SIETTE Integration
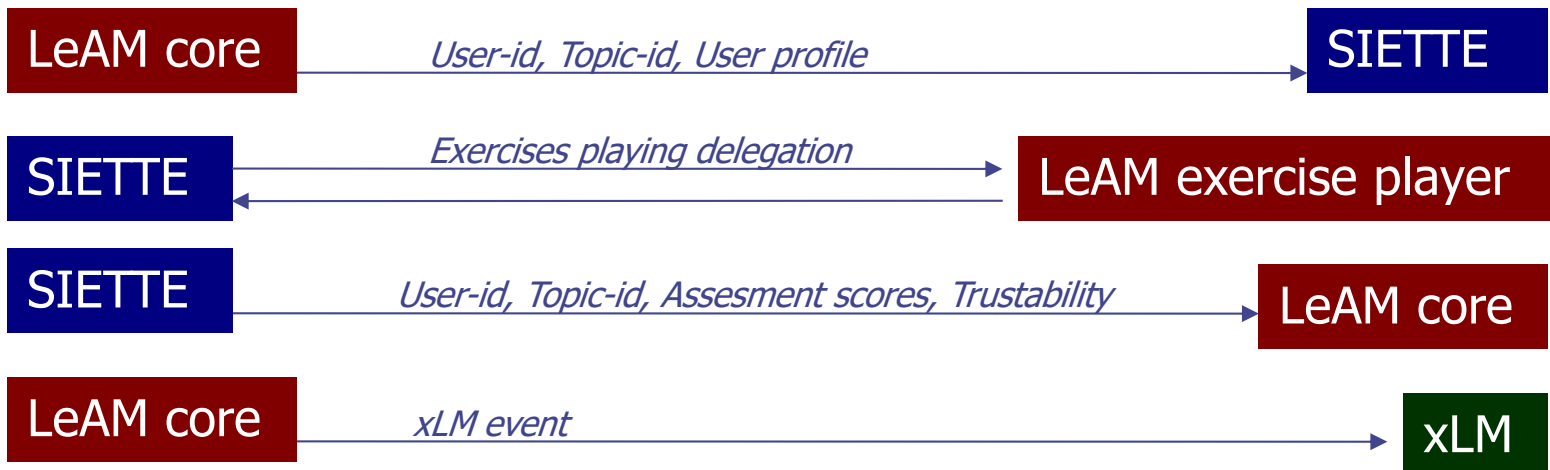

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Integration overview

1. Content exchange (off-line)

Objective: SIETTE will be able to use the whole content (exercises) developed in LeActiveMath

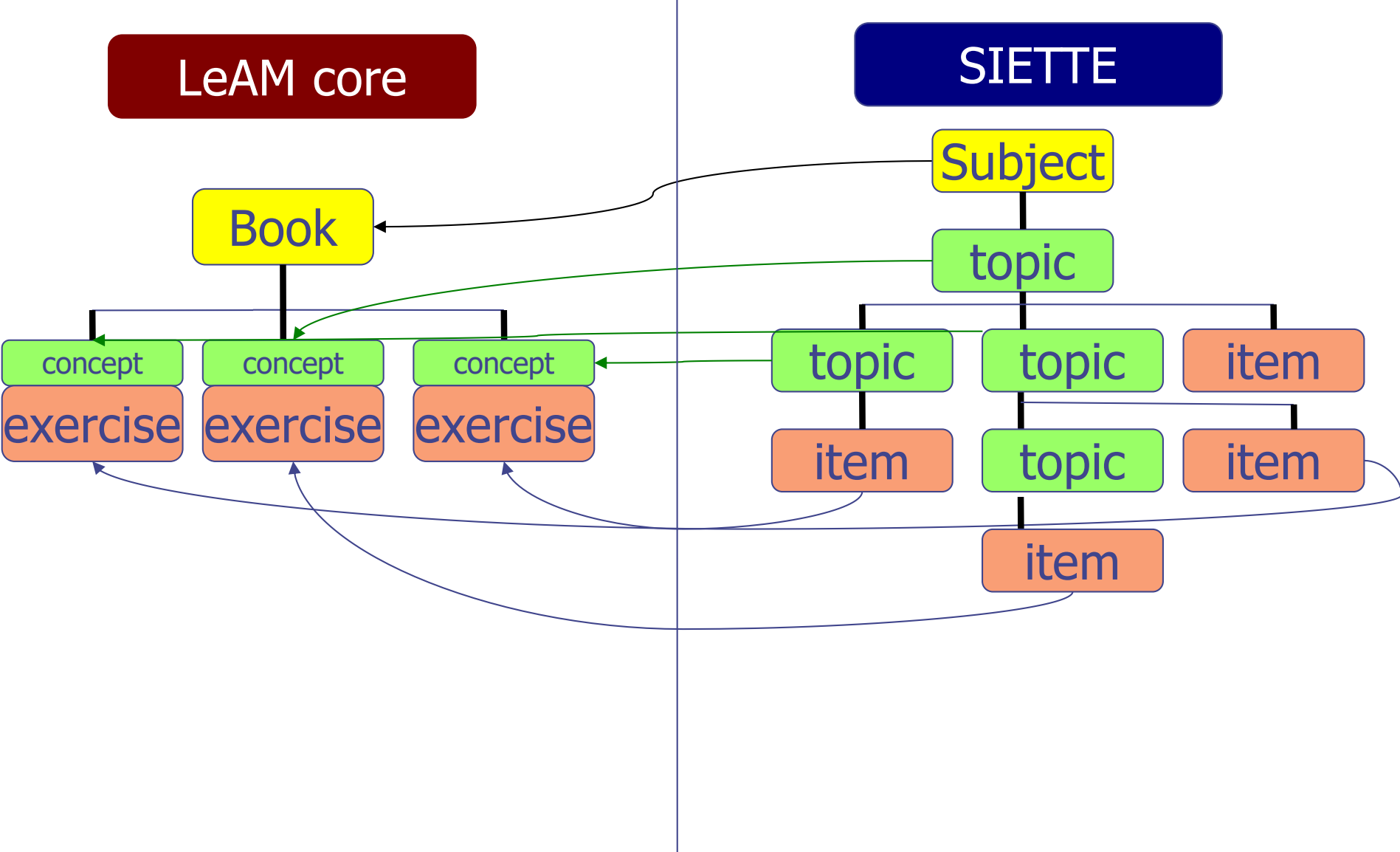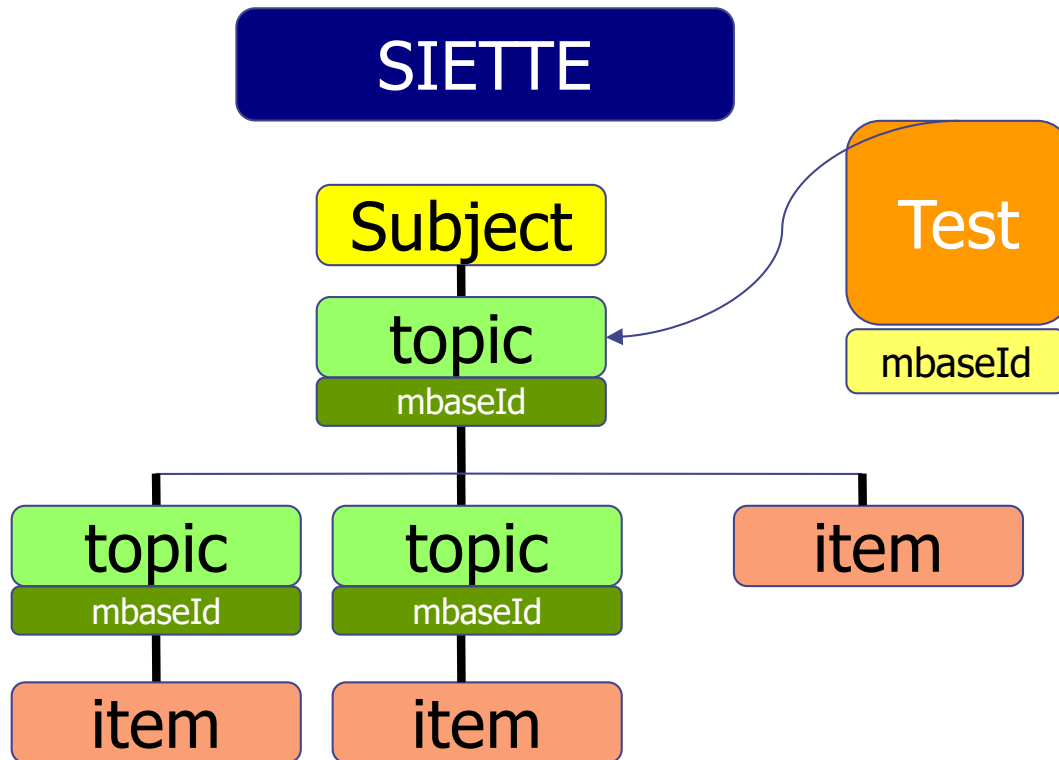| LeAM core | → exports → | SQTI File | → imports → | SIETTE |

2. Assesment session delegation (on-line)

Objective: Call SIETTE to perform an adaptive test with the exercises defined in LeAM and collect data from learners

LeAM core → *User-id, Topic-id, User profile* → SIETTE

SIETTE → *Exercises playing delegation* ← LeAM exercise player

SIETTE → *User-id, Topic-id, Assesment scores, Trustability* → LeAM core

LeAM core → *xLM event* → xLM

1.1. Content Match

1.1. Content match. (New data in SIETTE topics)

- For SIETTE-LeActiveMath integration, an mbaseId attribute has been added to the Topics and Tests.

- These mbaseIds will be later used to match Topics to LeActiveMath mbaseIds. This way, SIETTE is able to provide Test scores on a per mbaseId basis, which makes sense to LeActiveMath.

- Tests also have a corresponding mbaseId, so they can be ran directly from LeActiveMath, just passing the mbaseId.

1.2. Feeding SIETTE with LeActiveMath contents

◆ SIETTE and LeActiveMath core share a common XML file format, **SQTI**, which is used to exchange contents.

◆ LeActiveMath core uses a tool called "SAP" (stands fro "SietteAsignaturaProduccion") to pull out information from its database and create a file that is **SQTI** compliant.

◆ Later on, SIETTE uses a tool called XMLFeed, parses the XML file provided by LeActiveMath core, and re-creates the contents in its own database.

◆ Once SIETTE has been fed with an **SQTI** XML file, the contents act no differently as if they had been created from the SIETTE editor.

1.2. Feeding SIETTE with LeActiveMath contents (2)
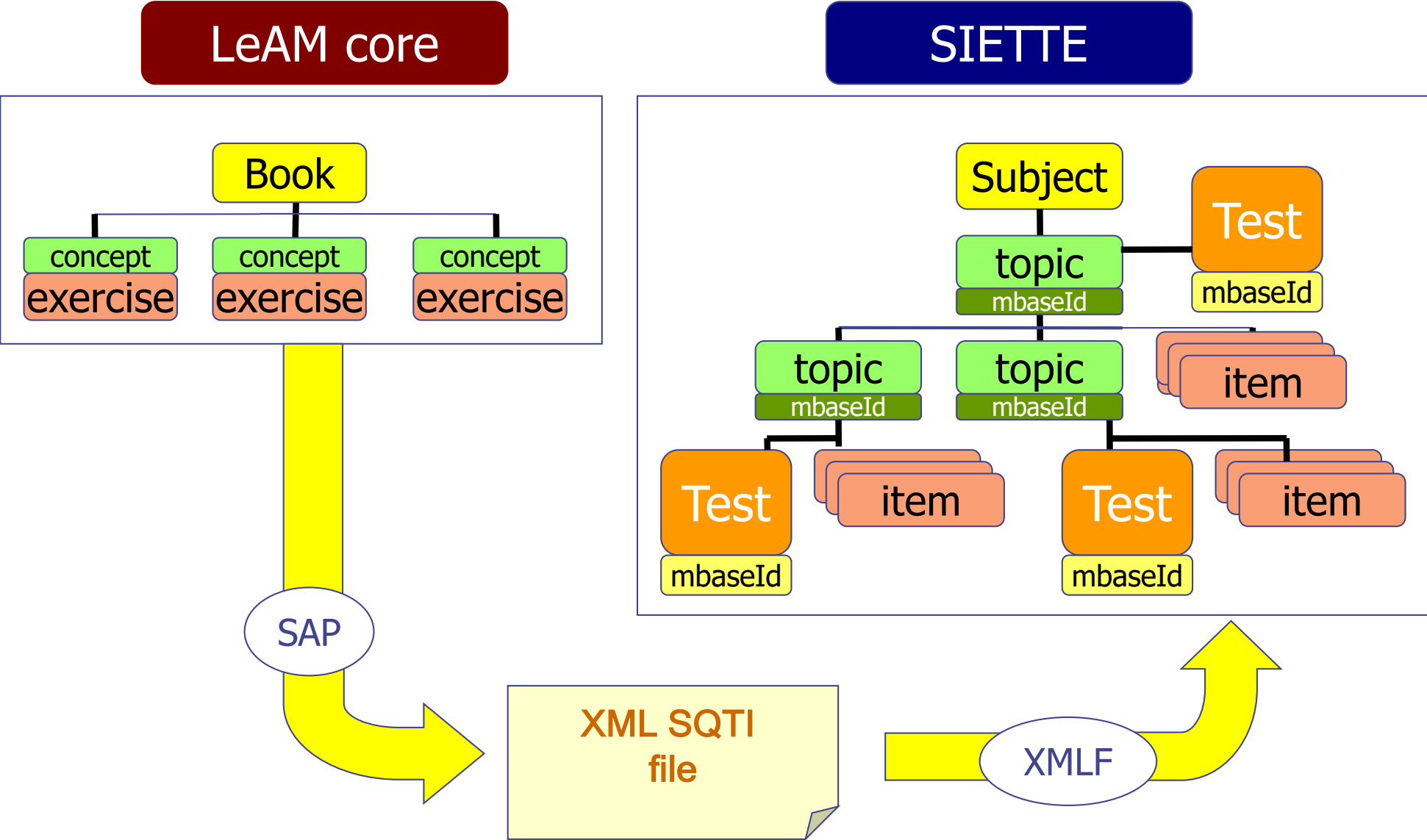
1.3. Example of SQTI file (1)

```xml
<subject
   noNamespaceSchemaLocation="http://www.lcc.uma.es/siette/xml/siette_english.xsd" id="-1" >

 <name>mbase://LeAM_calculus/derivation_grouping</name>

 <numknowlevels>4</numknowlevels>

 <isactive>true</isactive>

 <topics>

  <topic id="-2" mbaseId="mbase://LeAM_calculus/derivation_grouping" >

   <name>Up and Down: Derivatives</name>

   <isactive>true</isactive>

   <translations>

    <translation>

     <name>Arriba y Abajo: Derivaciones</name>

     <language>espanol</language>

    </translation>

    ….
```
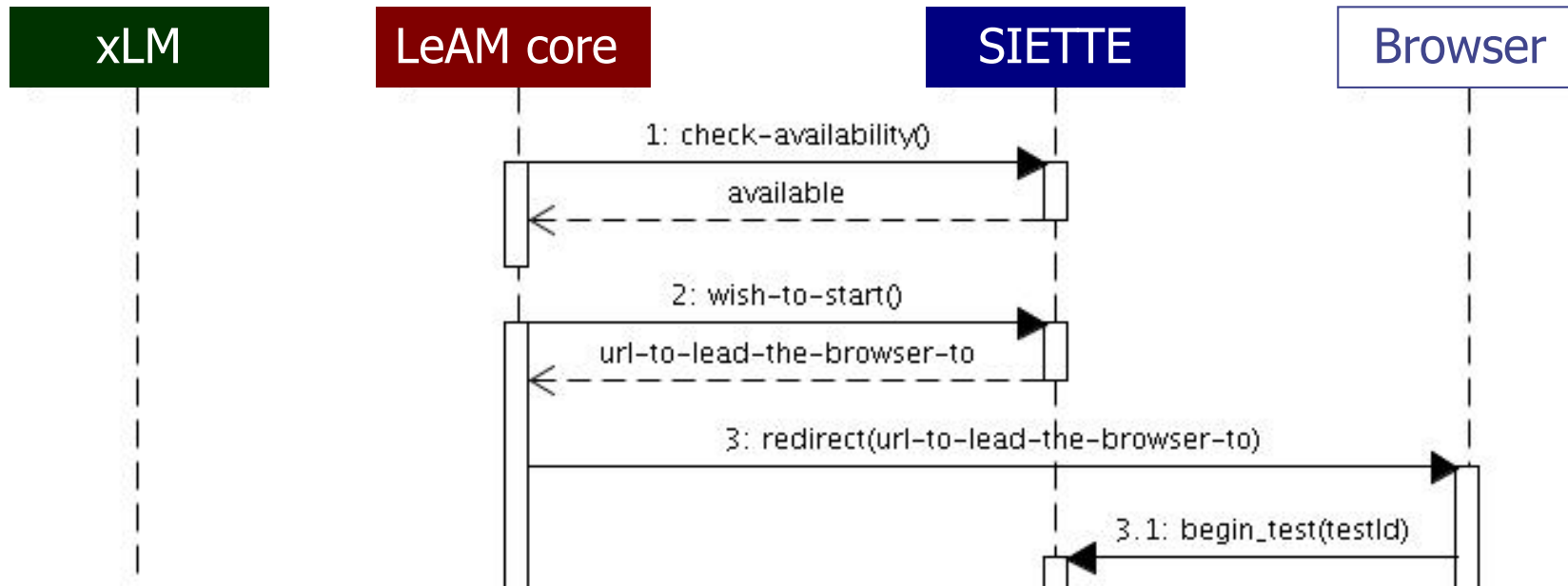
1.3. Example of SQTI file (2)

…

```
<item type="5" id="-9"
        mbaseId="mbase://LeAM_calculus/diffquot/open4_def_average_slope"  >
    <title>How to define the average slope of an arbitrary curve?</title>
    <isactive>true</isactive>
<stem>/siette/activemath/PreguntaActiveMath?mbaseId=mbase://LeAM_calculus/diffqu
    ot/open4_def_average_slope</stem>
    <responseslayout>1</responseslayout>
    <isselfcorrected>false</isselfcorrected>
    <iccparameters topicid="-8" difficulty="7" guessing="0.25" discrimination="0.75" />
    <templatetype>0</templatetype>
    <responses>
      <response id="-10" >
        <text>#75#100#</text>
        <feedback/>
      </response>
```

…………...

2.1. Assesment session delegation (1)

1. LeAM core starts the delegation sending a "*check-availability*" call to SIETTE.
1. SIETTE indicates the required resource is available.
2. LeAM core sends a "*wish-to-start*" call, indicating the ActivityId it wants SIETTE to start.
2. SIETTE replies with the URL that LeAM should use to redirect the client browser, "**url-to-lead-the-browser-to**".
3. LeAM core redirects the client browseR to the currently received URL, "*url-to-lead-the-browser-to*".
3.1. The Client Browser requests SIETTE to start a Test whose Id is given by testId.

2.1. Assesment session delegation (2)
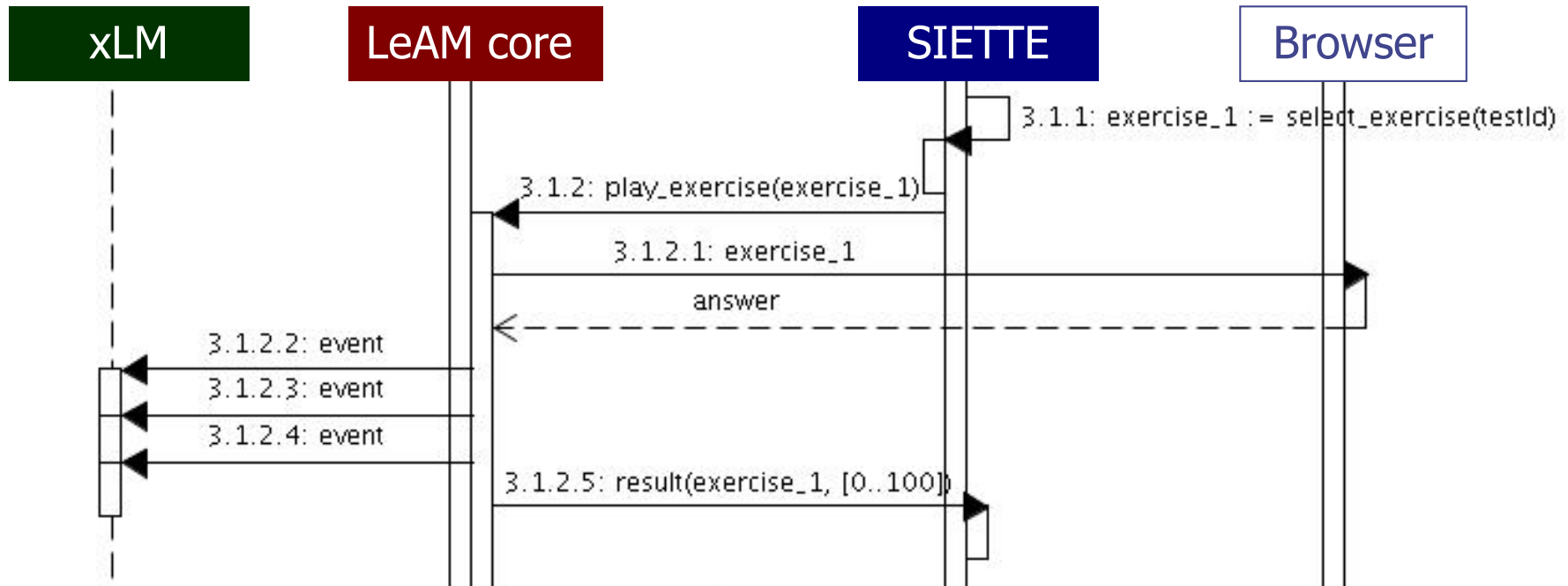
3.1.1.   SIETTE selects the next exercise to pose ("*exercise_n*")

3.1.2.   SIETTE requests that ActiveMath plays the exercise called "*exercise_n*", since this is an external item that lives in the LeAM domain.
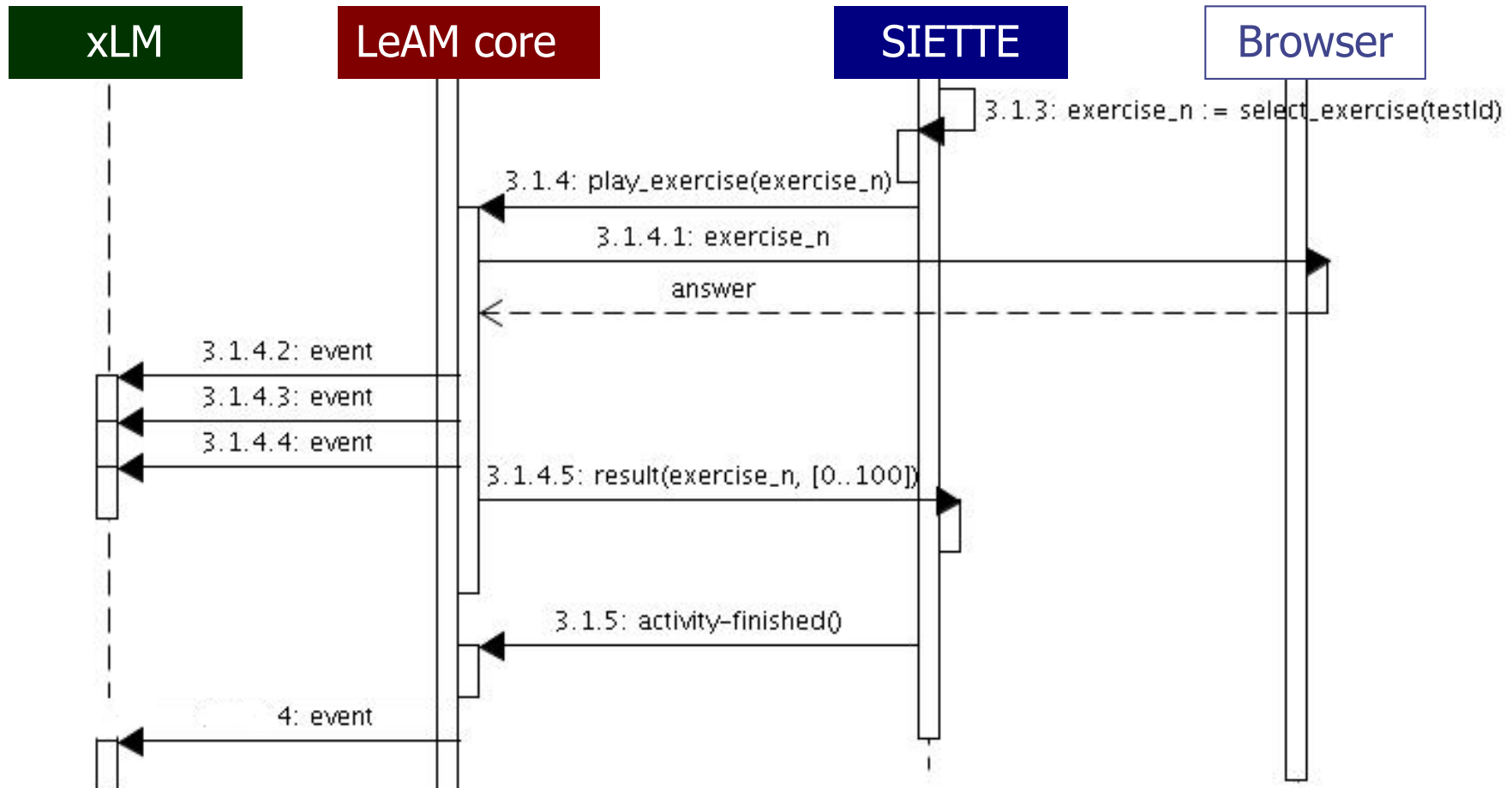
3.1.2.1. LeAM exercise player returns the exercise called "*exercise_n*" to the client browser for rendering.

3.1.2.1. The Client browser sends back to LeAM the answer to "*exercise_n*".

3.1.2.2. LeAM might inform the xLM of the exercise performance

3.1.2.5. LeAM returns to SIETTE the score obtained in the exercise

2.1. Assesment session delegation (3)

3.1.3. SIETTE decides to continue the test posing a new exercise ("*exercise_n*")

3.1.5. SIETTE decides to finish the test, by calling LeAM "activity-finished" service, passing through the learner score.

4. LeAM generates an assesment event to be passed to the xLM

2.2. Returning assessment scores

◆ **SIETTE returns the following information:**

- **MbaseId of the topics on which the learner was evaluated.**
- **Competency name on which the learner was evaluated.**
- **Level obtained for that competency, and topic given.**
- **Trustability of the information given.**

2.3. Description of main web services (1)

◆ **check-availability**
  - **Parameters:** *User Identifier, Resource Identifer (testld).*
  - **This service indicates whether the delegation with the given resource is possible or not.**

◆ **wish-to-start**
  - **Parameters:** *User Identifier, User Profile (language), Resource Identifer (testld), Callback Url.*
  - **This service is called everytime an external SIETTE client wants to start a new assessment session.**
  - **In order to start such a session, SIETTE needs a user identification, a user profile, and certain resource identification (*testld*).**
  - **The *Callback URL* parameter is directly related to the XML-RPC service activity-finished. This parameter contains the URL SIETTE should call to return the assessment session results, hence, the parameter is passed through at the beginning of a session.**

2.3. Description of main web services (2)

- **activity-cancelled**
  - **Parameters: *User Identifier, Resource Identifer (testId).***
  - **This service should be called in cases where an assessment client wants to terminate an assessment session before SIETTE decides it is over.**
- **activity-finished**
  - **Parameters: *assessmentResult*.**
  - **This service should be called from SIETTE to pass the assessment results back to the client that originated the request.**
  - **The only parameter sent back is *assessmentResult*, whose value type is a list of entries with the following attributes:**
    - ***Topic*. The Topic for which the score is given.**
    - ***Score*. A score representing how good the learner did in the Test session.**
    - ***Trustability*. A probability value indicating how trustable the given results are.**
    - ***Competency*. The competency or skill evaluated.**

2.4. Example of a test session (Initializing)

1. The user logs-in and chooses the book

2. User clicks on the assessment tool

3. LeAM core calls the XML-RPC SIETTE service, *check-availability*, passing the *UserId* and the *BookId* on which to start the assessment.

4. If succeeded, LeAM core performs a *wish-to-start* call, passing the *UserId*, *User Profile* and the *BookId*. SIETTE returns the test URL

2.4. Example of a test session (Making a test)

http://amath-one.ags.uni-sb.de:48180 - ActiveMath - Exercise - Mozilla Firefox

Le Active Math

Exercise

Higher derivatives of the sine function ⭐⭐⭐

Take the function $y(x) = 5 \cdot \sin(2 \cdot x)$. First determine its (first) derivative.

$y'(x) =$ ▮

Please try again.

$y'(x) =$ $10 \cdot \sin 2 \cdot x$

No. The derivative of sin isn't ±sin.

$y'(x) =$ $10 \cdot \cos 2 \cdot x$

Well done! Now determine the second derivative y'':

$y''(x) = 20 \cdot \sin(2 \cdot x)$

☑ Activate Input Editor
[Evaluate] [Input syntax help] [Hint]

You can skip this exercise, and proceed to the next page.

Done

5. LeAM core redirects the user to the right URL.. the Test has been successfully started

6. SIETTE chooses the next question to pose, and forwards the control to LeAM exercise player for rendering.

7. The user enter the answers to the exercise and evaluate them

8. User successfully solve the problem or click on the "*next page*" link

9. Process continues until SIETTE decides that it has enough evidence to assess.

2.4. Example of a test session (Ending a session)

Up and Down: Derivatives - Mozilla Firefox

http://amath-one.ags.uni-sb.de:48180 - ActiveMath - Siette Assessment Result - Mozilla Firefox

Main Page | Search | Notes | My Profile | Tools | Print | Logout | Help

Le Math Active

Siette – Assessment Result

Logged in as: callejo

assessment result: [{competency=think, mbaseId=mbase://LeAM_calculus/derivation_grouping, trustability=1.0, score=0.0}]

10. SIETTE returns the score obtained to LeAM core.

11. LeAM core displays the results and pass the information to the xLM.

12. The user close the window and continues working with LeAM

Done