Rapport de modification des erreurs XML

Main tests list

All old errors had no mentions of the problematic file/line.

4 tests have been selected to be representative

Test name	selected	How Error is Produced	Old error main problem
line_0_simpleCo2Inj		PackCollection, bad objectPath	No file / line, no options list
line_1_simpleCo2Inj		PackCollection, bad fieldName	No file / line, no options list
line_2_simpleCo2Inj	1st	PeriodicEvent, bad target	No file / line, no options list, erroneous
line_3_simpleCo2Inj	2nd	CellElementRegion, cellBlocks missing	No file / line, no help, misleading
line_4_simpleCo2Inj		CellElementRegion, materialList missing	No file / line,
line_5_simpleCo2Inj	3rd	CompositionalMultiphaseReservoir, targetRegion, bad syntax	No file / line, misleading
line_6_simpleCo2Inj		CompositionalMultiphaseFVM, targetRegions, bad syntax	No file / line,
line_7_simpleCo2Inj		TimeHistory, bad sources	No file / line, no options list,bad sources
line_8_simpleCo2Inj	4th	Perforation, bad distanceFromHead	No file / line, no output of value ranges
line_9_simpleCo2Inj		FieldSpecification, bad functionName	No file / line, no option list
line_10_simpleCo2Inj		FieldSpecification, bad fieldName	

line_0_simpleCo2Inj

User mistake:

> A non-existent subregion has been targeted by the the `objectPath` (`wellRegionSubRegion`).

```
<PackCollection
  name="wellPressureCollection"
  objectPath="ElementRegions/wellRegion/wellRegionSubRegion"
  fieldName="pressure" />
```

Old error:

- No mention of file/line/object name/attribute name,

- We don't know which children is available in wellRegion,

- `m/domain/...` is an erroneous path,

- GEOS should show us the existing sub region named `wellRegionUniqueSubRegion` (which the user meant here).

  ```
  ***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:337
  ***** Controlling expression (should be false): child == nullptr
  ***** Rank 0: Group
  m/domain/MeshBodies/cartesianMesh/meshLevels/Level0/ElementRegions/elementRegionsGroup/wellRegion/e
  lementSubRegions doesn't have a child wellRegionSubRegion
  ```

New Error:

```
***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:355
***** Controlling expression (should be false): child == nullptr
***** Rank 0: wellPressureCollection (line_0_simpleCo2Inj_inc.xml, l.201) has a wrong objectPath:
ElementRegions/wellRegion/wellRegionSubRegion
Group
/domain/MeshBodies/cartesianMesh/meshLevels/Level0/ElementRegions/elementRegionsGroup/wellRegion/elemen
tSubRegions has no child named wellRegionSubRegion
The children of elementSubRegions are: { wellRegionUniqueSubRegion }
```

line_1_simpleCo2Inj

User mistake:

> wrong fieldName `cellPressure` (instead of `pressure`).

```
<PackCollection
  name="wellCellPressureCollection"
  objectPath="ElementRegions/reservoir/cellBlock"
  fieldName="cellPressure" />
```

Old Error:

- no mention of file/line/object name/attribute name,

- We don't know which option are available,

- `m/domain/...` is an erroneous path,

- To prevent name mistakes, and to help the user to discover available options, GEOS should show us which other fields are available (pressure, initialPressure, deltaPressure, ...).

```
***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:1050
***** Controlling expression (should be false): wrapper == nullptr
***** Rank 0: Group
m/domain/MeshBodies/cartesianMesh/meshLevels/Level0/ElementRegions/elementRegionsGroup/reservoir/el
ementSubRegions/cellBlock doesn't have a child cellPressure
```

New Error:

```
***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:1078
***** Controlling expression (should be false): wrapper == nullptr
***** Rank 0: wellCellPressureCollection/fieldName (line_1_simpleCo2Inj_inc.xml, l.213): Target not
found !
Group
/domain/MeshBodies/cartesianMesh/meshLevels/Level0/ElementRegions/elementRegionsGroup/reservoir/element
SubRegions/cellBlock has no wrapper named cellPressure
The wrappers of cellBlock are: { pressure, initialPressure, deltaPressure, pressure_n, bcPressure,
temperature, temperature_n, initialTemperature, bcTemperature, ...
    (Erreur coupée car trop longue)
```

line_2_simpleCo2Inj

User mistake:

> in target, `simpleReservoirVis` is wrong,

```
<PeriodicEvent
  name="outputs"
  timeFrequency="1e7"
  targetExactTimestep="1"
  target="/Outputs/simpleReservoirVis"/>
```

Old error:

- no mention of file/line/object name/attribute name,

- `m/Outputs` is an erroneous path,

- GEOS should indicate the existing `Output` named `simpleReservoirViz` (which the user meant here).

```
***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:355
***** Controlling expression (should be false): child == nullptr
***** Rank 0: m/Outputs doesn't have a child simpleReservoirVis
```

New Error:

```
***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:355
***** Controlling expression (should be false): child == nullptr
***** Rank 0: Error while reading outputs/target (line_2_simpleCo2Inj_smoke.xml, l.49):
Group Outputs (line_2_simpleCo2Inj_inc.xml, l.180) has no child named simpleReservoirVis
The children of Outputs are: { simpleReservoirViz, restartOutput, timeHistoryOutput }
```

line_3_simpleCo2Inj

User mistake:

> the `cellBlocks` attribute is missing (something like `cellBlocks="{ cellBlock }"`).

```
<CellElementRegion
  name="reservoir"
  materialList="{ fluid, rock, relperm }" />
```

Old error:

- no mention of file/line/object name,

- wrongly redacted,

- does not help to find the mistake,

- GEOS should output a list of the mandatory fields.

  ```
  ***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:337
  ***** Controlling expression (should be false): child == nullptr
  ***** Rank 0: Group
  m/domain/MeshBodies/cartesianMesh/meshLevels/Level0/ElementRegions/elementRegionsGroup doesn't have
  a child -1
  ```

New Error:

```
***** LOCATION: /GEOS/src/coreComponents/dataRepository/Wrapper.hpp:629
***** Controlling expression (should be false): !m_successfulReadFromInput
***** Rank 0: Error while parsing region reservoir (line_3_simpleCo2Inj_inc.xml, l.62):
XML Node CellElementRegion (line_3_simpleCo2Inj_inc.xml, l.62) with name=reservoir is missing required
attribute 'cellBlocks'.
Available options are:
   |         name         |  opt/req | Description
   |_____|_____|_____
   | cellBlocks           | REQUIRED |

For more details, please refer to documentation at:
http://geosx-geosx.readthedocs-hosted.com/en/latest/docs/sphinx/userGuide/Index.html
```

line_4_simpleCo2Inj

User mistake:

> the `materialList` attribute is missing (something like : `materialList="{ fluid, rock, relperm }"`),

```
<CellElementRegion
  name="reservoir"
  cellBlocks="{ cellBlock }" />
```

Old error:

- no mention of file/line,

```
***** LOCATION: /GEOS/src/coreComponents/dataRepository/Wrapper.hpp:625
***** Controlling expression (should be false): !m_successfulReadFromInput
***** Rank 0: XML Node '/Problem/ElementRegions/CellElementRegion' with name='reservoir' is missing
required attribute 'materialList'.Available options are:
  |          name          |  opt/req  | Description
  |----------------------|-----------|----------------------------------------
  | materialList          | REQUIRED  | List of materials present in this region
```

New Error:

```
***** LOCATION: /GEOS/src/coreComponents/dataRepository/Wrapper.hpp:629
***** Controlling expression (should be false): !m_successfulReadFromInput
***** Rank 0: Error while parsing region reservoir (line_4_simpleCo2Inj_inc.xml, l.62):
XML Node CellElementRegion (line_4_simpleCo2Inj_inc.xml, l.62) with name=reservoir is missing required
attribute materialList.
Available options are:
  |          name          |  opt/req  | Description
  |_____|_____|_____
  | materialList          | REQUIRED  | List of materials present in this region

For more details, please refer to documentation at:
http://geosx-geosx.readthedocs-hosted.com/en/latest/docs/sphinx/userGuide/Index.html
```

line_5_simpleCo2Inj

User mistake:

> in `targetRegions`, a comma has been forgotten at the end.

```
<CompositionalMultiphaseReservoir
  name="coupledFlowAndWells"
  flowSolverName="compositionalMultiphaseFlow"
  wellSolverName="compositionalMultiphaseWell"
  logLevel="1"
  initialDt="1e2"
  targetRegions="{ reservoir, wellRegion, }">
  <NonlinearSolverParameters
    newtonTol="1.0e-4"
    lineSearchAction="None"
    maxTimeStepCuts="10"
    newtonMaxIter="40" />
  <LinearSolverParameters
    solverType="fgmres"
    preconditionerType="mgr"
    krylovTol="1e-5" />
</CompositionalMultiphaseReservoir>
```

Old error:

- No mention of file/line/object name/attribute name,

- The message is misleading.

```
***** ERROR
***** LOCATION: /GEOS/src/coreComponents/LvArray/src/input.hpp:92
***** Controlling expression (should be false): inputStream.peek() != '}'
closing } not found for input array: {reservoir wellRegion  }
```

New Error:

```
***** XML parsing error at node named coupledFlowAndWells, attribute targetRegions
(line_5_simpleCo2Inj_inc.xml, l.16).
***** Input value: '{ reservoir, wellRegion, }'
***** LOCATION: /GEOS/src/coreComponents/LvArray/src/input.hpp:247
***** Controlling expression (should be false): lastChar==','
character '}' follows ','. Closing brace must follow an array value.
```

line_6_simpleCo2Inj

User mistake:

> in `targetRegions`, the surrounding brackets are missing (`{ reservoir }` should be written here).

```
<CompositionalMultiphaseFVM
  name="compositionalMultiphaseFlow"
  targetRegions="reservoir"
  discretization="fluidTPFA"
  temperature="368.15"
  maxCompFractionChange="0.2"
  logLevel="1"
  useMass="1" />
```

Old error:

- no mention of file/line/object name/attribute name.

```
***** ERROR
***** LOCATION: /GEOS/src/coreComponents/LvArray/src/input.hpp:181
***** Controlling expression (should be false): valueString[0]!='{'
First non-space character of input string for an array must be {. Given string is:
reservoir
```

New Error:

```
***** XML parsing error at node named compositionalMultiphaseFlow, attribute targetRegions
(line_6_simpleCo2Inj_inc.xml, l.31).
***** Input value: 'reservoir'
***** LOCATION: /GEOS/src/coreComponents/LvArray/src/input.hpp:187
***** Controlling expression (should be false): valueString[0]!='{'
First non-space character of input string for an array must be '{'. Given string is:
reservoir
```

line_7_simpleCo2Inj

User mistake:

> `wellPressureCollect` is a wrong source,

```
<TimeHistory
  name="timeHistoryOutput"
  sources="{/Tasks/wellPressureCollect}"
  filename="wellPressureHistory" />
```

Old error:

- no mention of file/line/object name/attribute name.

- `m/Tasks` is an erroneous path,

- GEOS should list all available Tasks, including `wellPressureCollection` (which the user meant here).

  ```
  ***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:337
  ***** Controlling expression (should be false): child == nullptr
  ***** Rank 0: Group m/Tasks doesn't have a child wellPressureCollect
  ```

New Error:

```
***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:355
***** Controlling expression (should be false): child == nullptr
***** Rank 0: Error while reading timeHistoryOutput/sources (line_7_simpleCo2Inj_inc.xml, l.192):
Group Tasks (line_7_simpleCo2Inj_inc.xml, l.199) has no child named wellPressureCollect
The children of Tasks are: { wellPressureCollection }
```

line_8_simpleCo2Inj

User mistake:

> in the perforation, distanceFromHead should not exceed 50 (because of the polylineNodeCoord values and referenceElevation=6650)

```
<InternalWell
  name="wellInjector1"
  wellRegionName="wellRegion"
  wellControlsName="wellControls"
  meshName="cartesianMesh"
  polylineNodeCoords="{ { 500.0, 500.0, 6650.00 },
                        { 500.0, 500.0, 6600.00 } }"
  polylineSegmentConn="{ { 0, 1 } }"
  radius="0.1"
  numElementsPerSegment="2">
  <Perforation
    name="injector1_perf1"
    distanceFromHead="55"/>
</InternalWell>
```

Old error:

- No mention of file/line/object name/attribute name,

- No output of the distanceFromHead max value,

- GEOS should mention the problematic attribute and the maximum value of distanceFromHead,

- The message should point out which values and location in xml files help to change the max value.

```
***** LOCATION: /GEOS/src/coreComponents/mesh/generators/InternalWellGenerator.cpp:419
***** Controlling expression (should be false): m_perfDistFromHead[iperf] > wellLength
***** Rank 0: Distance from perforation injector1_perf1 to head is larger than well polyline length
for well wellInjector1

Here is how the "distanceFromHead" keyword is used in the definition of the perforation location:
We start from the well head (top of the well) and we measure the linear distance along the well
polyline as we go down the well.
When we reach the distanceFromHead specified by the user, we place a perforation on the well at
this location of the polyline, and connect it to the reservoir element that contains this
perforation
```

New Error:

```
***** LOCATION: /GEOS/src/coreComponents/mesh/generators/InternalWellGenerator.cpp:435
***** Controlling expression (should be false): m_perfDistFromHead[iperf] > wellLength
***** Rank 0: injector1_perf1/distanceFromHead (line_8_simpleCo2Inj_smoke.xml, l.38): Distance from
well perforation to head (distanceFromHead = 55) is larger than well polyline length (50)

You should check the following values:
  1 - injector1_perf1/distanceFromHead (line_8_simpleCo2Inj_smoke.xml, l.38)
  2 - the referenceElevation of the used WellControls named wellControls
  3 - wellInjector1/polylineNodeCoords (line_8_simpleCo2Inj_smoke.xml, l.27), Z values
```

line_9_simpleCo2Inj

User mistake:

> functionName value `permXFunction` is wrong.

```
<FieldSpecification
  name="permx"
  initialCondition="1"
  component="0"
  setNames="{ all }"
  objectPath="ElementRegions"
  fieldName="rockPerm_permeability"
  scale="1e-15"
  functionName="permXFunction" />
```

Old error:

- No mention of file/line/object name/attribute name,

- `m/Functions` is an erroneous path,

- GEOS should show us the available TableFunctions, including `permxFunc` (which the user meant here).

  ```
  ***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:326
  ***** Controlling expression (should be false): child == nullptr
  ***** Rank 0: Group m/Functions doesn't have a child permXFunction
  ```

New Error:

```
***** LOCATION: /GEOS/src/coreComponents/dataRepository/Group.hpp:340
***** Controlling expression (should be false): child == nullptr
***** Rank 0: Error while reading permx/functionName (line_9_simpleCo2Inj_inc.xml, l.133):
Group Functions (line_9_simpleCo2Inj_inc.xml, l.209) has no child named permXFunction
The children of Functions are: { permxFunc, permyFunc, permzFunc,
fluid_phaseModel1_PhillipsBrineDensity_table, fluid_phaseModel1_PhillipsBrineViscosity_table,
fluid_phaseModel2_SpanWagnerCO2Density_table, fluid_phaseModel2_FenghourCO2Viscosity_table,
fluid_CO2Solubility_table, wellControls_ConstantBHP_table, wellControls_ConstantTotalRate_table,
wellControls_ConstantPhaseRate_table, WellControls_OpenStatus_table }
```

line_10_simpleCo2Inj

User mistake:

> fieldName value `rockPerm_perm` is wrong.

```
<FieldSpecification
  name="permx"
  initialCondition="1"
  component="0"
  setNames="{ all }"
  objectPath="ElementRegions"
  fieldName="rockPerm_perm"
  scale="1e-15"
  functionName="permxFunc" />
```

Old error:

- No mention of file/line/object name,

- GEOS should show us the available fields, including `rockPerm_permeability` (which the user meant here).

  ```
  ***** LOCATION: /GEOS/src/coreComponents/fieldSpecification/FieldSpecificationManager.cpp:198
  ***** Controlling expression (should be false): true
  ***** Rank 0:
  permx: there is no fieldName named `rockPerm_perm` under the objectPath `ElementRegions`, check the
  XML input
  ```

New Error:

```
***** LOCATION: /GEOS/src/coreComponents/fieldSpecification/FieldSpecificationManager.cpp:199
***** Controlling expression (should be false): true
***** Rank 0:
permx/fieldName (line_10_simpleCo2Inj_inc.xml, l.131): there is no fieldName named `rockPerm_perm`
under the objectPath `ElementRegions`.
```

Proposal:

- list the available fields to help the user to find the one he search for.

  ```
  ***** LOCATION: /GEOS/src/coreComponents/fieldSpecification/FieldSpecificationManager.cpp:199
  ***** Controlling expression (should be false): true
  ***** Rank 0:
  permx/fieldName (line_10_simpleCo2Inj_inc.xml, l.131): there is no fieldName named `rockPerm_perm`
  under the objectPath `ElementRegions`.
  Available fields are: { rockPerm_permeability, ... }
  ```