eLearning Support for Formative Assessment

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Topics

Formative assessment

Onscreen marking of assignments using MarkTool

Management of the marking process

Learning support around formative assessment

Research team

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More Information, downloads

http://www-ist.massey.ac.nz/MarkTool/

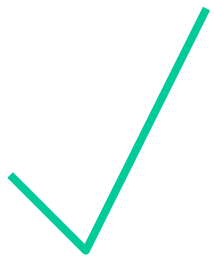
Formative assessment

- Main focus is on learning (but reality is that we need to give marks as well)
- Students need to
  - Develop own thoughts
  - Construct own answers
- The marker helps students to
  - Identify gaps between actual and target level of knowledge
  - Develop plans for closing the gaps
- Feedback provided needs to be worded carefully

Formative assessment

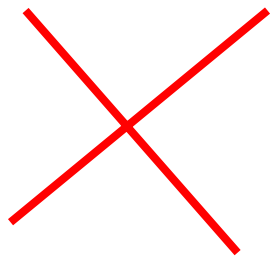
Linked to

- Open-ended questions
- Essay-type submissions
- Human markers



Unsuitable

- Multiple-choice style testing
- Automated marking
- Automated generation of feedback



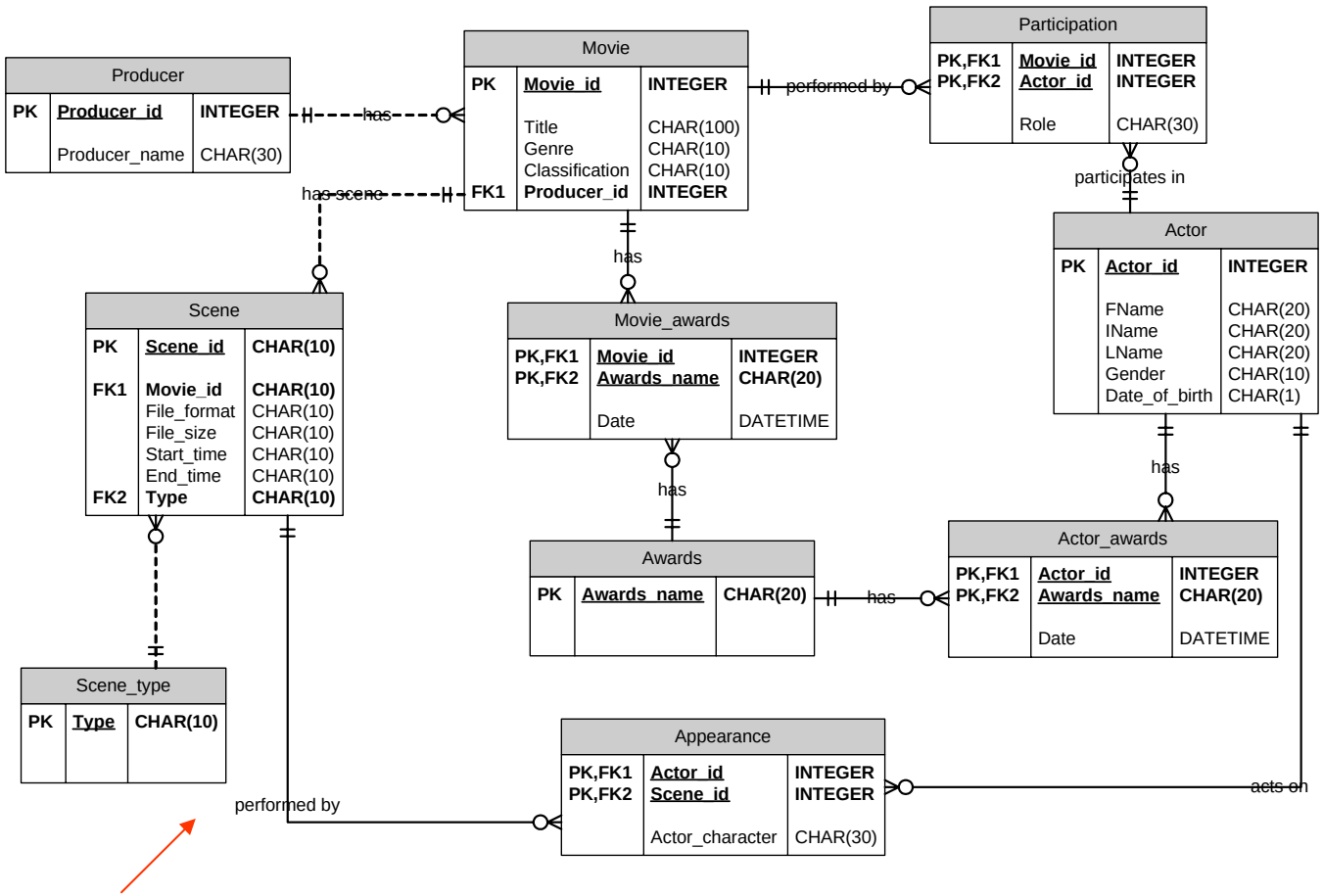
Principles of our project

- Rely on human input
  - To understand the work submitted by the students
  - To construct feedback conducive to learning
- Use the strengths of computer systems for
  - Sharing, displaying, storing, searching, retrieving, …
- Process
  - Students submit assignments in electronic form
  - Human marker annotates assignments electronically
  - Students receive marked assignments in electronic form
- Our tool supporting the marker is called MarkTool

MarkTool

- Mirror the way many people mark on paper
  - Highlight areas
  - Write comments close to reference point
  - Use a marking scheme for transparency
- Work with assignments in PDF format
  - Student either submit PDF or we convert their files
  - Focus on single but universal file format
- The marking gets stored separate from the assignments
  - The PDF file remains unchanged
  - The marking is saved as an XML file

An example of a student assignment

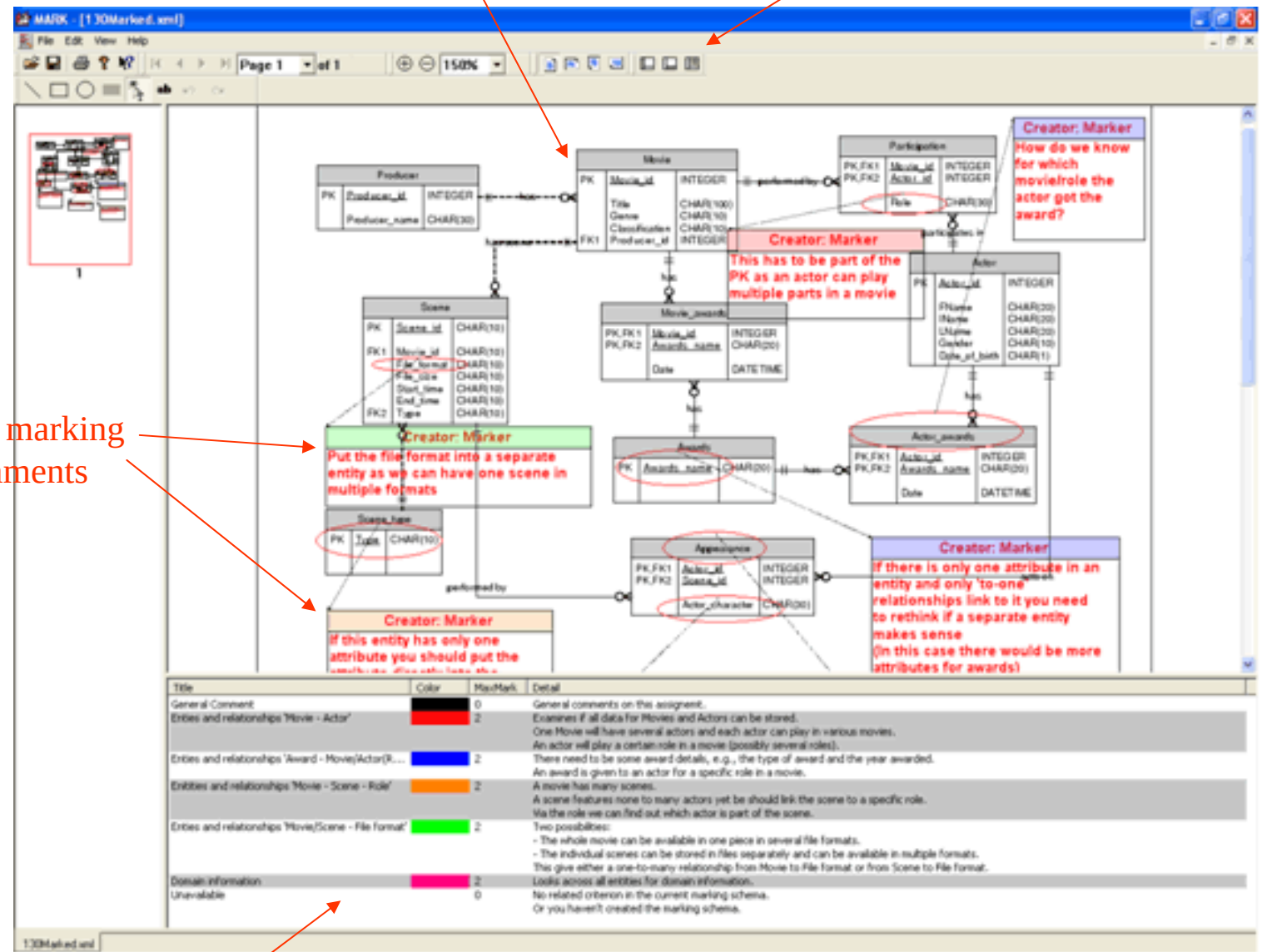


This is from a course on data modelling yet it could be any content or format that can be converted into a PDF document

The original assignment (in black)

Toggle to summary view

MarkTool, Version 1.0



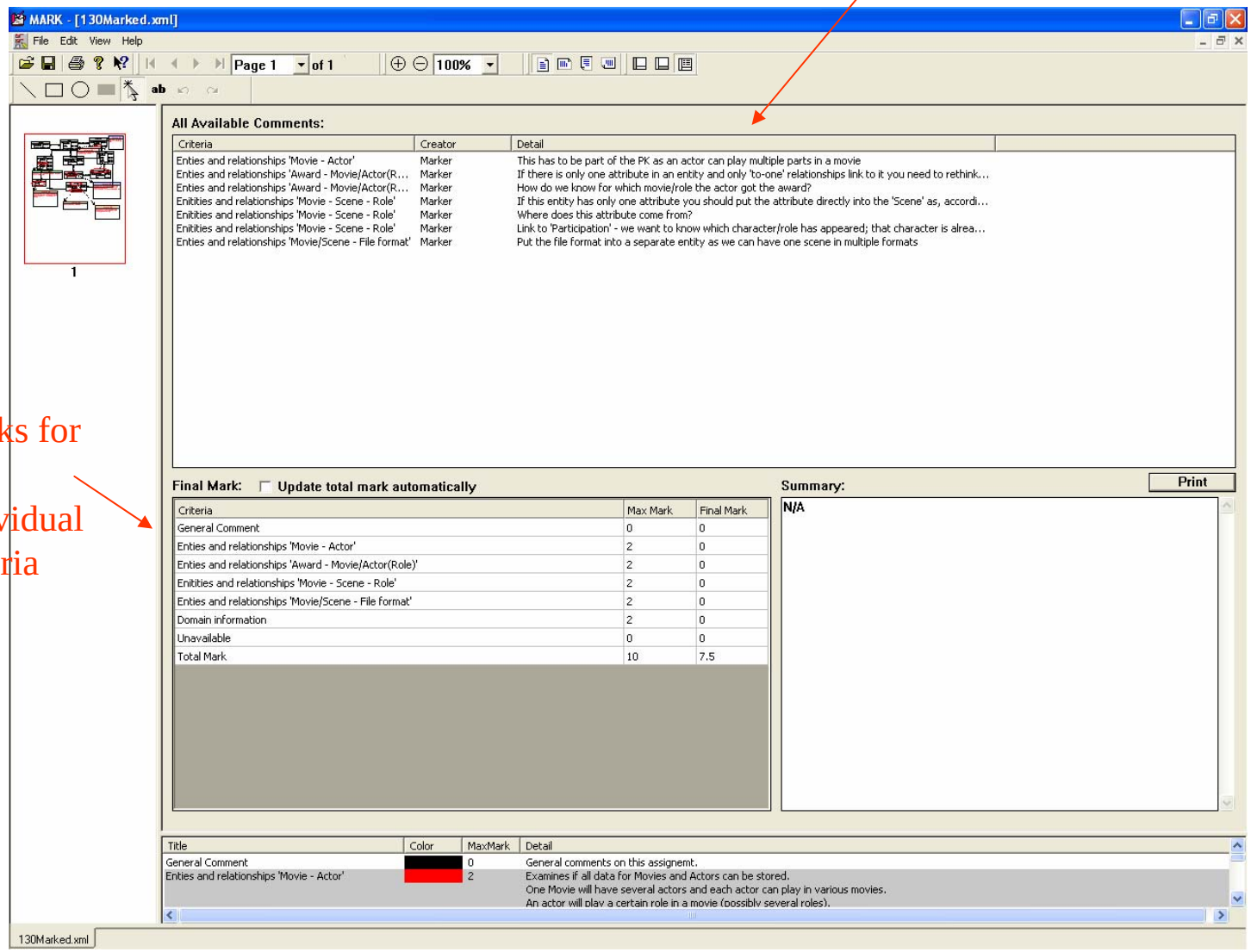
The marking comments

The marking scheme, defined by the marker

MarkTool, Version 1.0

All comments for the assignment

Marks for the individual criteria



Onscreen marking of assignments using MarkTool

Some key points

- Encouragement to use a detailed marking scheme
- Formative feedback positioned at its reference points
- Separation of summative and formative feedback
- Summary sheet with all comments
- Students view marked assignment with MarkTool *(alternative is export into a new PDF document that combines assignment and marking)*

Extensions in planning

- Selective viewing of comments by categories
- List of frequently used comments
- Sequential release of formative/summative feedback
- …

Management of the marking process

Minimal steps required

Assignment submission

- Mechanism for submission
- Keeping record of who submitted what and when
- Secure storage of submitted assignments

Marking

- Keeping track of which assignments have been marked
- Being able to switch between assignments

Recording of marks

- Extracting all marks in a list for upload into a spreadsheet or result processing system

Returning marked assignments

- Returning feedback and marks to students
- Preserve confidentiality

Management of the marking process

Our approach

Assignment submission

- Students use Assignment tool in WebCT to submit
- Marker downloads assignments for whole class from WebCT

Marking

- Use MarkTool

Recoding of marks

- From MarkTool export list of marks into CSV file for upload into RPS

Returning marked assignments

- From MarkTool upload feedback/marks into WebCT
- Automatically generate personal WebCT email to students with feedback/mark as attachment

Returning marked assignments

WebCT

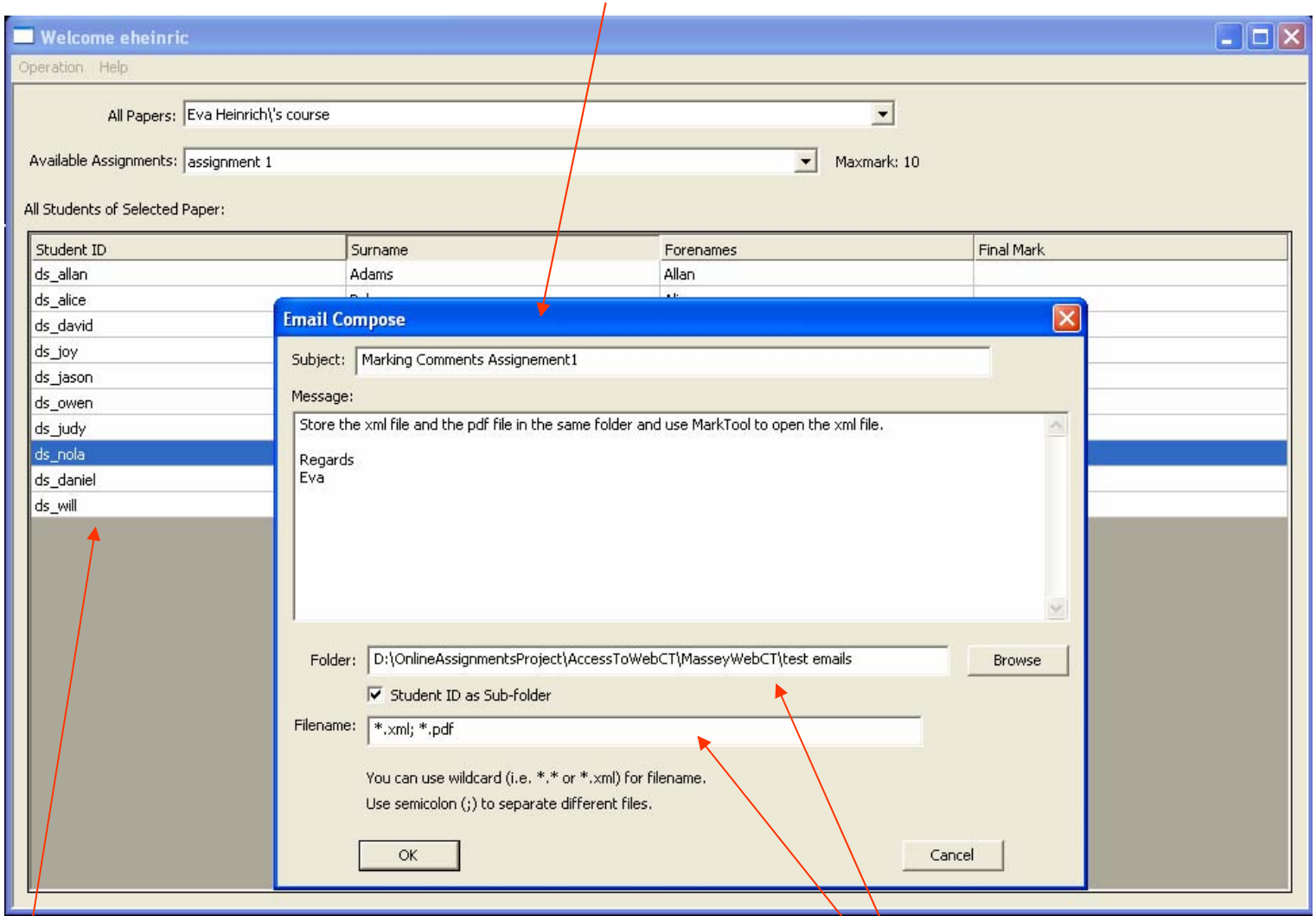
- Facility to send individual emails and attach files
- Yet marker must do this individually for each student

Our tool WebCT Access

- Retrieve class list from WebCT
- Specify location of marked assignments on local computer
- Formulate one email text to be sent to all students
- Automatically send correct files to individual students
- Students use standard WebCT functionality to access their marked assignments

WebCT Access

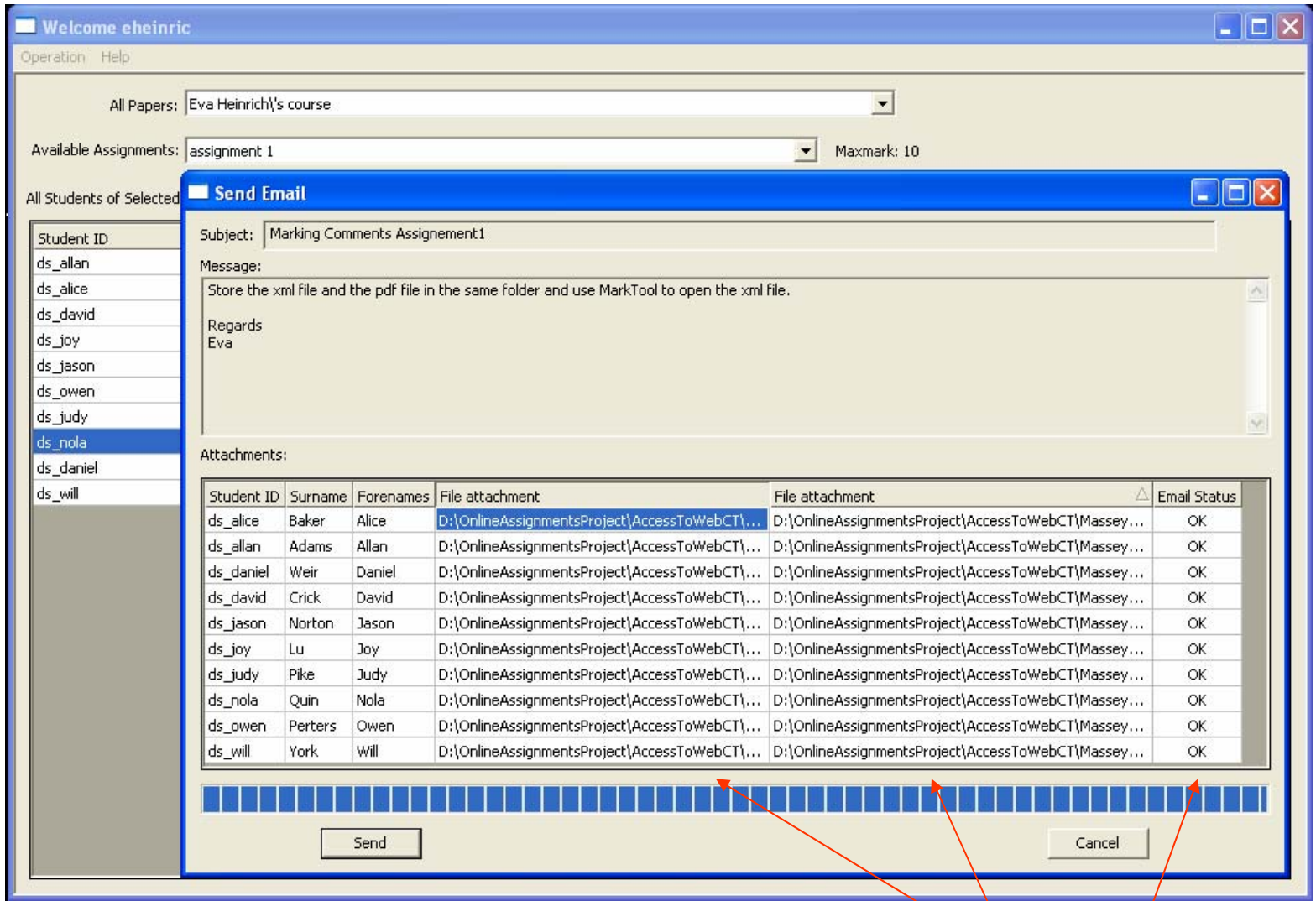
Marker composes message to be sent to students via WebCT mail mechanism



Class list downloaded from WebCT

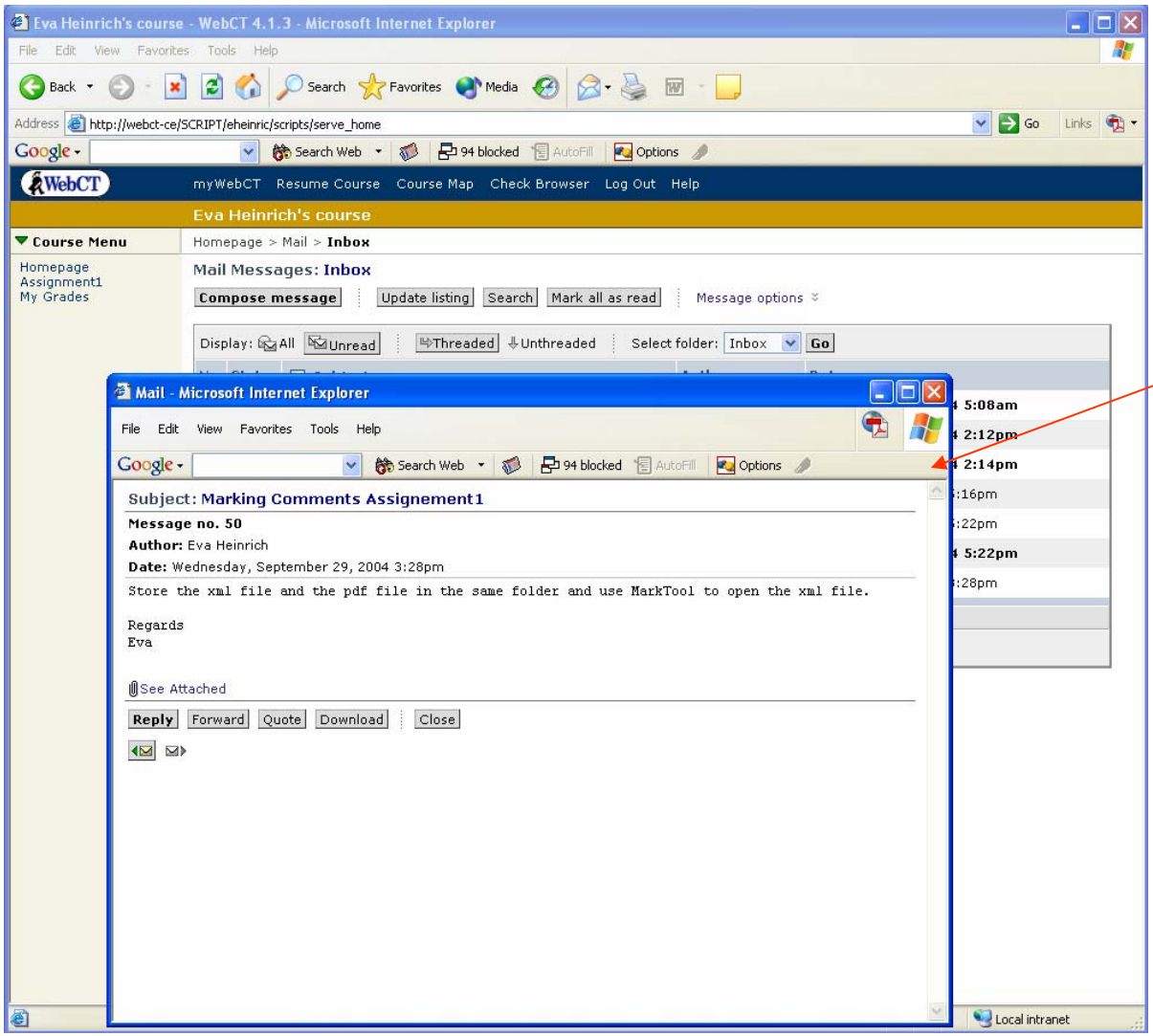
Marker specifies which files are to be sent to students

WebCT Access



Files sent and status message

WebCT Access



Student receives message with attachments in WebCT

Management of the marking process

Some key points

- Use WebCT if it provides a functionality we need already
- Leave responsibility for data security and storage with WebCT server
  - No need to setup/maintain own server
- Communicate feedback/marks to students via mechanism already established for a course, that is WebCT
  - No need to obtain correct email addresses
- During the marking marker is independent of WebCT
  - No need for web access
  - Freedom from limited WebCT functionalities

Learning support around formative assessment

A wide range of possibilities

- Quality control when working with multiple markers
- Marked assignments as study material
- Peer-assessment for exam preparation
- Communication between marker and student
- Self-assessment after access to marking schemes or solution attempts by others
- …

Quality control when working with multiple markers

… or just for oneself

Looking for a convenient, efficient way to look across all marking comments

Be able to go from an individual comment back to the relevant assignment

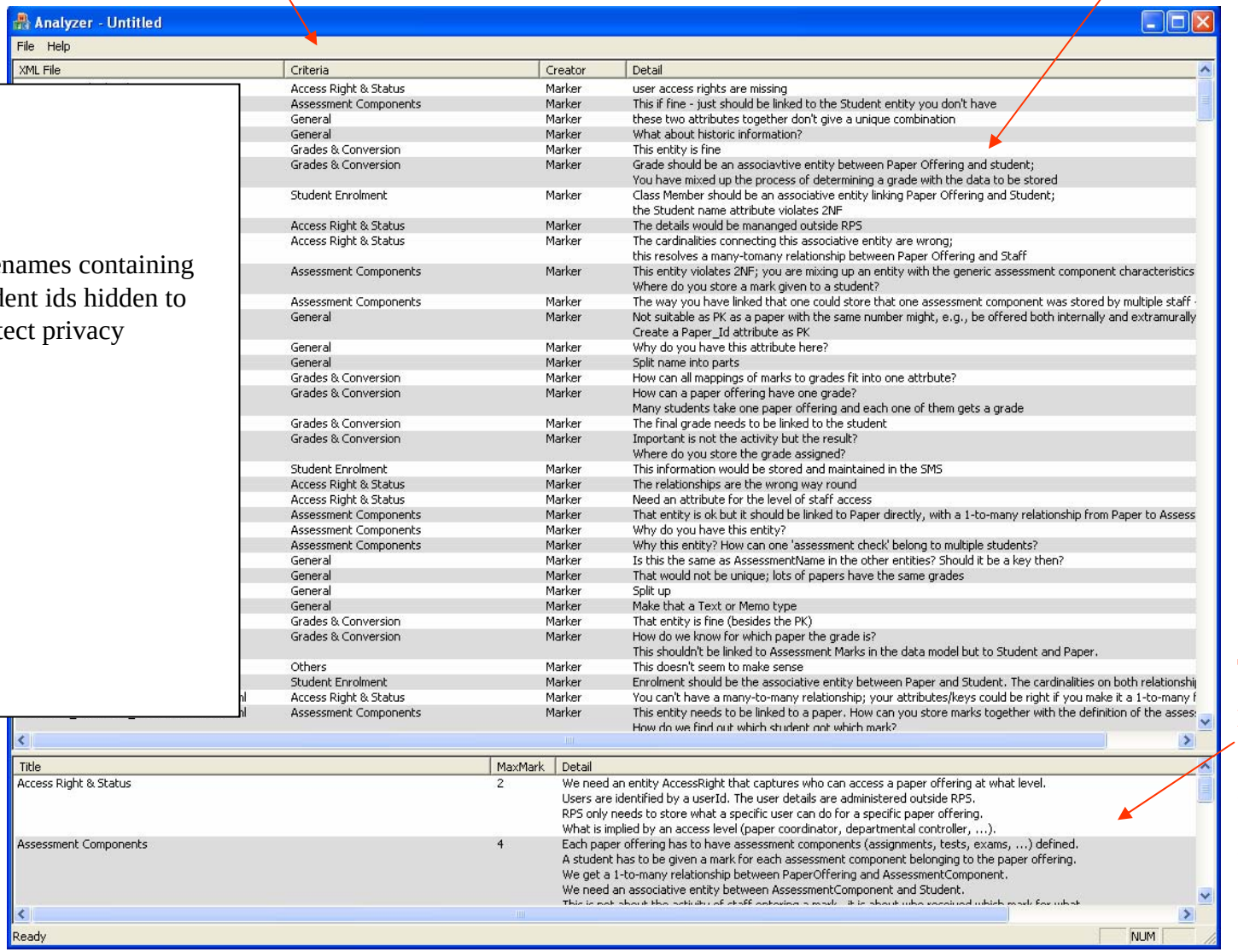
Be able to go from an individual comment back to the marker

Analyzer

A list of formative feedback from all assignments which can be sorted in various ways

Selecting a comment leads back to the assignment

Filenames containing student ids hidden to protect privacy



The marking scheme used for the assignment

Marked assignments as study material

Marked assignments as examples – used this semester in 159.254

Material available

- Last years assignment task and marking scheme
- Nine marked example solutions from last year (anonymous)

Procedure suggested to students

1. Attempt task yourself
2. Study example solutions and try to mark these yourself
3. Look at lecturer's marking and compare to your own
4. Reflect on your own solution

Parameters

- Participation voluntarily
- No marks/credit given

Marked assignments as study material

- Has this approach been successful?
  - We have conducted a survey to establish level of participation and students' perception
    - Analysis underway
    - Indication that students appreciate opportunity
- Ethics approval has been granted
  - Approval to ask students for their informed consent
  - Application available on request

Marked assignments as study material

What was missing/needs to be considered?

- Opportunity for students to get feedback on their own work
  - On their own solution attempts
  - On their own marking attempts
- Incentive for students to participate/invest time
  - A few marks for participation?
- Issues around student identification for peer-assessment
  - Participation under their real name?
  - Complete anonymity using pseudo ids?
  - A ‘mixed’ model
    - Lecturer knows real identities
    - Student work gets distributed under pseudo ids

Peer-assessment for exam preparation

Considerations

- Students prepare for exams only after lectures/class time has finished
- Trying to answer ‘old’ exam questions is useful learning experience
- Students should get feedback on their solution attempts
- The lecturer will not have the time to provide this feedback for each individual

Approach

- Make old exams available via WebCT
- Allow students to submit their solution attempts
- Make these solution attempts available anonymously to whole class
- Encourage students to peer-assess these solution attempts
- Make the peer-assessments available to the whole class

Summary

- Onscreen marking of assignments using MarkTool
  - Makes it feasible to do formative marking on electronic assignments
  - MarkTool available for download and ready to use
    - http://www-ist.massey.ac.nz/MarkTool/
- Management of the marking process
  - Complementing WebCT with our own tools
  - Trial version available from Eva Heinrich or soon from website
- Learning support around formative assessment
  - Simple approaches possible right now
  - Supporting tools under development

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