

# Activating students with Perusall

Florian Wagener  
(Quantitative Economics)

11 May 2022

TLC

# Perusall

Perusall is a system for **learners** to **share** and **build** knowledge cooperatively

# Perusall

Perusall is a system for **learners** to **share** and **build** knowledge cooperatively

- Free to use with:
  - owned material (pdfs, videos, podcasts, web pages)
  - open educational resources

# Perusall

Perusall is a system for **learners** to **share** and **build** knowledge cooperatively

- Free to use with:
  - owned material (pdfs, videos, podcasts, web pages)
  - open educational resources
- Non-free to use with published books (revenue model)

# Perusall

Perusall is a system for **learners** to **share** and **build** knowledge cooperatively

- Free to use with:
  - owned material (pdfs, videos, podcasts, web pages)
  - open educational resources
- Non-free to use with published books (revenue model)
- Students comment material asynchronously

# Perusall

Perusall is a system for **learners** to **share** and **build** knowledge cooperatively

- Free to use with:
  - owned material (pdfs, videos, podcasts, web pages)
  - open educational resources
- Non-free to use with published books (revenue model)
- Students comment material asynchronously
- Comments are evaluated automatically

# Interface

The screenshot displays the Perusall web interface. The main content area on the left shows a document with the following text:

by taking the limit  $t \uparrow b$ , it also follows that  $F(b) = 0$ . Substituting  $F(t) = 0$ , we find that

$$G\varphi(b) = 0$$

for all  $\varphi(b)$ , whence we conclude that  $G = 0$ . □

The theorem implies that if  $x$  furnishes an extremal value of  $J$  restricted to  $\mathcal{D}$ , then it has to satisfy the *Euler-Lagrange equation*

$$\frac{d}{dt} D_v L(t, x(t), \dot{x}(t)) - D_x L(t, x(t), \dot{x}(t)) = 0, \quad (5.1)$$

together with the boundary conditions

$$x(a) = A, \quad D_x L(b, x(b), \dot{x}(b)) = 0. \quad (5.2)$$

Remark how the problem generates its own boundary condition at the free endpoint.

**5.1.3 NECESSARY AND SUFFICIENT CONDITIONS**

*Necessary conditions* We summarise the result of the previous subsection.

The chat window on the right, titled "Current conversation", shows a discussion:

- A question mark icon: "If there is also a given boundary condition  $x(b) = B$ , then this replaces the current condition?"
- A response from user 'S': "I think that this is the  $G=0$  statement from theorem 5.2. The conditions  $F(t)=0$  and  $\phi(a) = 0$ , and  $G=0$ , are in this case the conditions

$$\frac{d}{dt} D_v L(t, x(t), \dot{x}(t)) - D_x L(t, x(t), \dot{x}(t)) = 0$$

and

$$x(a) = A, \quad D_x L(b, x(b), \dot{x}(b)) = 0$$

if these conditions are fulfilled we could possibly have that  $x$  furnishes an extremum to  $J$  restricted to  $\mathcal{D}$ , but not necessarily so. Hence,  $x(a) = A, \quad D_x L(b, x(b), \dot{x}(b)) = 0$  replace the condition  $x(b) = B$  of theorem 5.1.

At the bottom of the chat, it says "Upvoted by instructor" and "Yes I understand, sorry if I".

# Technical points



# Technical points

- Canvas integration available (recommended)

# Technical points

- Canvas integration available (recommended)
- **Important:** First set group size, then add library items

# Technical points

- Canvas integration available (recommended)
- **Important:** First set group size, then add library items
- Group size should not be too large (10-20), in order that everyone can make a contribution

# Technical points

- Canvas integration available (recommended)
- **Important:** First set group size, then add library items
- Group size should not be too large (10-20), in order that everyone can make a contribution
- Instruct students how to use  $\LaTeX$  in comments:  
`\(...\)` for inline, `\[...\]` for display

# Strengths

# Strengths

- Students engage with the material during course

# Strengths

- Students engage with the material during course
- Students teach each other: many 'simple' questions do not reach the teacher

# Strengths

- Students engage with the material during course
- Students teach each other: many 'simple' questions do not reach the teacher
- Students learn to formulate



# Strengths

- Students engage with the material during course
- Students teach each other: many 'simple' questions do not reach the teacher
- Students learn to formulate
- Difficult points are flagged automatically

# Strengths

- Students engage with the material during course
- Students teach each other: many 'simple' questions do not reach the teacher
- Students learn to formulate
- Difficult points are flagged automatically
- Perusall provides a window in the mind of students

# Pitfalls

# Pitfalls

- Students are unsure what is expected of them

# Pitfalls

- Students are unsure what is expected of them
- Weaker students are afraid that they cannot contribute

# Pitfalls

- Students are unsure what is expected of them
- Weaker students are afraid that they cannot contribute
- Using it as an evaluative tool — hard deadlines, high requirements — works against the idea of a collaborative tool

# Pitfalls

- Students are unsure what is expected of them
- Weaker students are afraid that they cannot contribute
- Using it as an evaluative tool — hard deadlines, high requirements — works against the idea of a collaborative tool
- It is not a panacea (although it is marketed as one)

# Recommendations



# Recommendations

- Communicate clearly

# Recommendations

- Communicate clearly
- Take time to explain and motivate educational setup

# Recommendations

- Communicate clearly
- Take time to explain and motivate educational setup
- Publish expected time budget per activity

# Recommendations

- Communicate clearly
- Take time to explain and motivate educational setup
- Publish expected time budget per activity
- Be generous when assigning credits

# Recommendations

- Communicate clearly
- Take time to explain and motivate educational setup
- Publish expected time budget per activity
- Be generous when assigning credits
- Read comments regularly: join discussions once students had their say