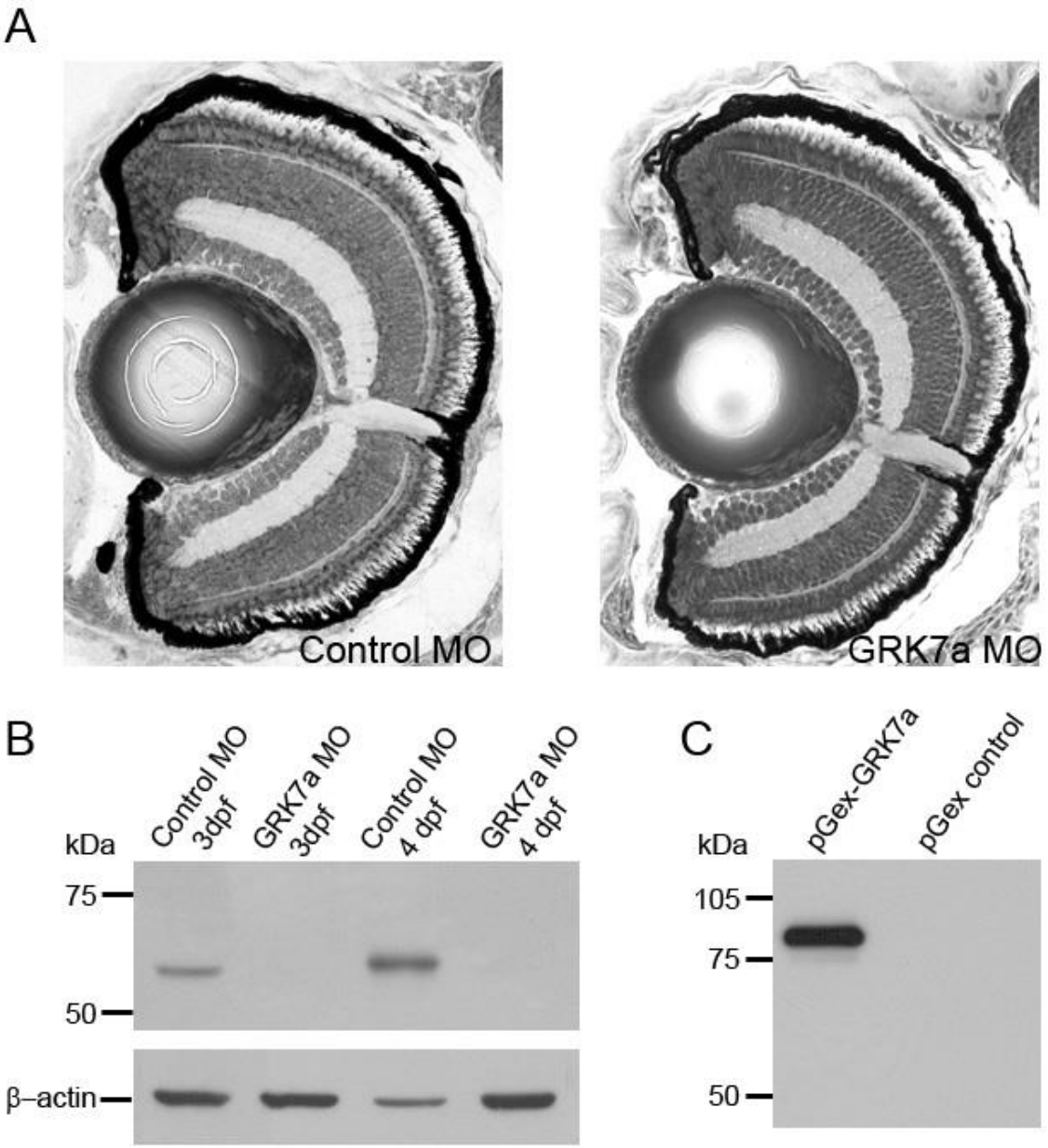


Designing your slides

Font:	I prefer *sans sarif* typeface fonts e.g. Arial not Times New Roman at least size 14 (again depending on the room) bigger is usually better as little text on a slide as possible; keywords often suffice
Identity:	All slides should be the same style, e.g same background consider „corporate identity“
Colors:	Use primary colors (red, blue, green) and use them sparingly red&green; blue&purple on one slide is bad for colorblind men light green and yellow are hard to see (on a white background)
Graphs:	as simple as possible
Animation:	Use it wisely, too much movement distracts
Graphic Humor:	Must be easily understandable, never in short talks

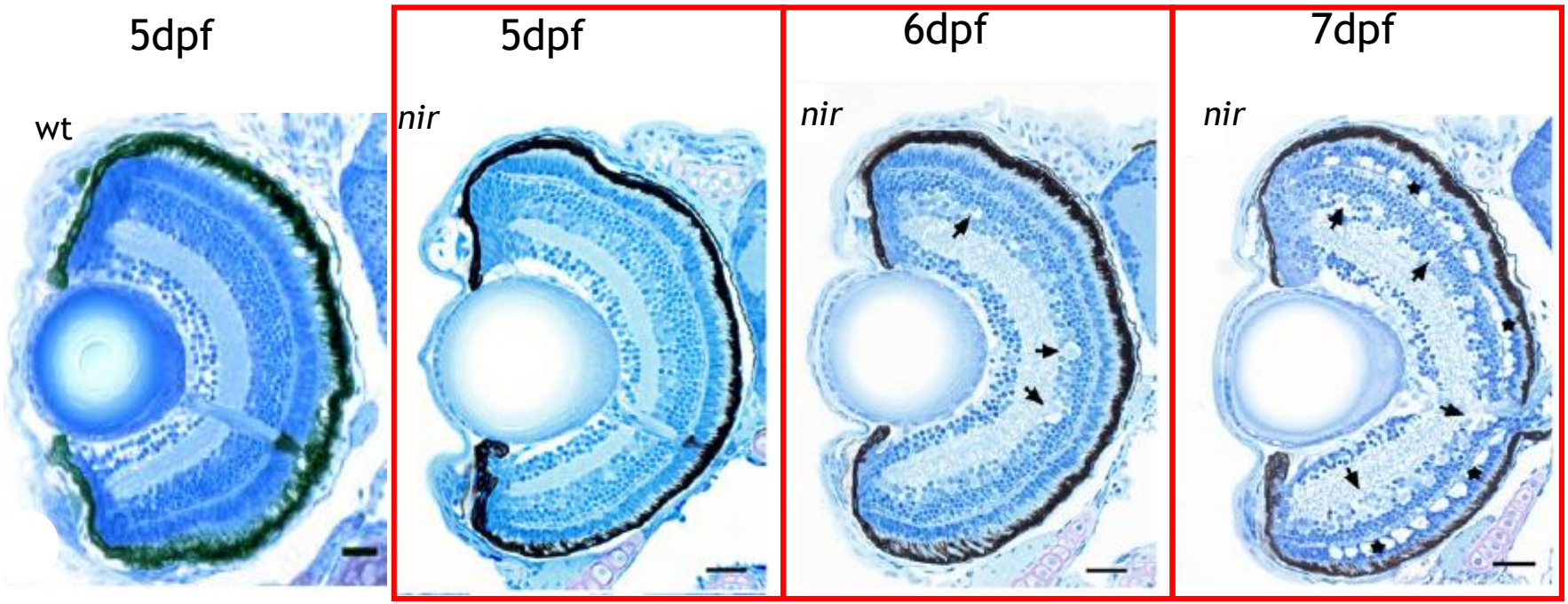
Some Examples to Discuss …..

	Illuminance [lux]
Bright sun	50000 – 100000
Hazy day	25000 – 50000
Cloudy bright	10000 - 2500
Cloudy dull	2000 - 10000
Very dull	100 - 2000
Sunset	1 - 100
Full moon	0.01 - 0.1
Starlight	0.001



cone adaptation

Histology



→5dpf: wild-type like retina

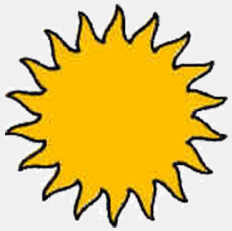
→6dpf: gaps in the inner third of the INL

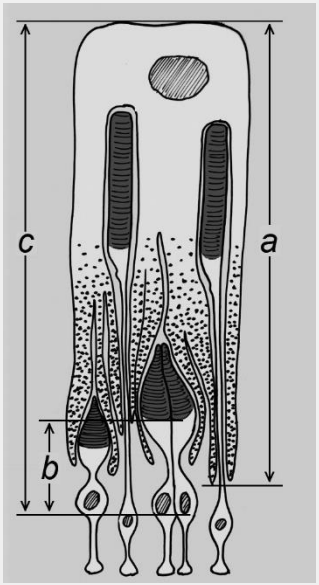
→7dpf: whole retina degenerates

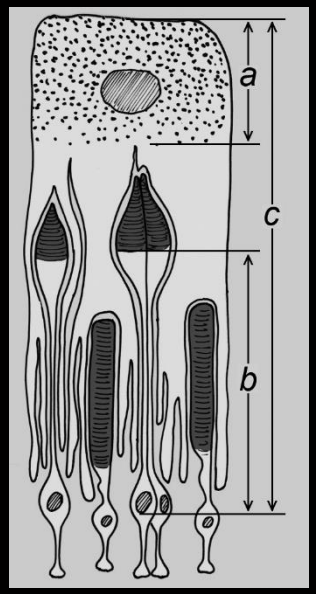
Human visual disorders and next steps

- Non-decussating retinal-fugal fiber syndrome
  - Anatomy: absence of optic chiasm (inborn and rare)
  - Occolumotor profile
    - Congenital nystagmus (CN), horizontal, interocular conjugacy; See-saw nystagmus (SSN), vertical, interocular disconjugacy; Alterating exotropia
  - Link between occolumotor profile and anatomy?
    - Underlying mechanism is yet unkown in humans
  - The oscillations observed in *bel* mutants resemble the CN → *bel* may serve as model for the understanding of the underlying pathophysiology
- Next steps
  - Recording of previous data with higher time resolution to investigate the build-up of oscillation or reversed OKR in *bel*
  - Test of OKR behavior of wt and *bel* at V_s beyond 22.5 deg/s → Where is the limit of movement perception?
  - Refinement of the model based on the data, using MATLAB

Time course and development of light adaptation processes in the outer zebrafish retina

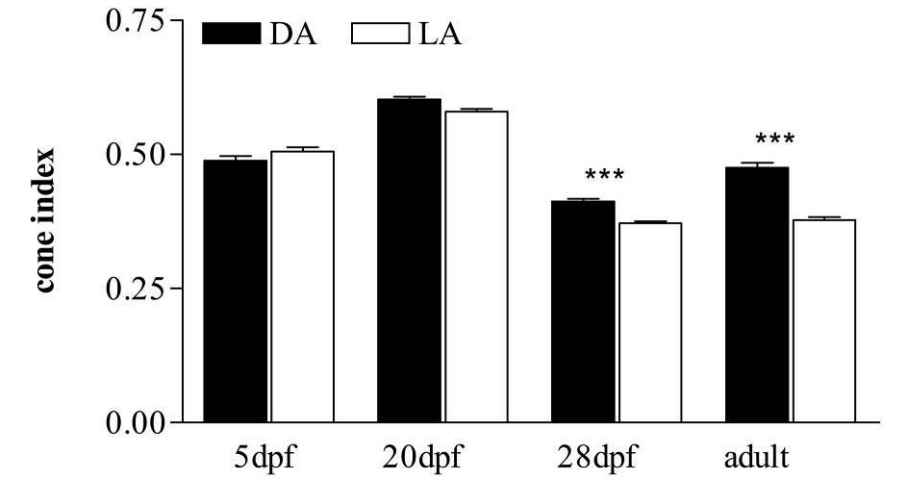




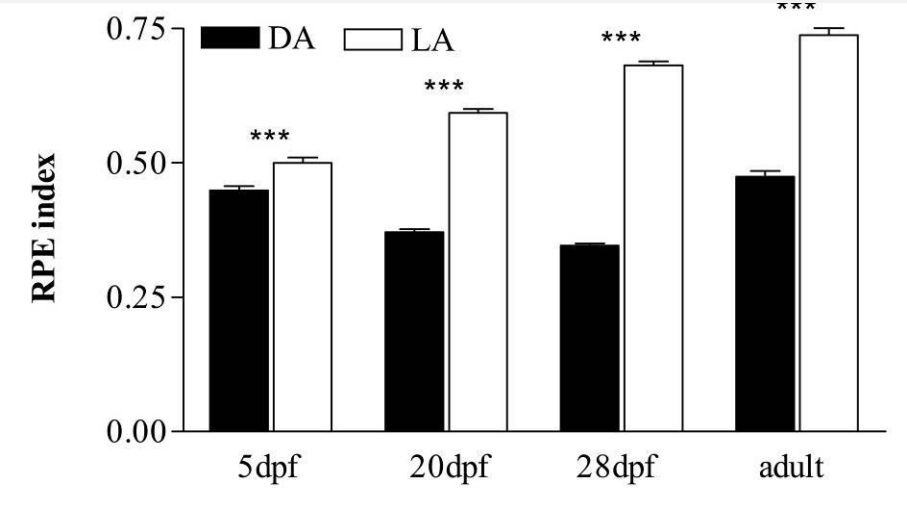


Development of light adaptation processes: quantification

Cone contraction

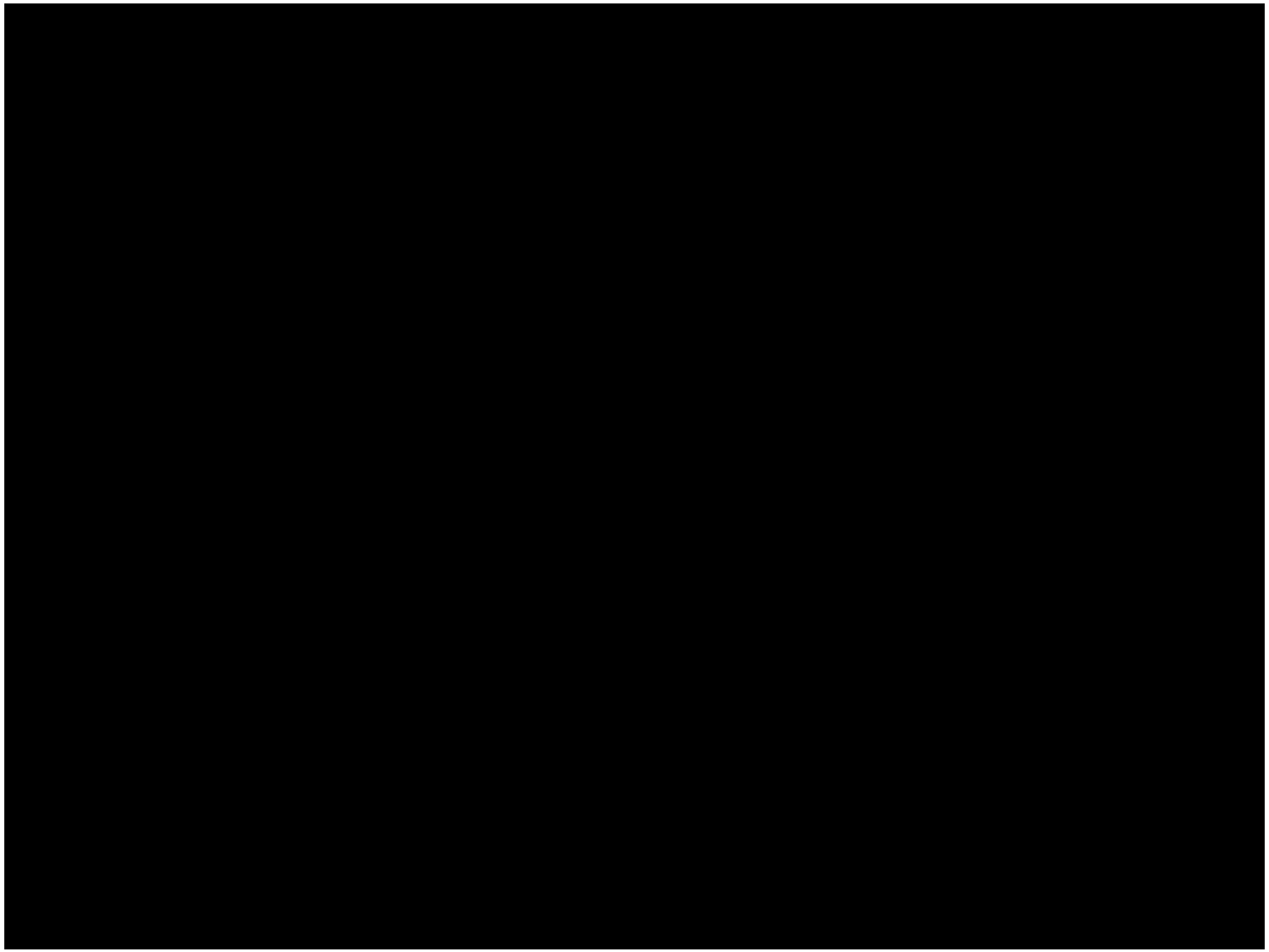


RPE granule migration



- the two processes do not mature in parallel.
- the RPE granule movement develops continuously
- photoreceptor movement seems to be triggered by the functional presence of rods (>25dpf).

Powerpoint Movie



Conclusion

Summarize the key points of your talk in very few words
Make a conclusion that links to the introduction

Outlook

report on your next steps (important for PhD committees, not so much for other talks)

Acknowledgements

thank everybody involved in the work
only professional help (exception: inaugural talks)

"So, does anyone in the group feel like responding to what Richard has just shared with us?"

Don’t overwhelm your audience

Discussion (after your talk)

Make sure that you understand the question, ask again if not

If the question is long, repeat its essence

If you are the only one with a microphone repeat questions

Avoid long answers

Be open about not knowing something

Avoid backflipping slides of your presentation

Common English Language Mistakes of German Speakers

Grammar:

data is plural	the data show …, the datum shows….the data are good
good (adjective), well (adverb)	he is good and he works well
bad, worse, worst	not: bad, bader, badest

Vocabulary:

stadium	sports arena; German “Stadium” is stage
become	“werden” not “bekommen”
natrium	“Natrium” is sodium

Pronounciations:

paradigm	[paradaim]
psychology	[sykolodschi], “p” is not pronounce in psych..
target	[ta:rget] not [tartschet]
hindbrain	[haindbrain]
germ layer	[dscherm layer]
mature	[matschu:r]
major	[meidschor]
salmon	[samon]

A few words on body language

Face your audience with square shoulders

Try to scan the whole audience with your eyes

Tips on pointer use

Gestures – be authentic

"For God's sake, Edwards. Put the laser pointer away."

go to a talk and fill this out for that talk

Speaker: Your name:

Title:

BIO 327: TALK EVALUATION

I. ORGANIZATION/CONTENT – Check boxes that apply to the speaker and presentation.

	Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly
The opening description got the audience interested					
The introduction provided a broad context					
The speaker identified specific questions/hypotheses					
An effective "roadmap" let the audience know where the talk had come from and where it was going					
Conclusions were well-supported by results					
At the end, the take-home messages were made clear					

Other comments:

II. VISUAL AIDS – Check the boxes that you feel apply to the speaker and presentation.

	Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly
Slides were generally simple, legible and clear					
Words were kept to a minimum and did not distract from listening to the speaker					
Methods were explained well					
Figures were labeled and quickly understandable					
The speaker explained complicated visuals					

Other comments:

III. STYLE – Check the boxes that you feel apply to the speaker and presentation.

	Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly
The speaker faced the audience and made eye contact					
The speakers' voice was sufficiently loud and clear					
Pauses were used effectively for emphasis					
The jargon level was appropriate for the audience					
The talk was well paced and appropriate for the time					
Questions were answered and treated with respect					

Other comments:

(adapted from University of North Carolina at Chapel Hill)

Some additional points for your talks in this course:

- make sure that you understand the paper;
  read additional background literature and supplementary data

- show courage by not talking about everything

- explain why you have picked your paper (and why we should care)

- make sure that you understand the methods even if you will not talk about them

- be critical; if you do not like something in the paper, tell us