FAKULTÄT
FÜR !NFORMATIK
Faculty of Informatics

dbai

Semi-structured Data

6 - XPath (further examples)

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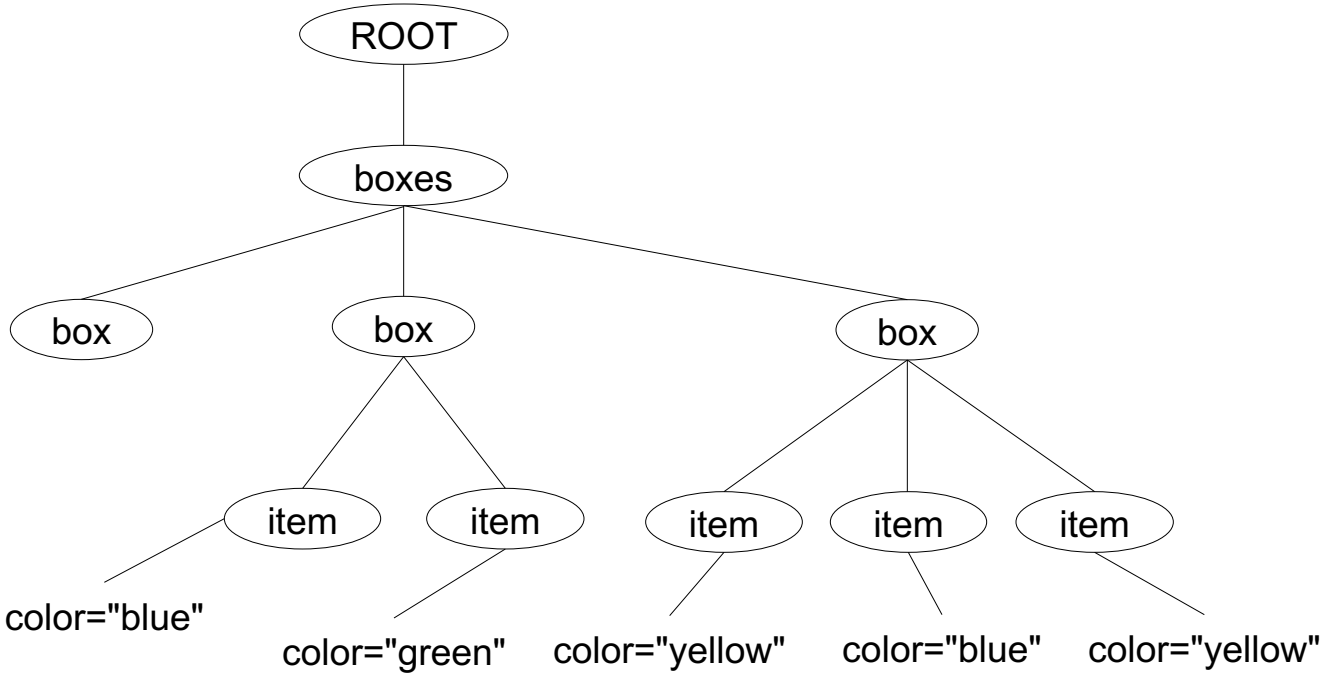
Tools

- Web-based Tools:
  - PathEnq: http://www.qutoric.com/xslt/analyser/xpathtool.html
  - xPath tester: http://www.xpathtester.com/xpath
- Example documents: in the TUWEL course

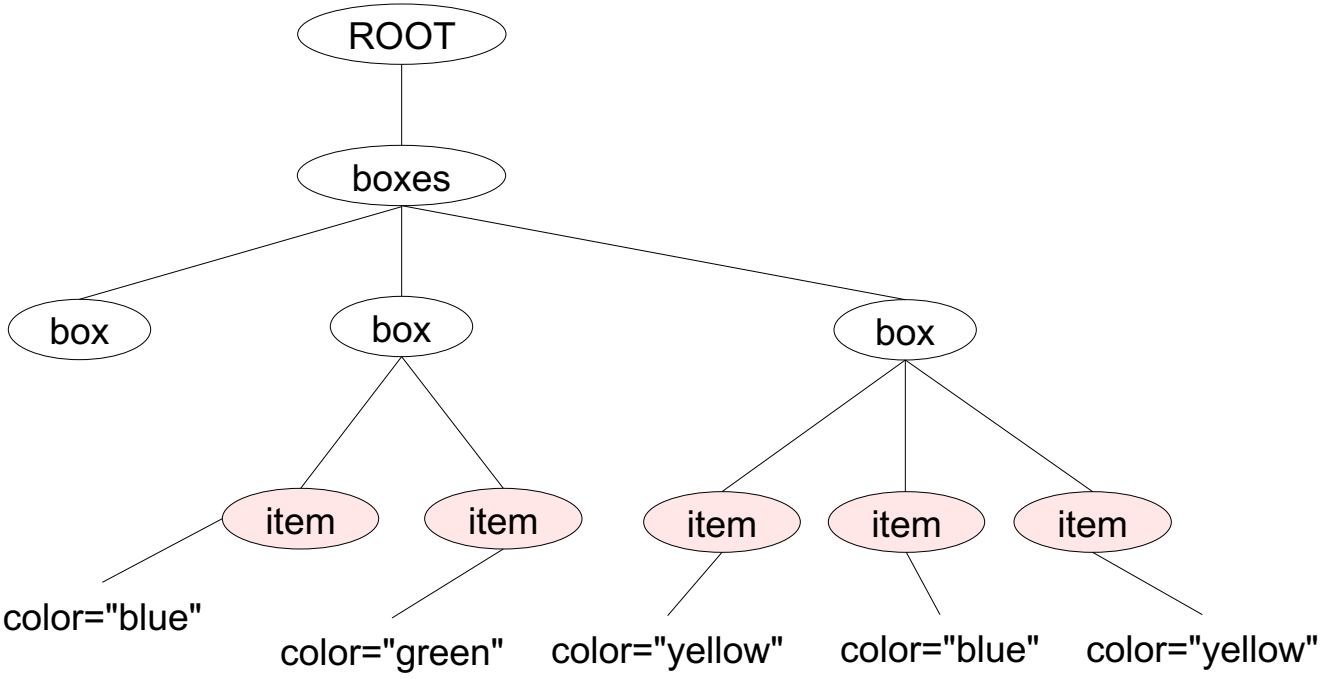
Further Examples

```
<?xml version="1.0"?>
<boxes>
    <box/>
    <box>
        <item color="blue"/>
        <item color="green"/>
    </box>
    <box>
        <item color="yellow"/>
        <item color="blue"/>
        <item color="yellow"/>
    </box>
</boxes>
```

Further Examples



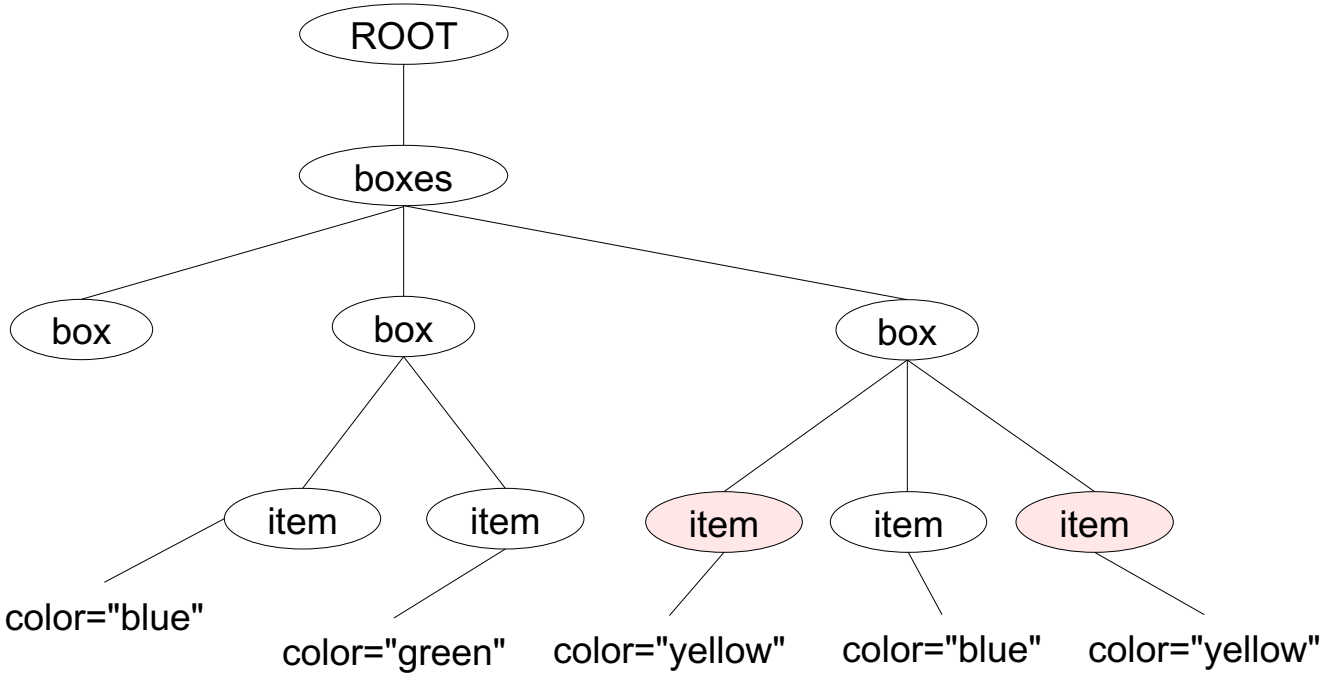
Further Examples



select all items in a box

//box/item

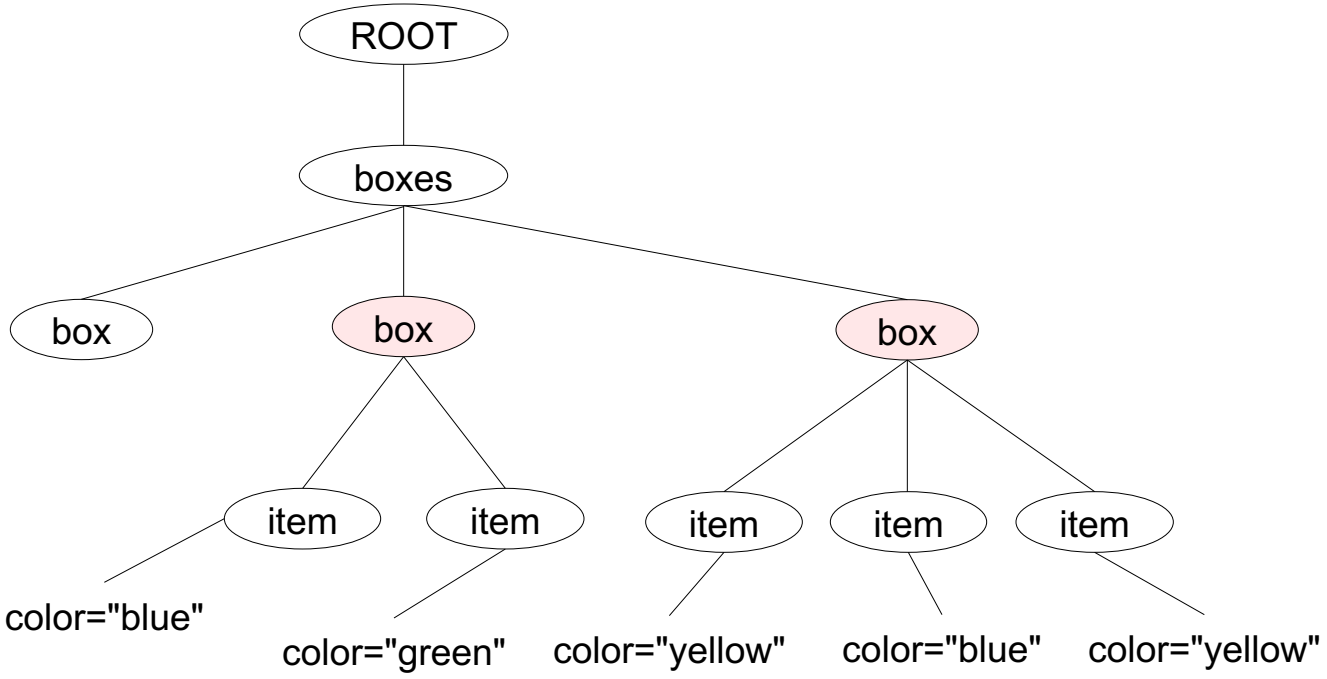
Further Examples



select yellow items in a box

//box/item[@color="yellow"]

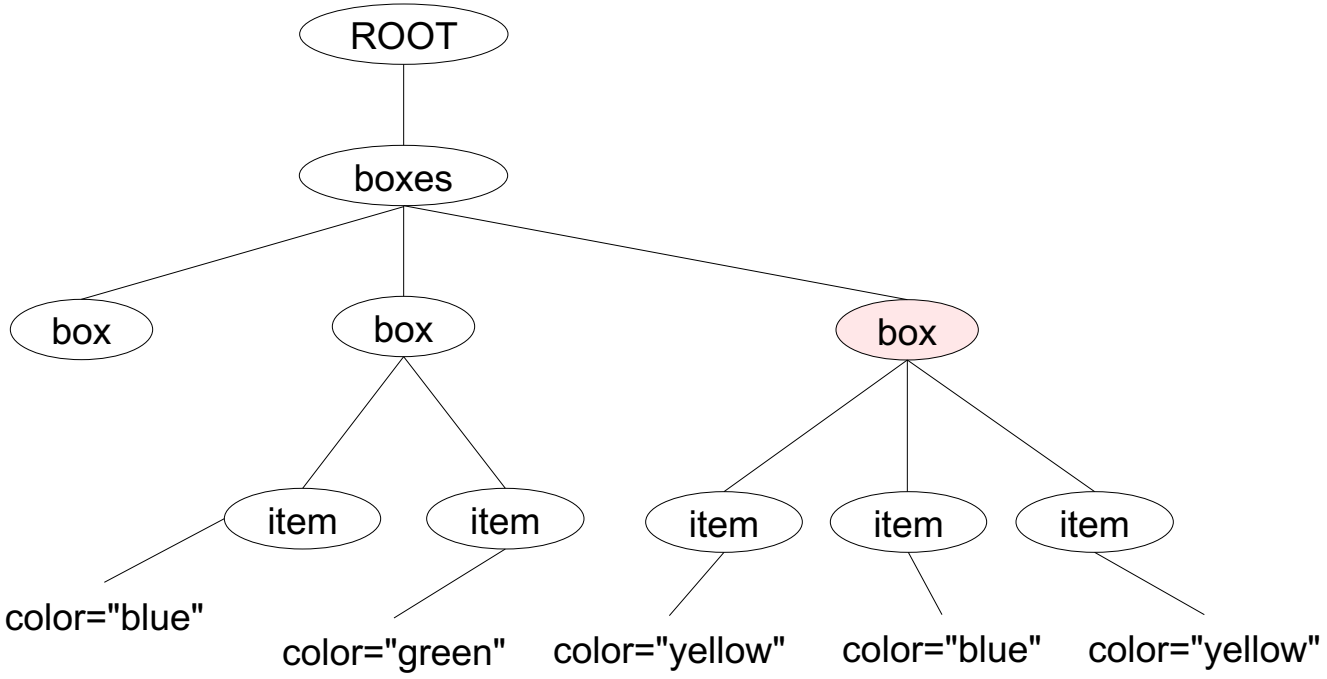
Further Examples



select all boxes with at least one item

//box[item]

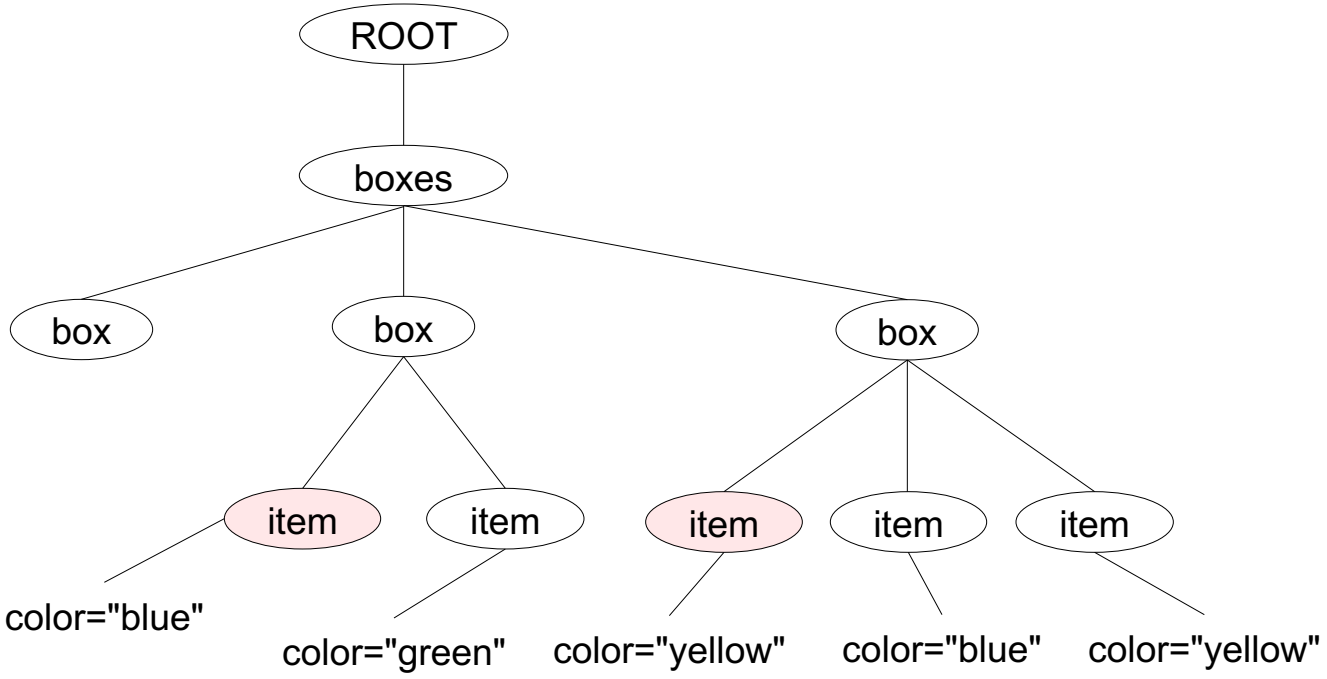
Further Examples



select all boxes with at least one yellow item

//box[item[@color="yellow"]]

Further Examples

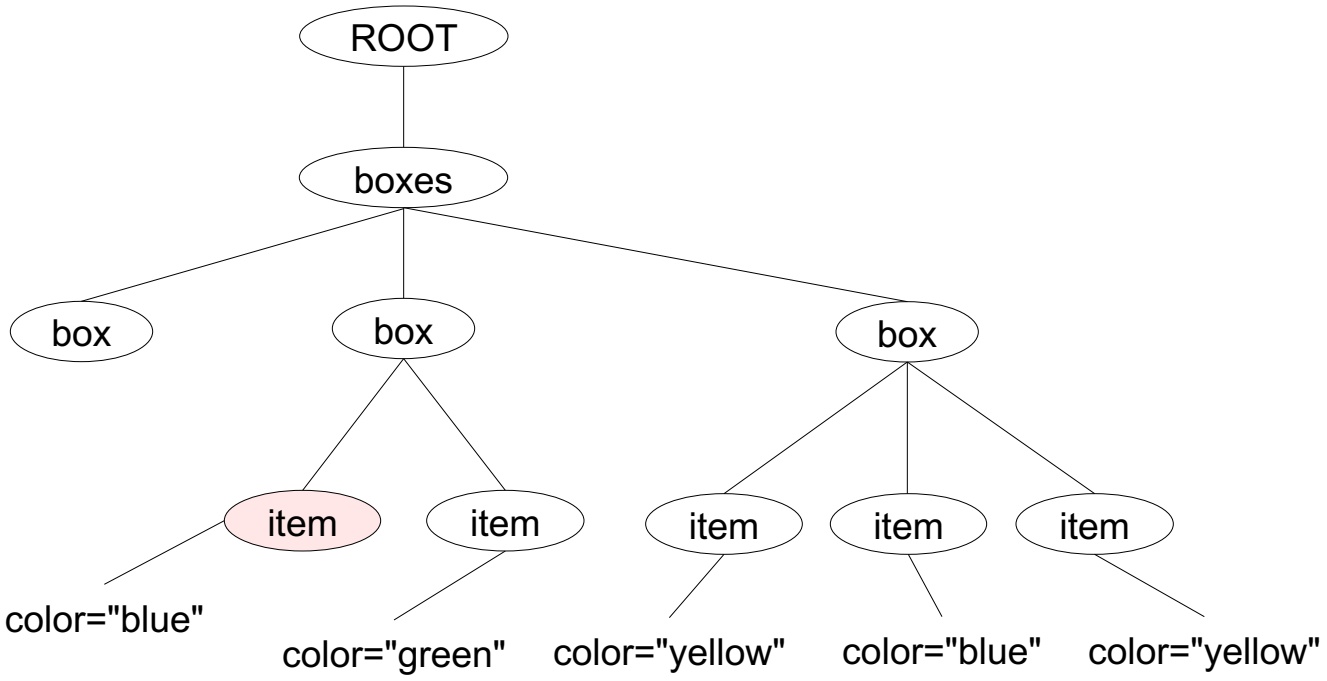


select all items that appear first in a box

//item[1]

/descendant-or-self::node()/item[1]

Further Examples

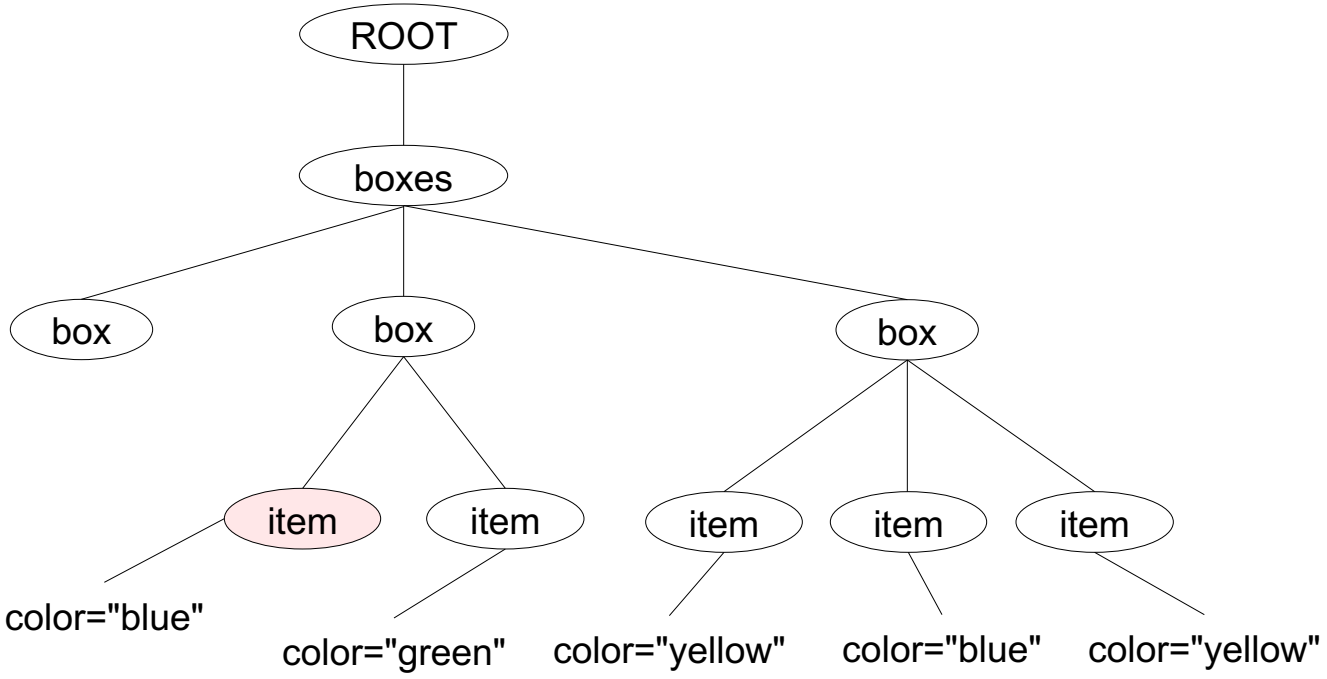


select the first item in the document

/descendant::item[1] ✓

//item[1] ✗

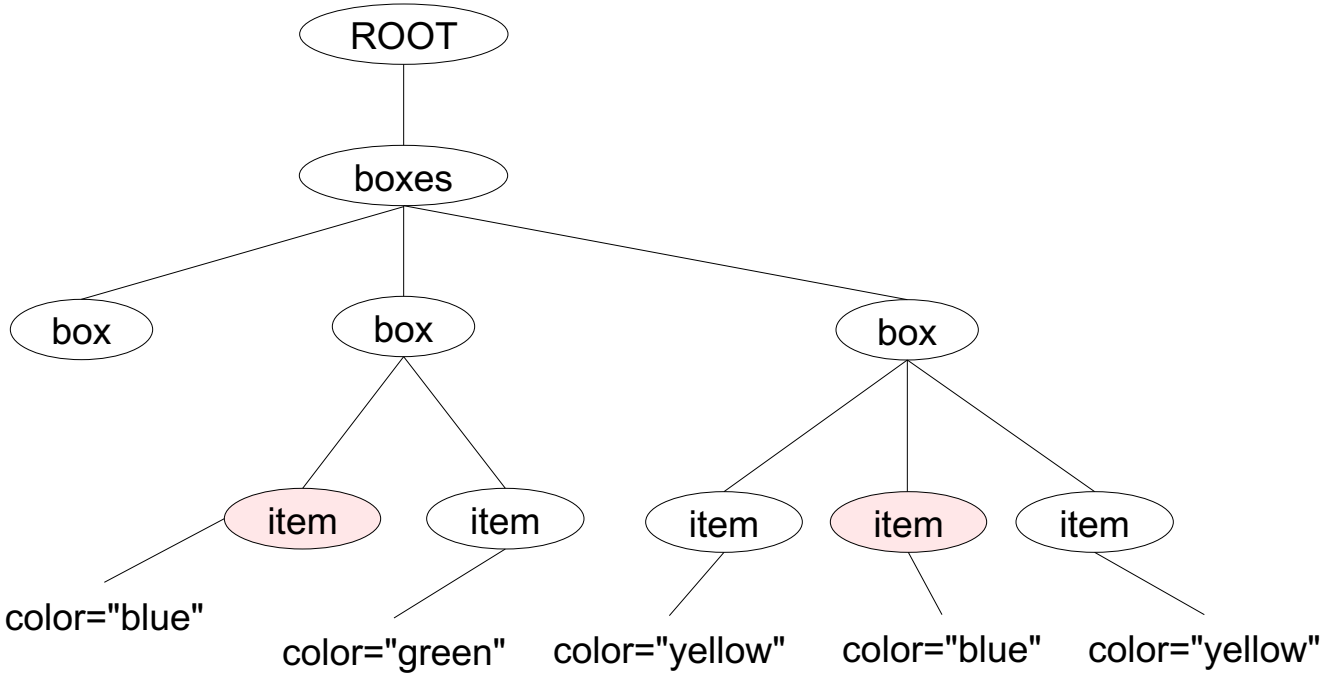
Further Examples



select all items that appear first in a box and are blue

//item[1][@color="blue"]

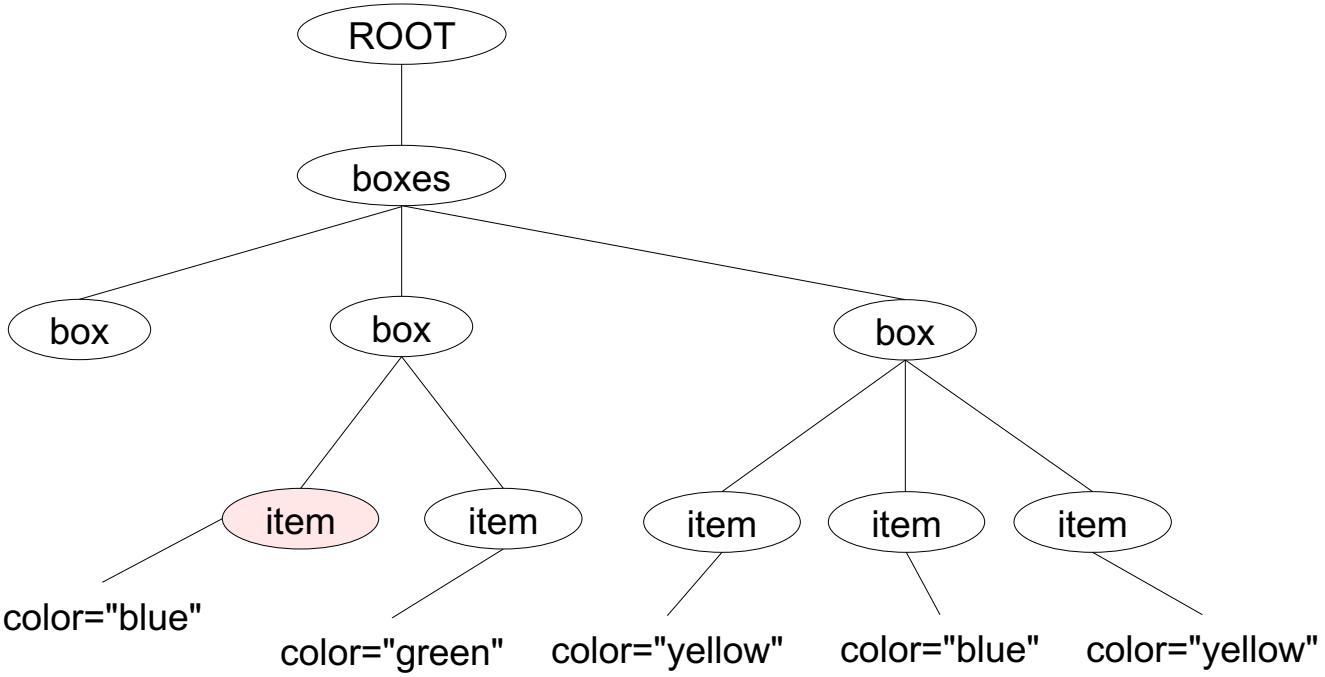
Further Examples



select the first occurrence of a blue item in a box

//item[@color="blue"][1]

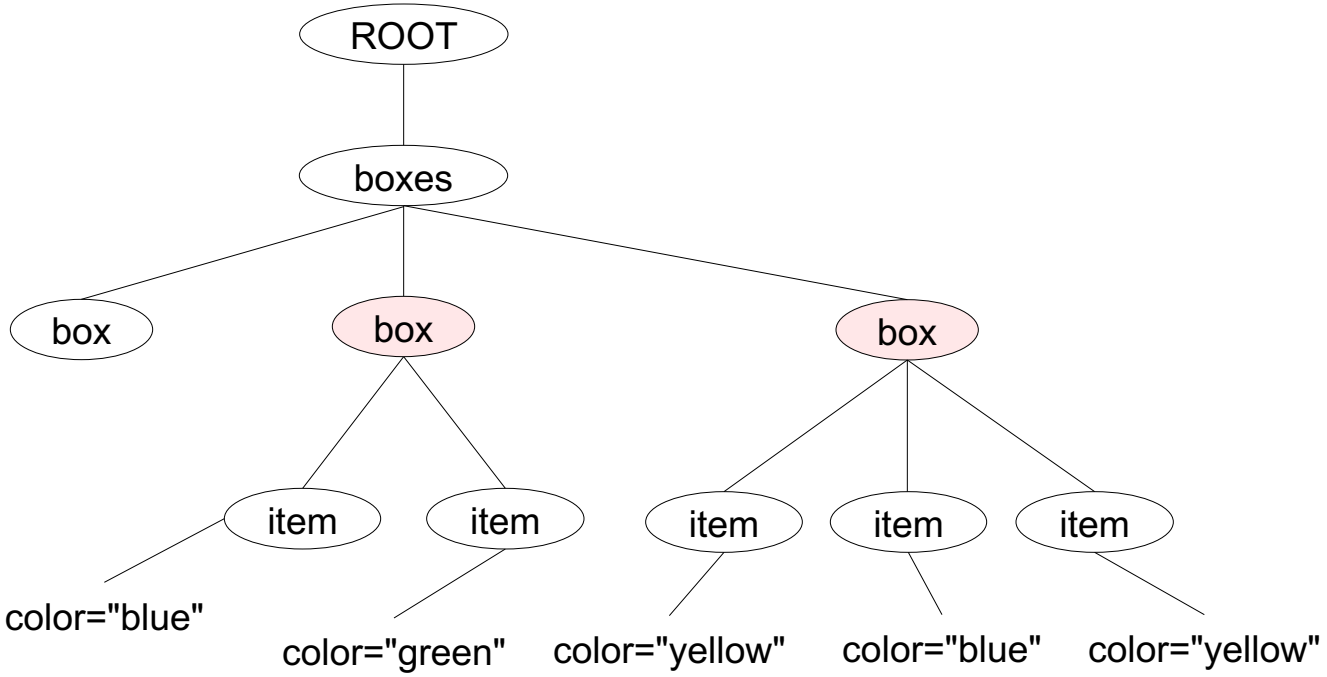
Further Examples



select the first item of the first non-empty box

//box[item][1]/item[1]

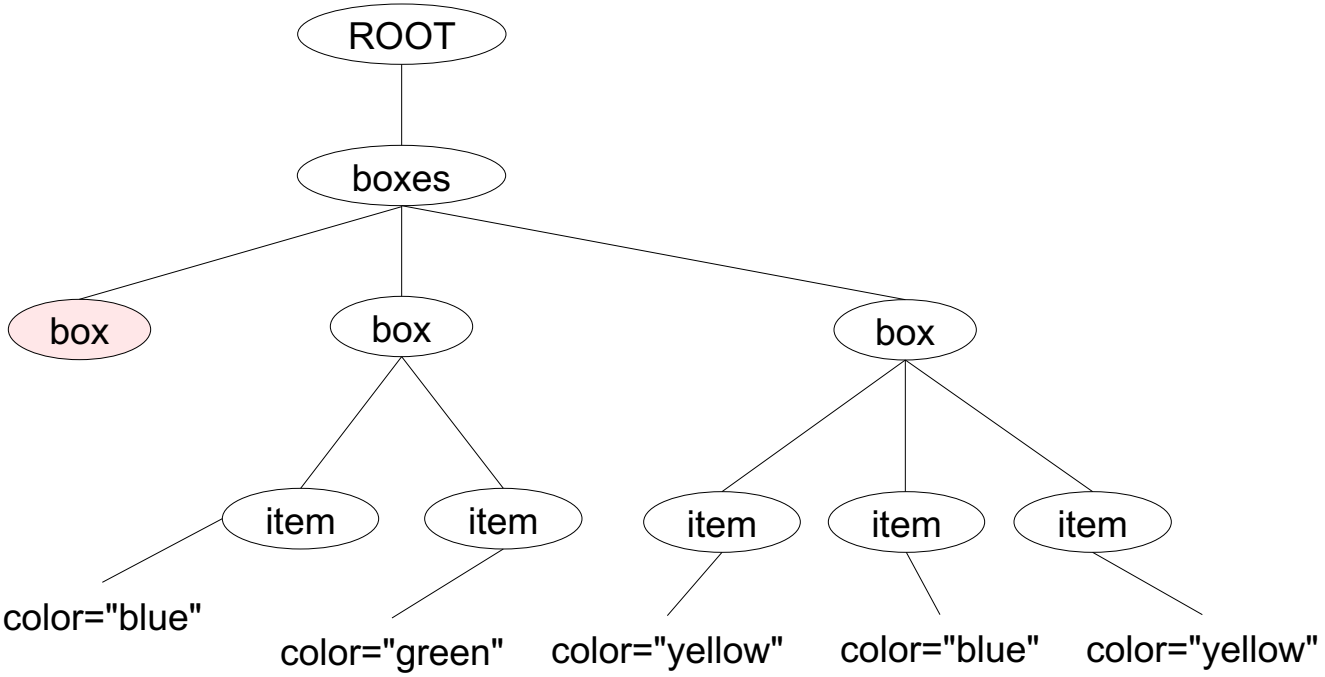
Further Examples



select all non-empty boxes

//box[*]

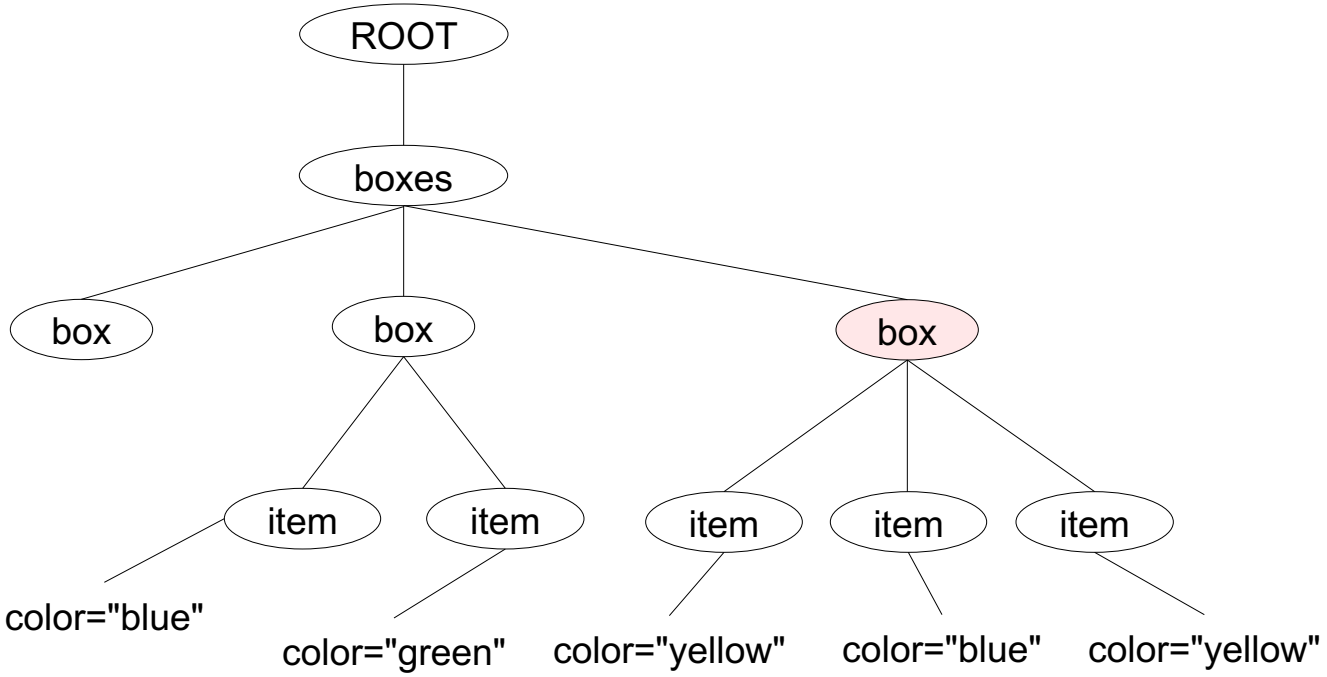
Further Examples



select all empty boxes

//box[not(*)]

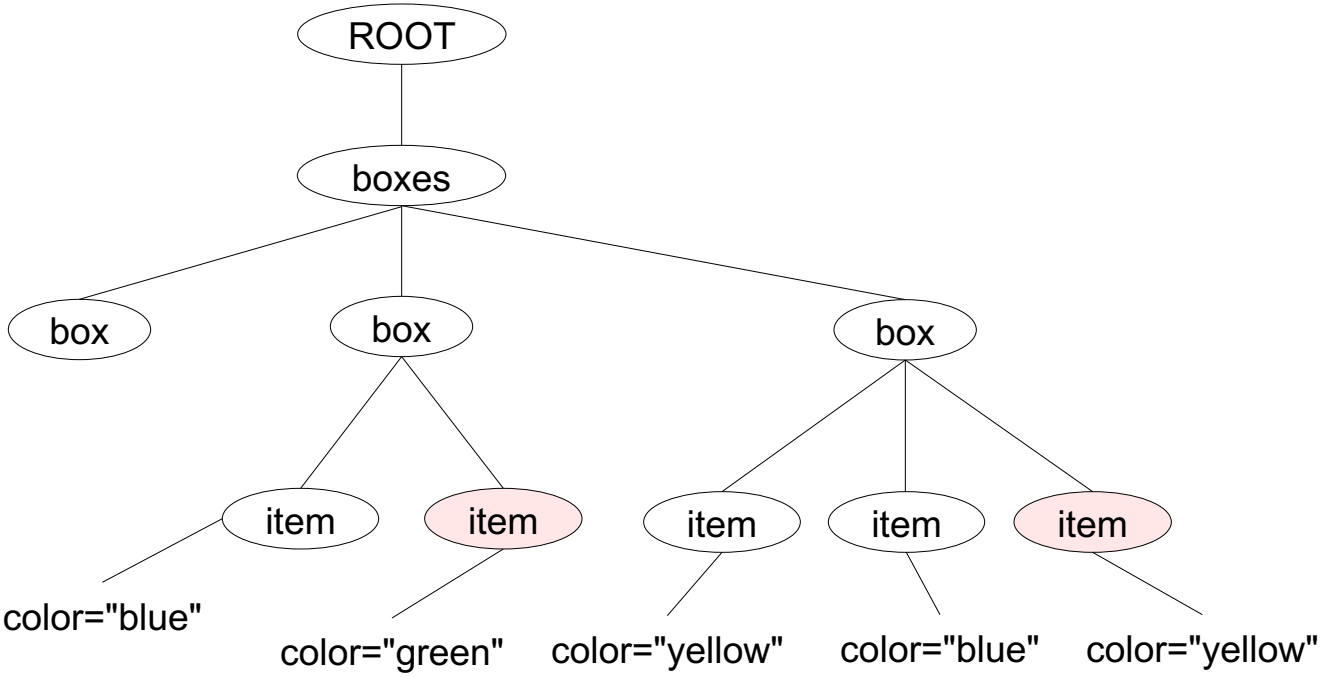
Further Examples



select all boxes with more than two items

```
//box[count(item) > 2]
```

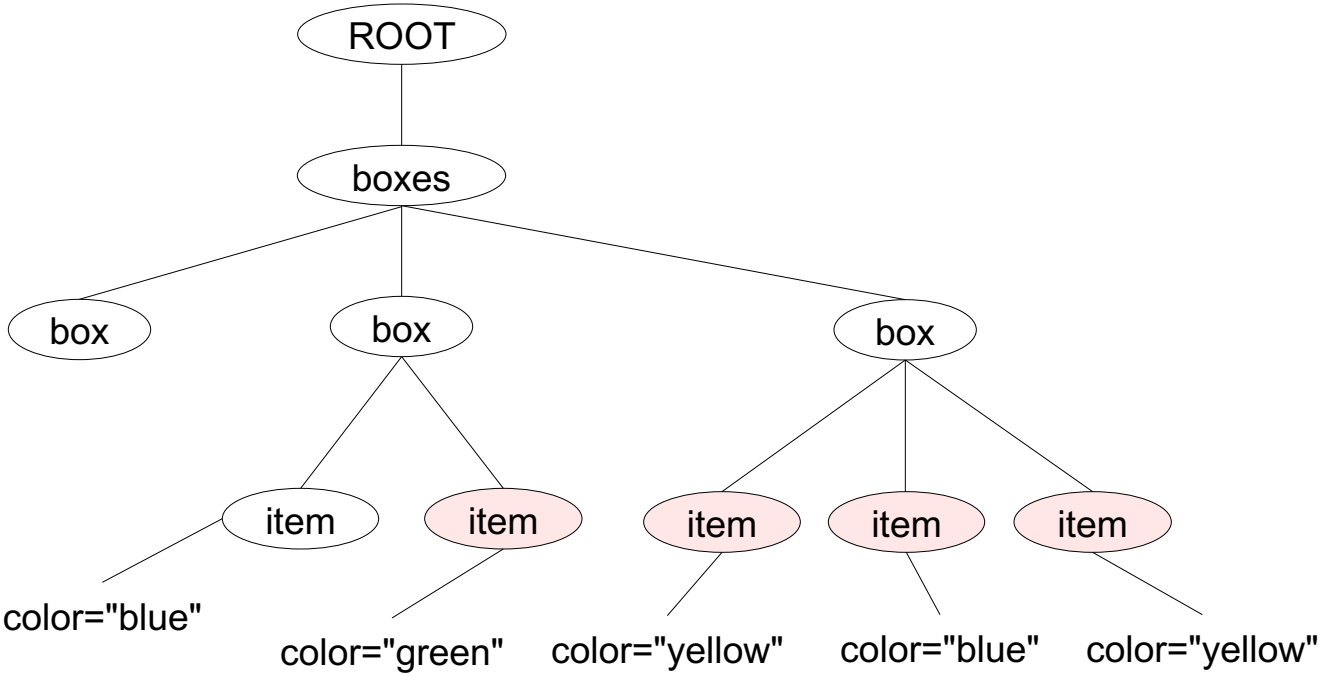
Further Examples



in each box, select all items that follow a blue item

//item[@color=“blue”]/following-sibling::item

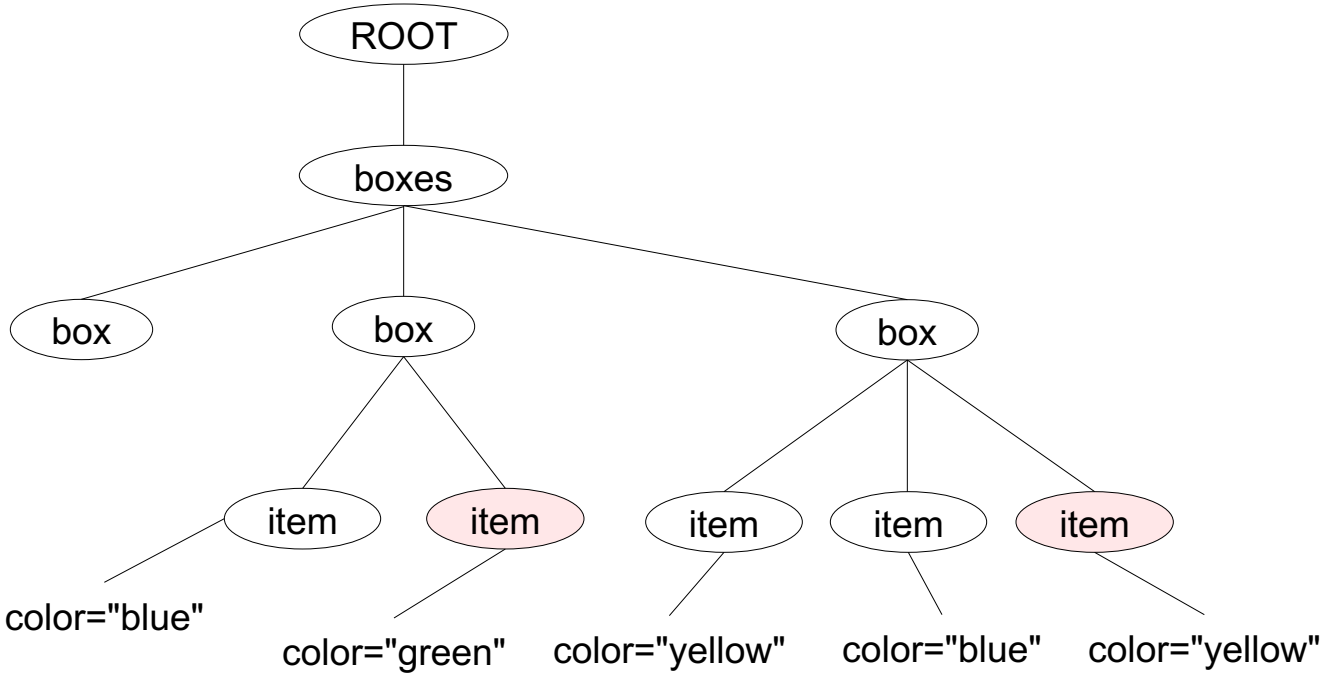
Further Examples



select all items in the document that appear after a blue item

//item[@color=“blue”]/following::item

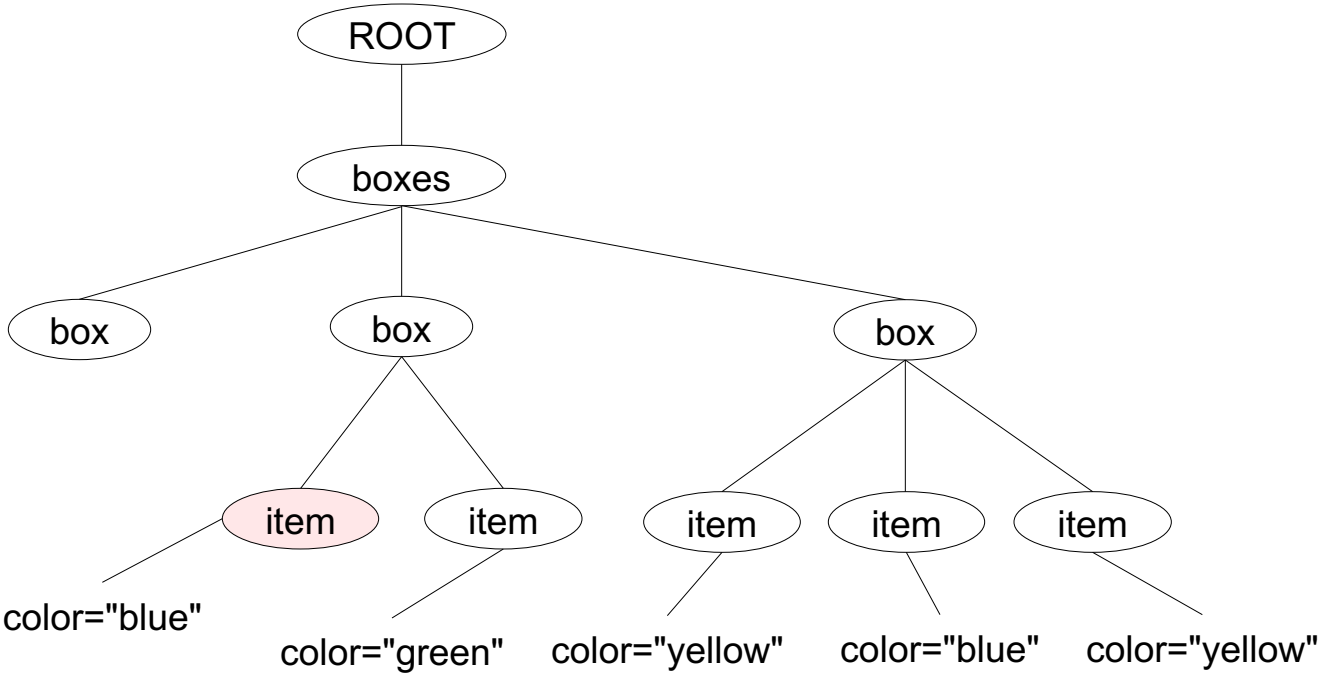
Further Examples



select the first item that follows a blue item

//item[@color=“blue”]/following::item[1]

Further Examples



select the first blue item in the document

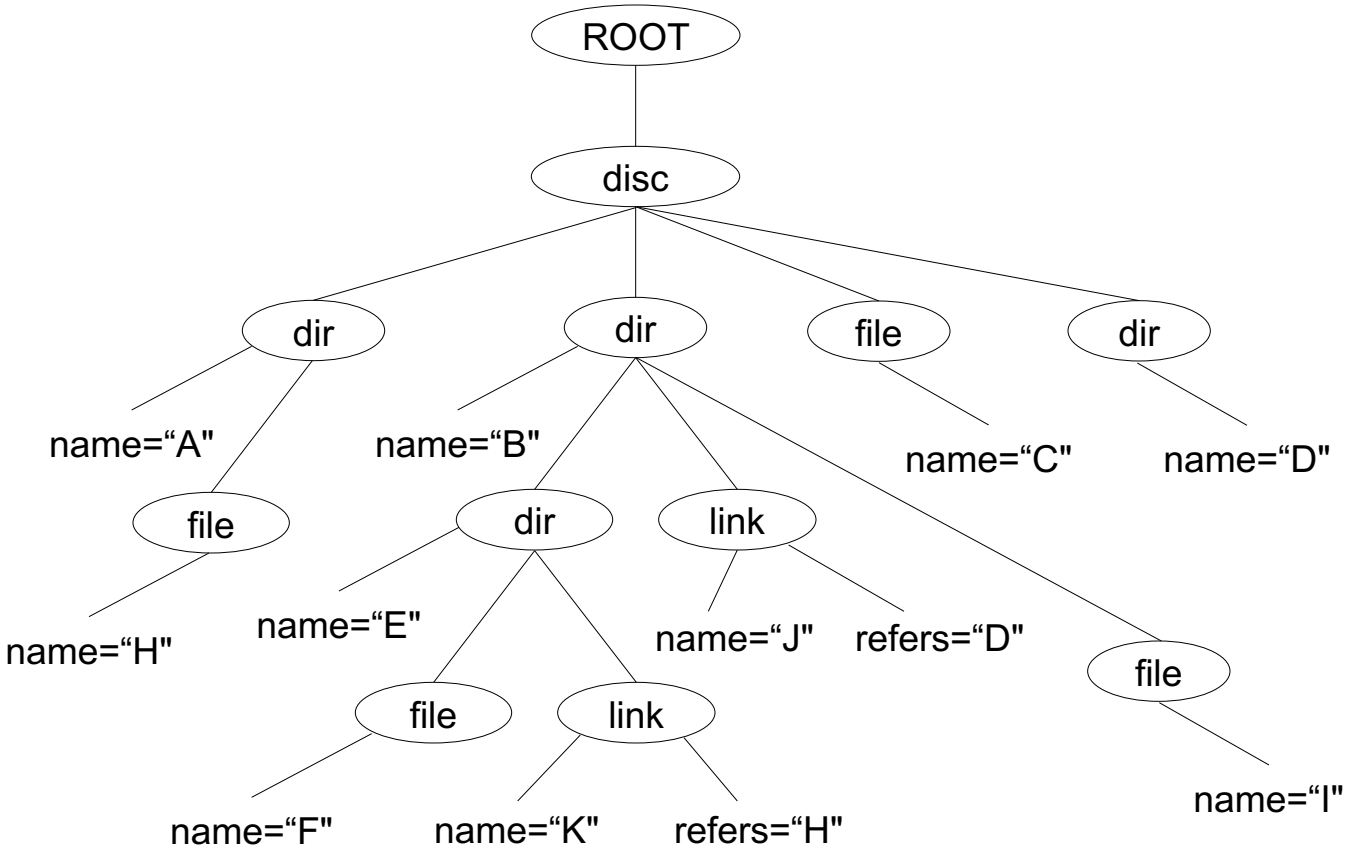
//box[item[@color=“blue”]][1]/item[@color=“blue”][1]

/descendant::item[@color=“blue”][1]

Further Examples

```
<?xml version="1.0"?>
<disc>
    <dir name="A">
        <file name="H"/>
    </dir>
    <dir name="B">
        <dir name="E">
            <file name="F"/>
            <link name="K" refers="H"/>
        </dir>
        <link name="J" refers="D"/>
        <file name="I"/>
     </dir>
     <file name="C"/>
     <dir name="D"/>
</disc>
```

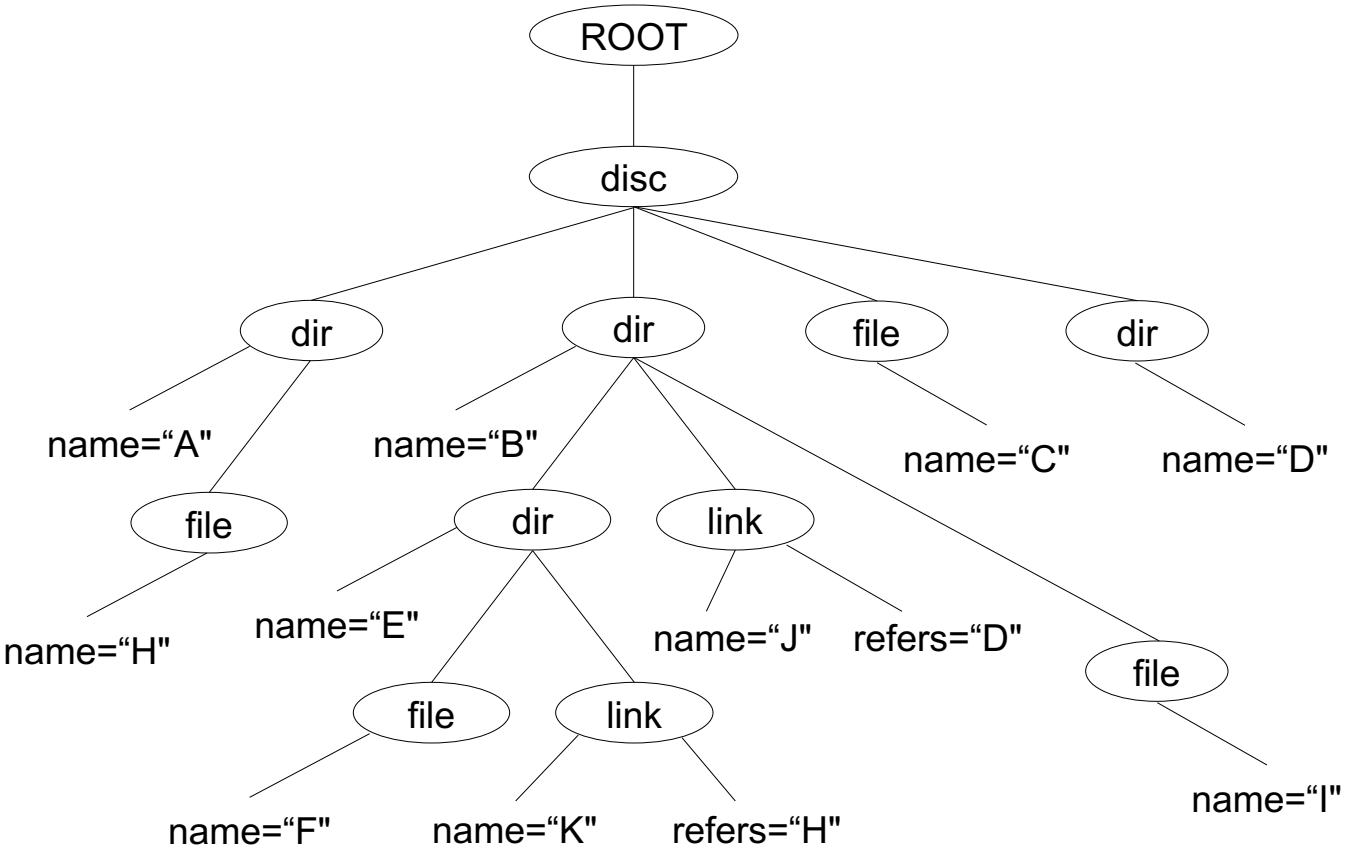
Further Examples



select all files under directory B

//dir[@name="B"]//file

Further Examples

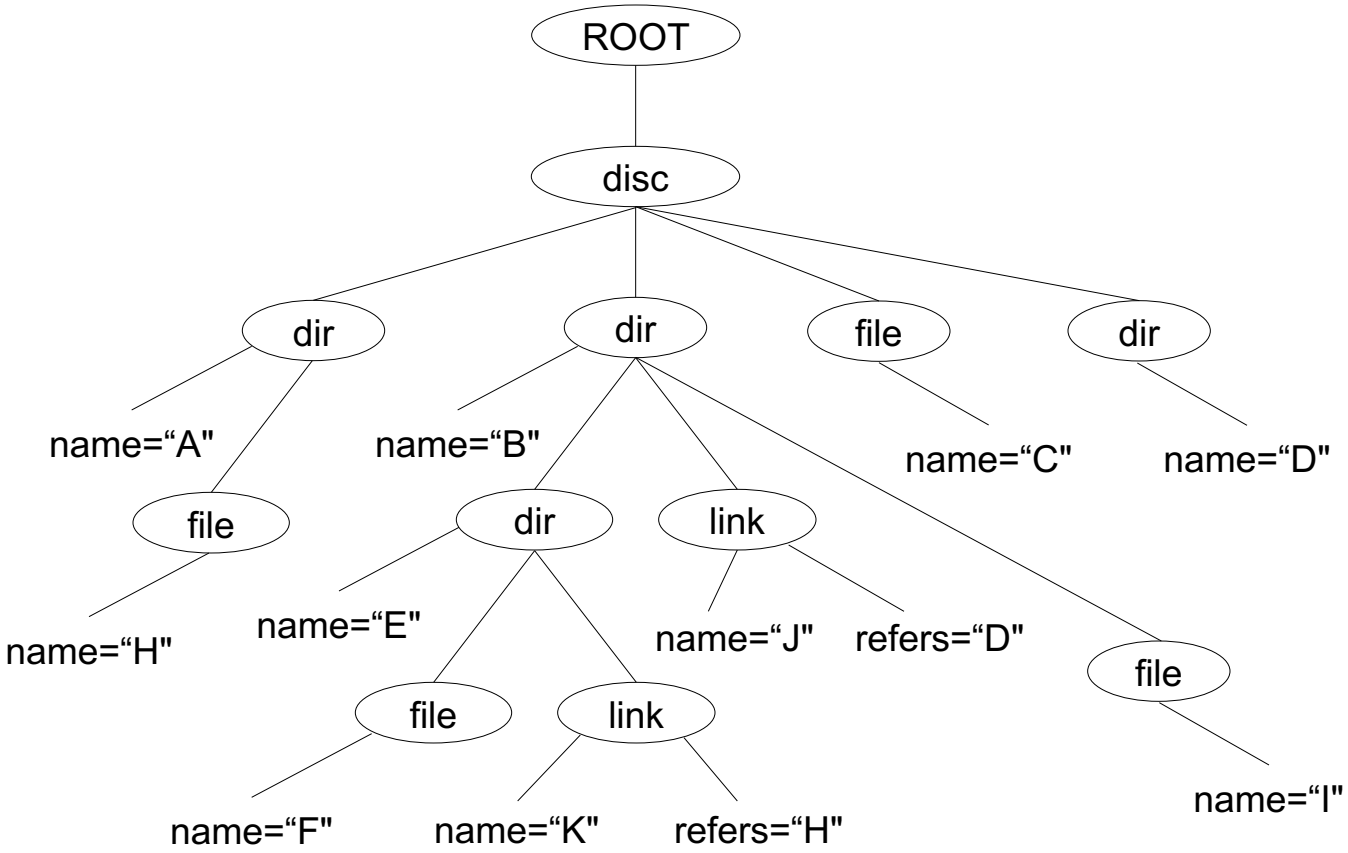


select all files and directories under directory B

//dir[@name="B"]//(file | dir) (from XPath 2.0)

//dir[@name="B"]//*[self::file|self::dir] (XPath 1.0)

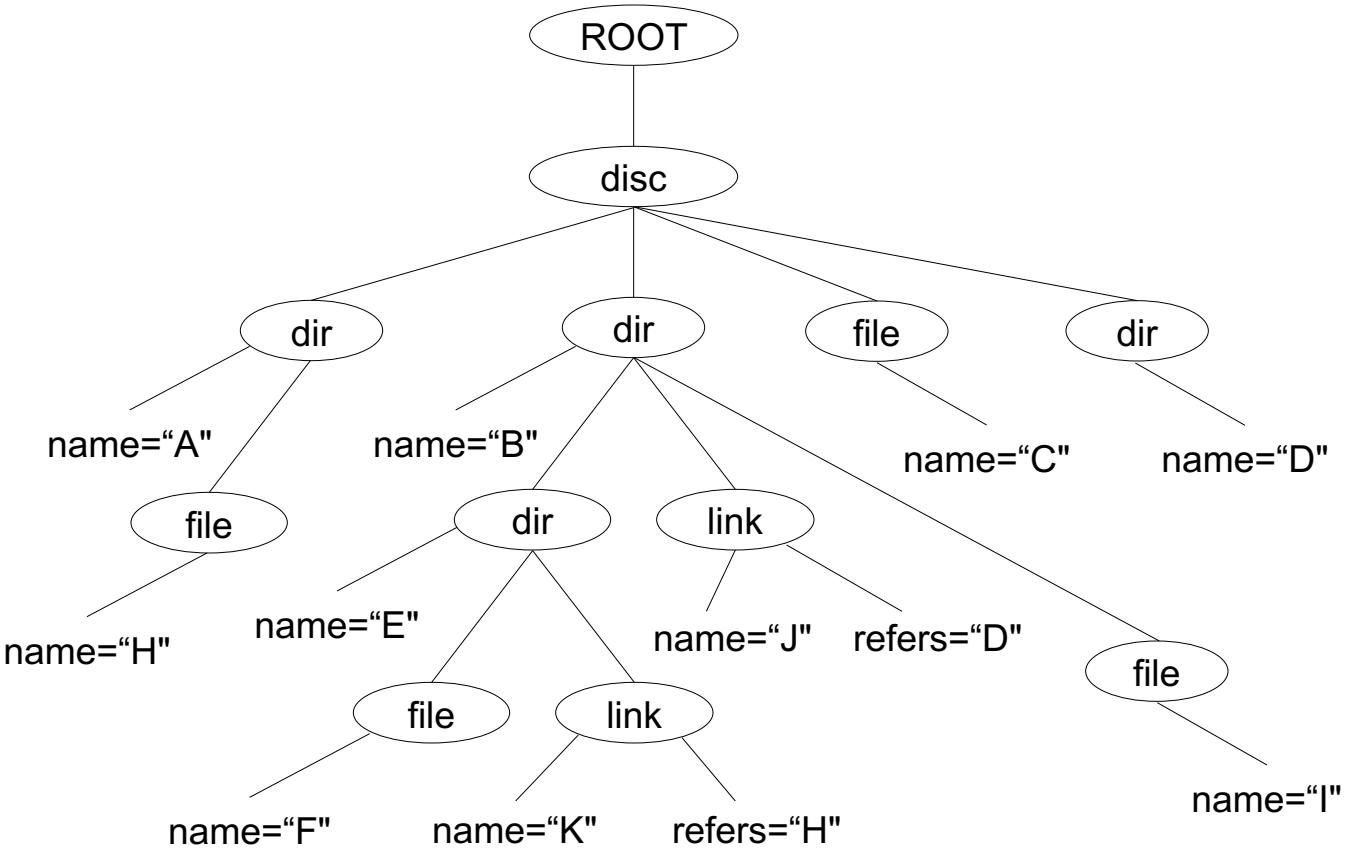
Further Examples



give me the number of files and directories under directory B: **3**

count(//dir[@name="B"]//(file | dir))

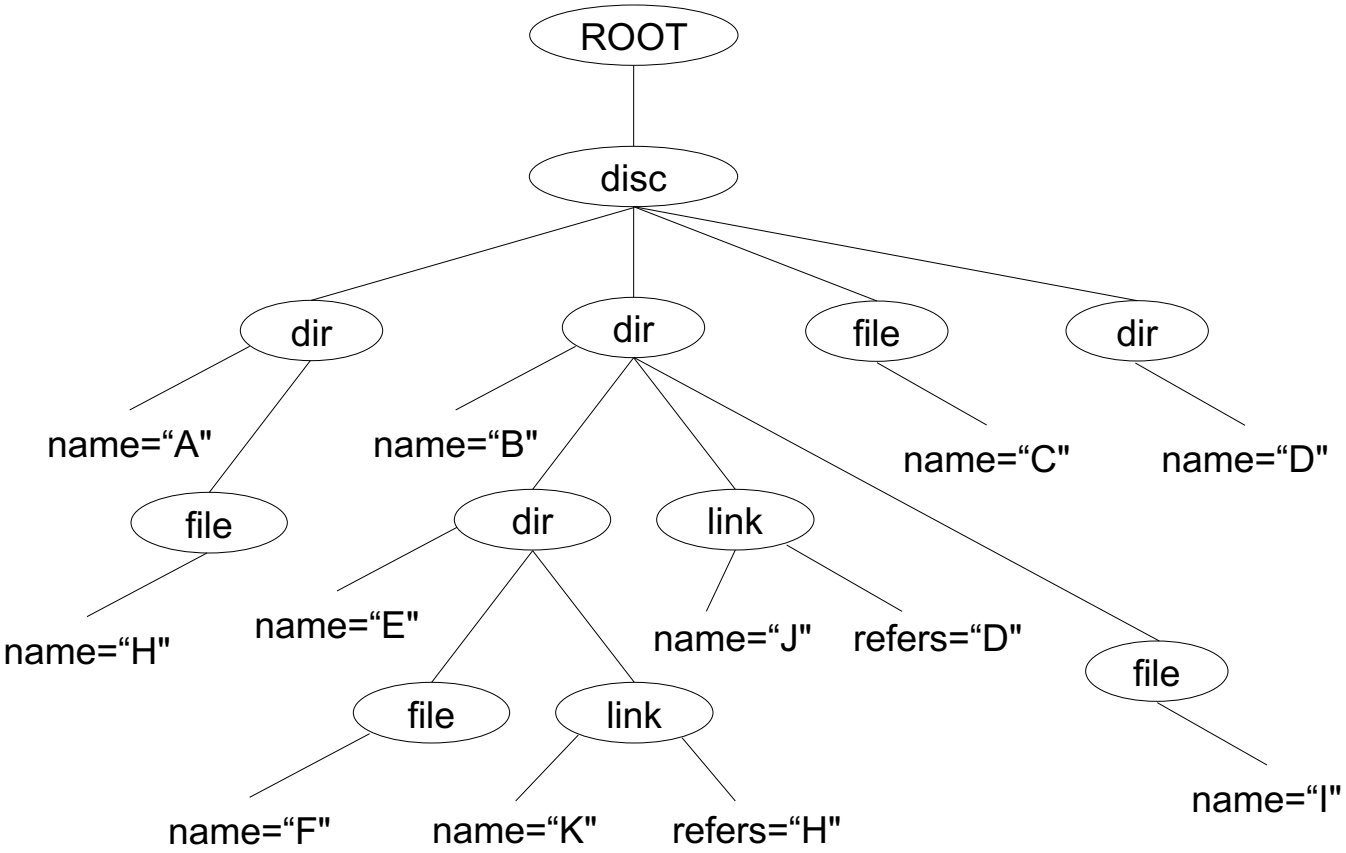
Further Examples



//dir[@name=//link/@refers]

select all directories that are being referred by a link

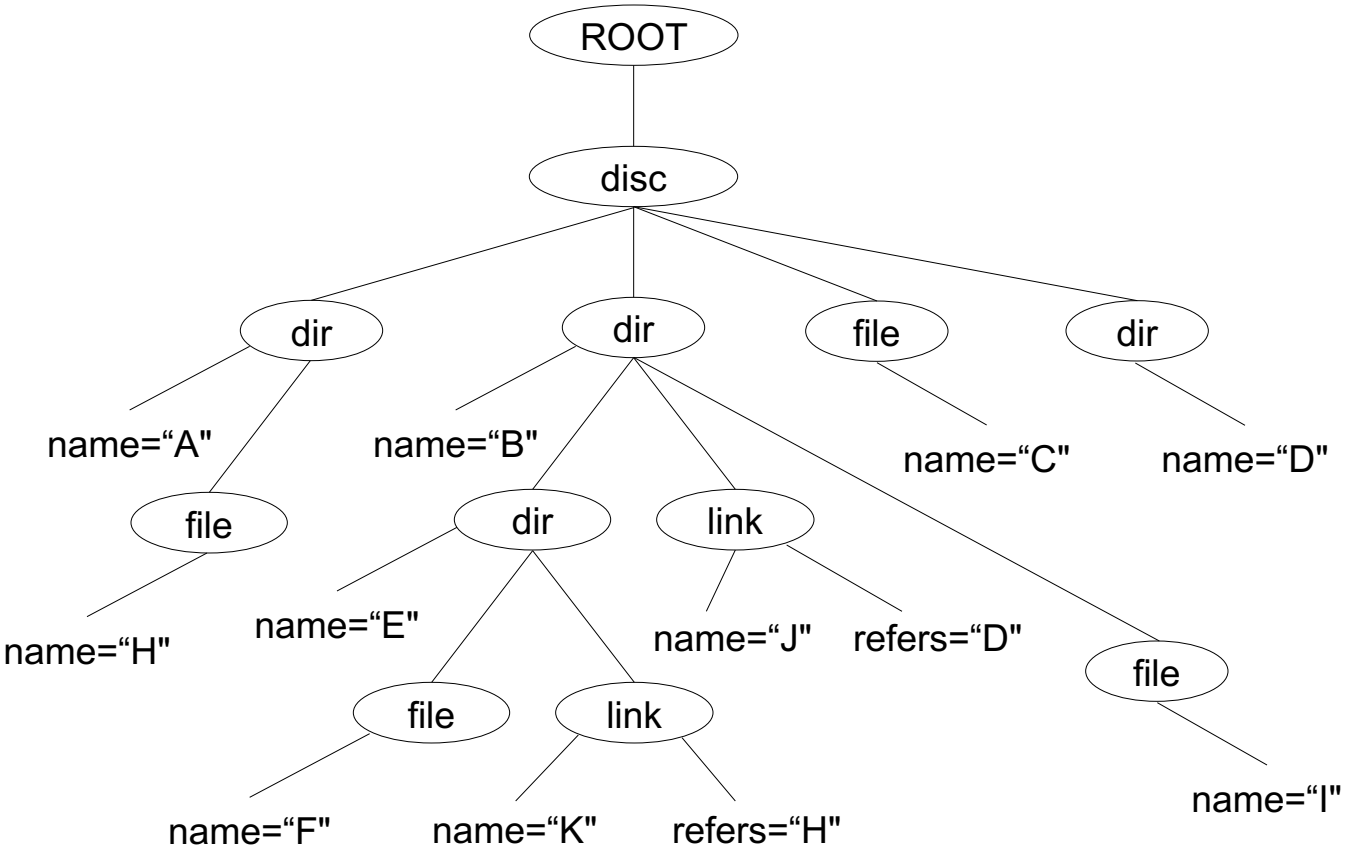
Further Examples



//file[@name="C"]/preceeding::dir[count(*) >= 2]

select all directories with more than one child that appear before the file C

Further Examples

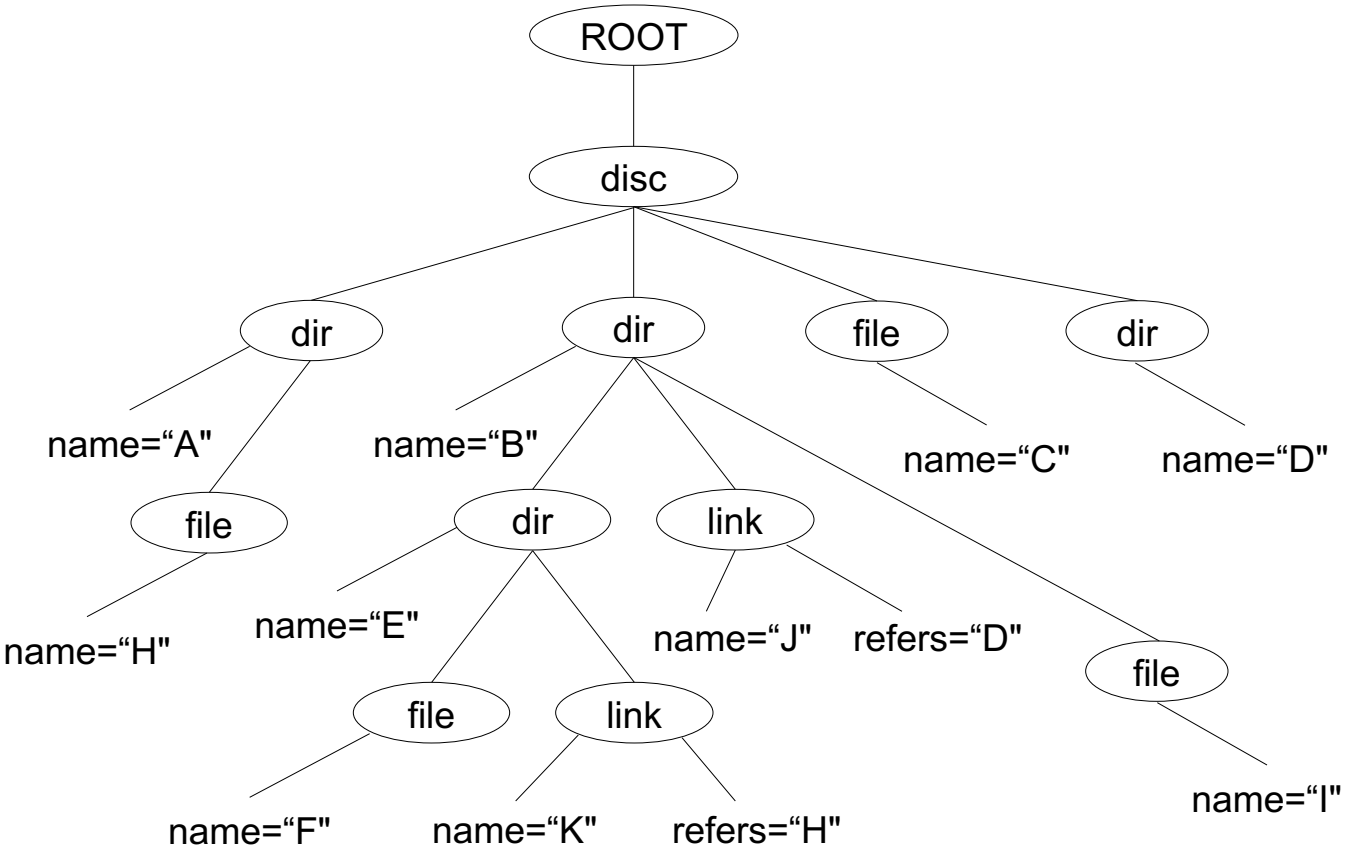


/*/file

select all files under disc

/disc/file

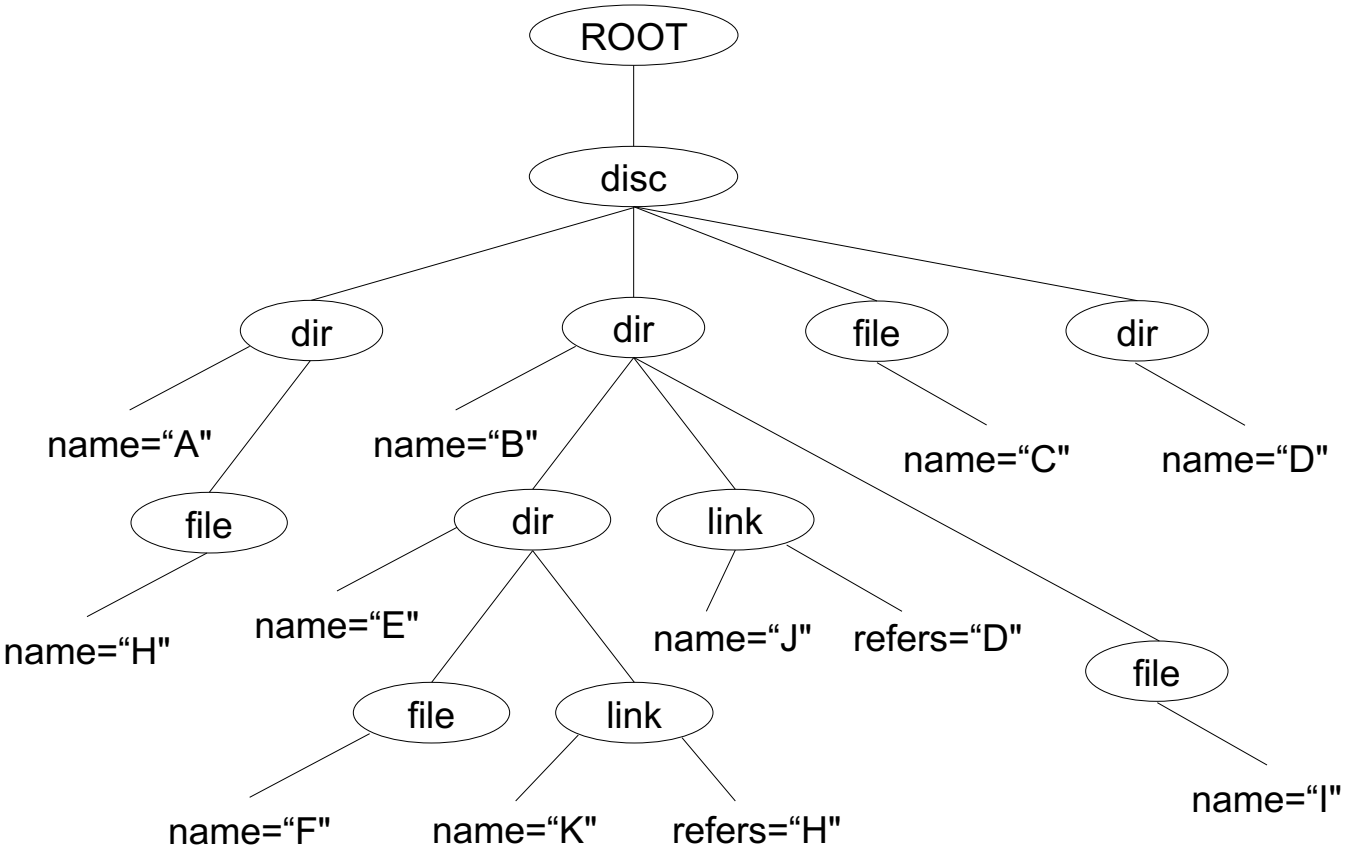
Further Examples



//dir[not(link)]

select all directories without a link

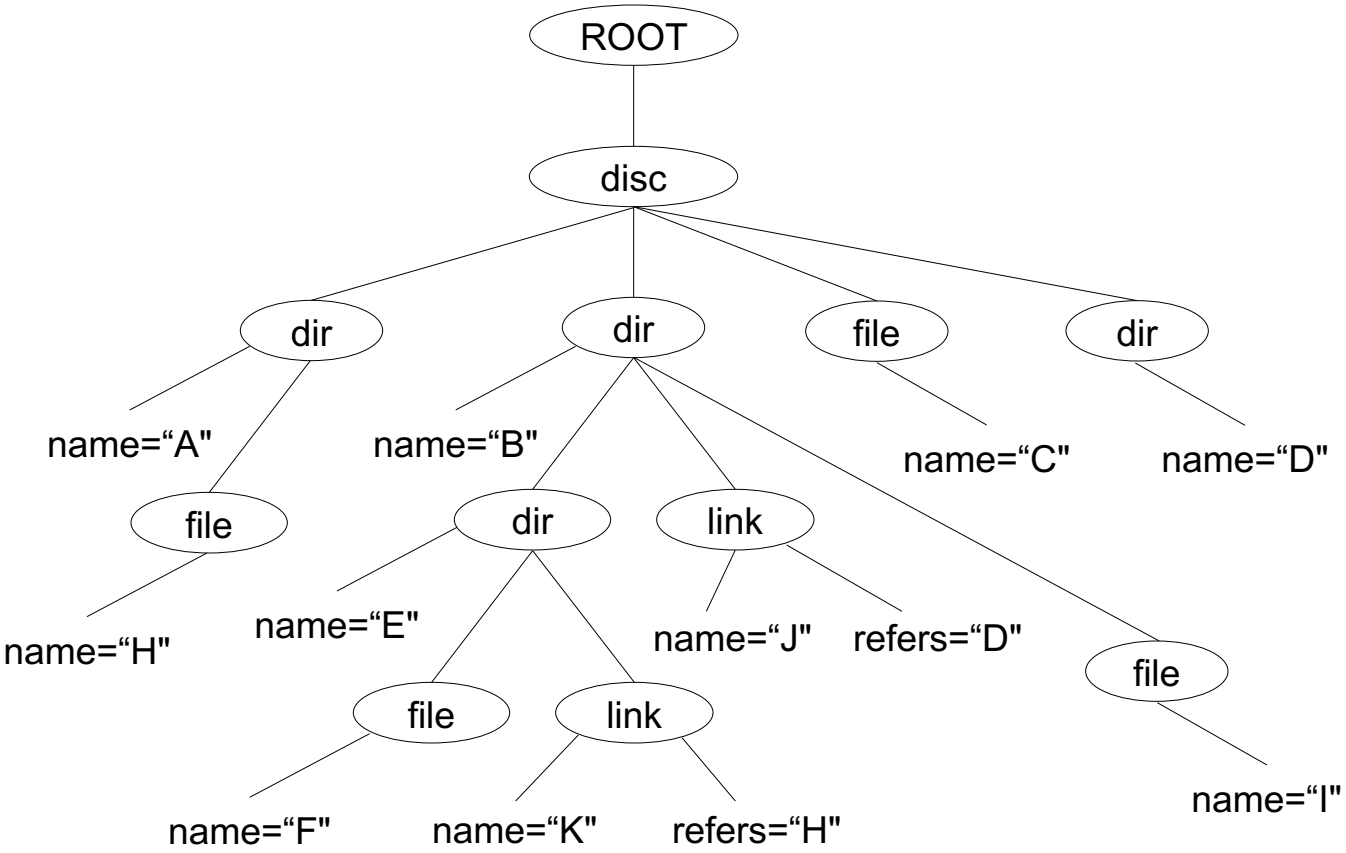
Further Examples



//*[@name=//link[@name="K"]/@refers]

select all elements that are being referred by the link K

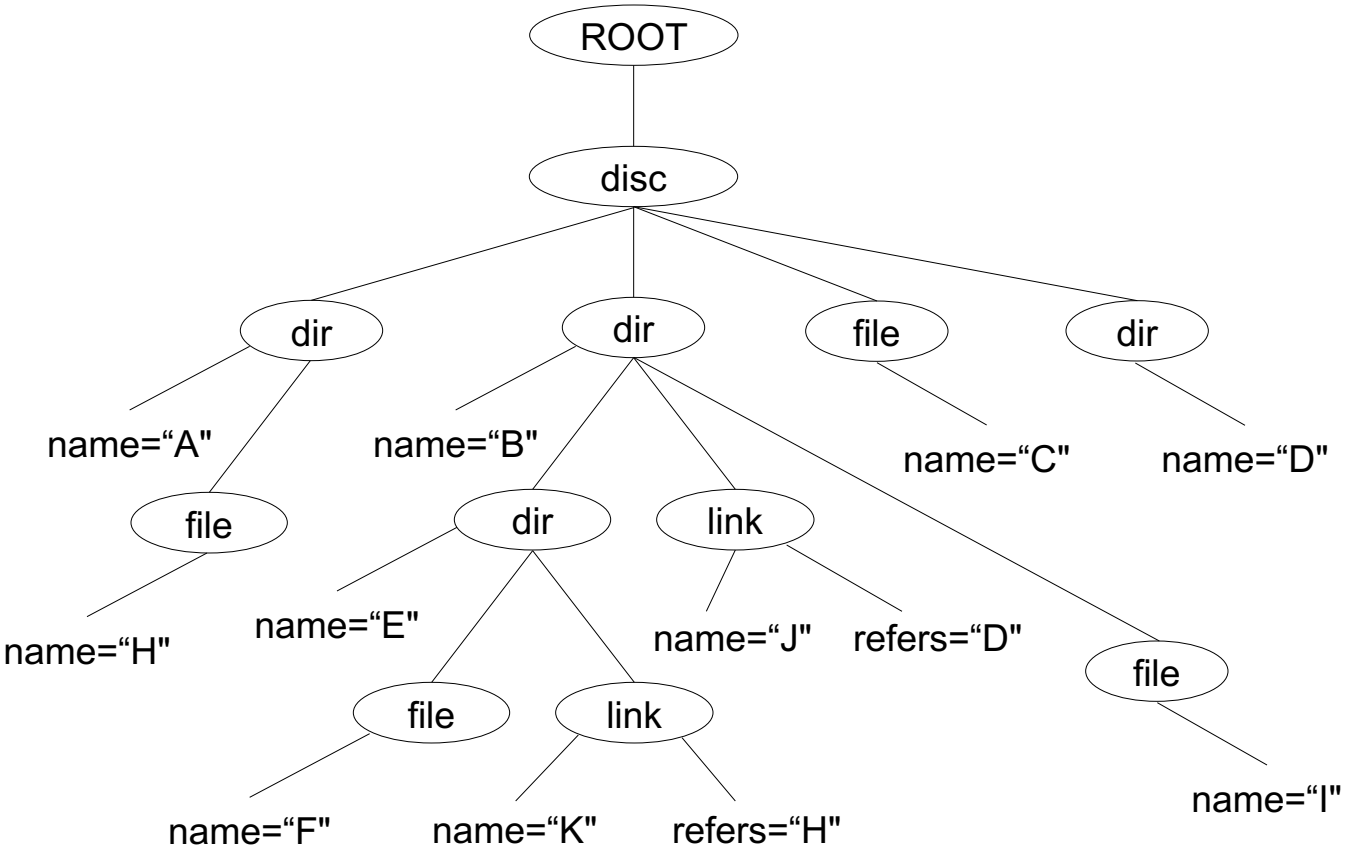
Further Examples



//file[@name="F"]/../@name

give me the name of the parent of file F

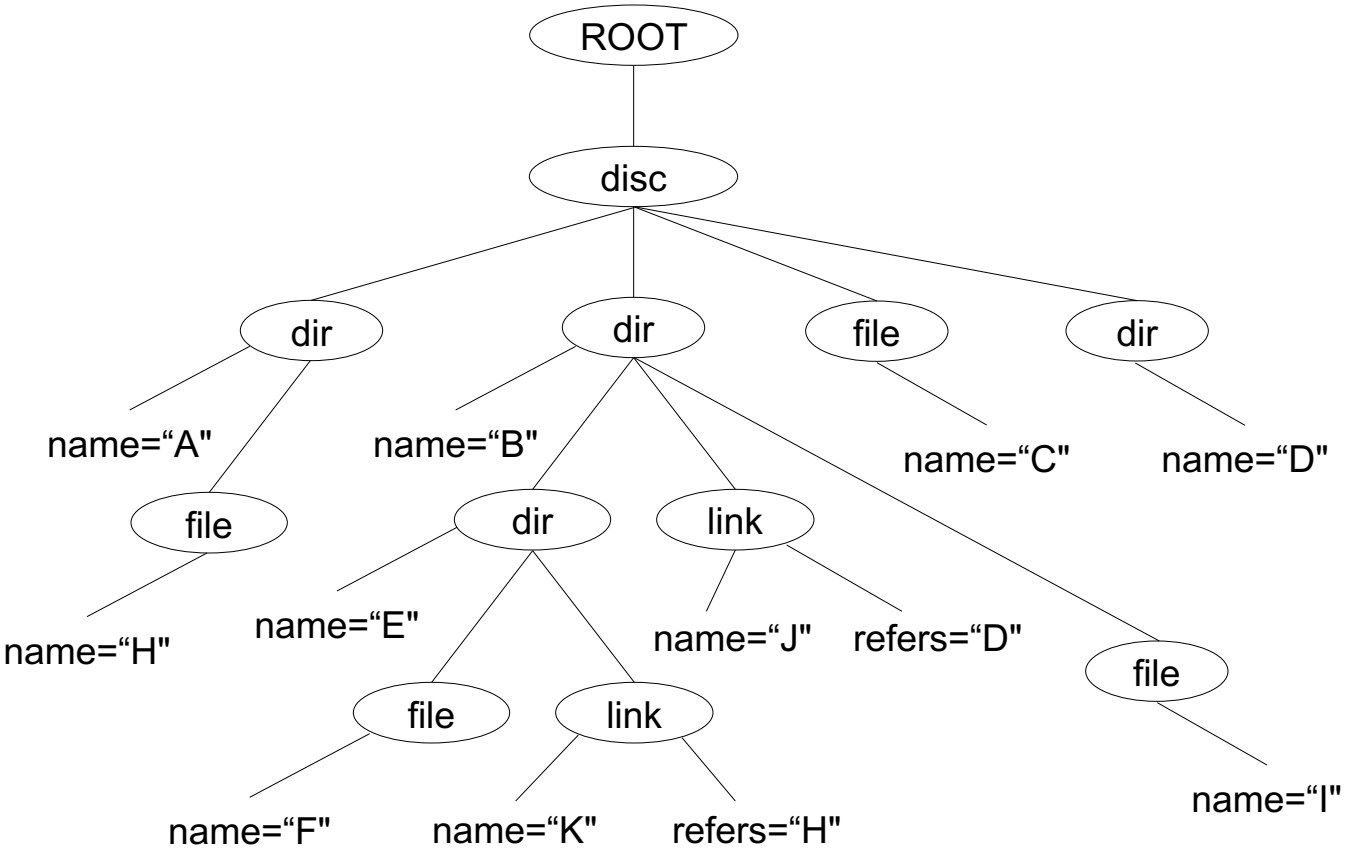
Further Examples



//file[@name="C"]/../@name **EMPTY**

give me the name of the directory of file C

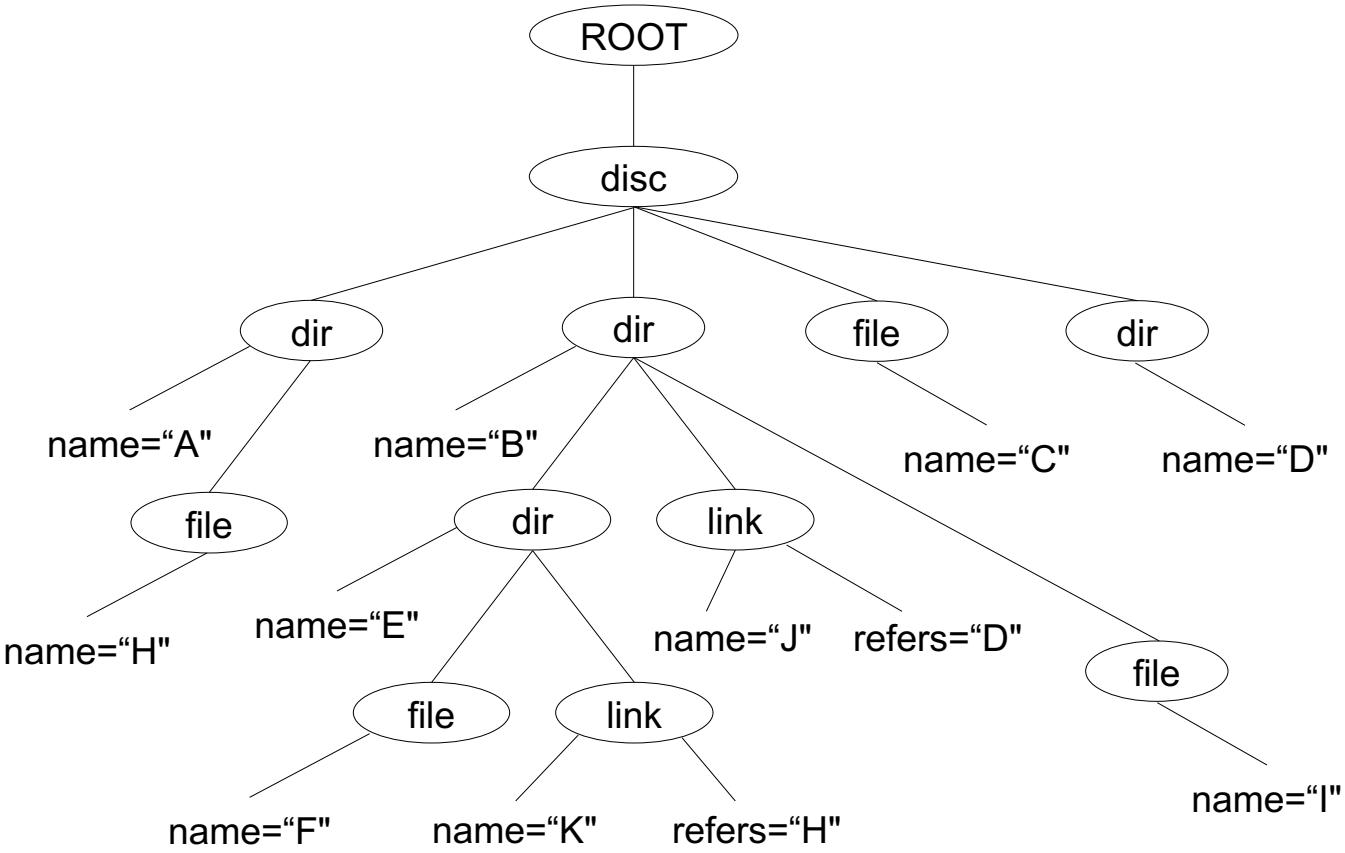
Further Examples



//file[@name="F"]/ancestor::dir[last()]/@name

give me the name of the top directory of file F

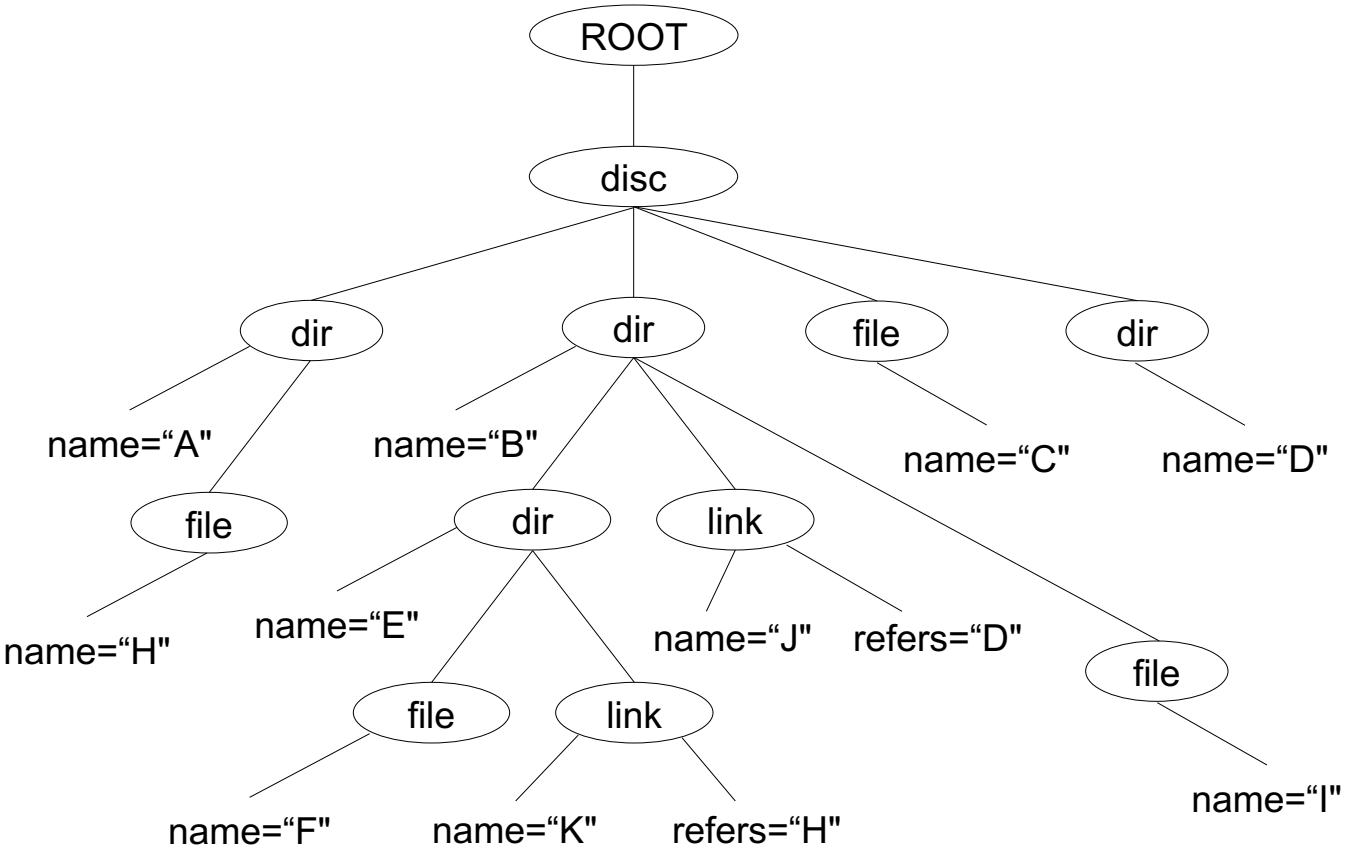
Further Examples



//file[@name=//link[@name="K"]/@refers]/ancestor::dir[last()]/@name

give me the name of the top directory of the file that is being referred by link K

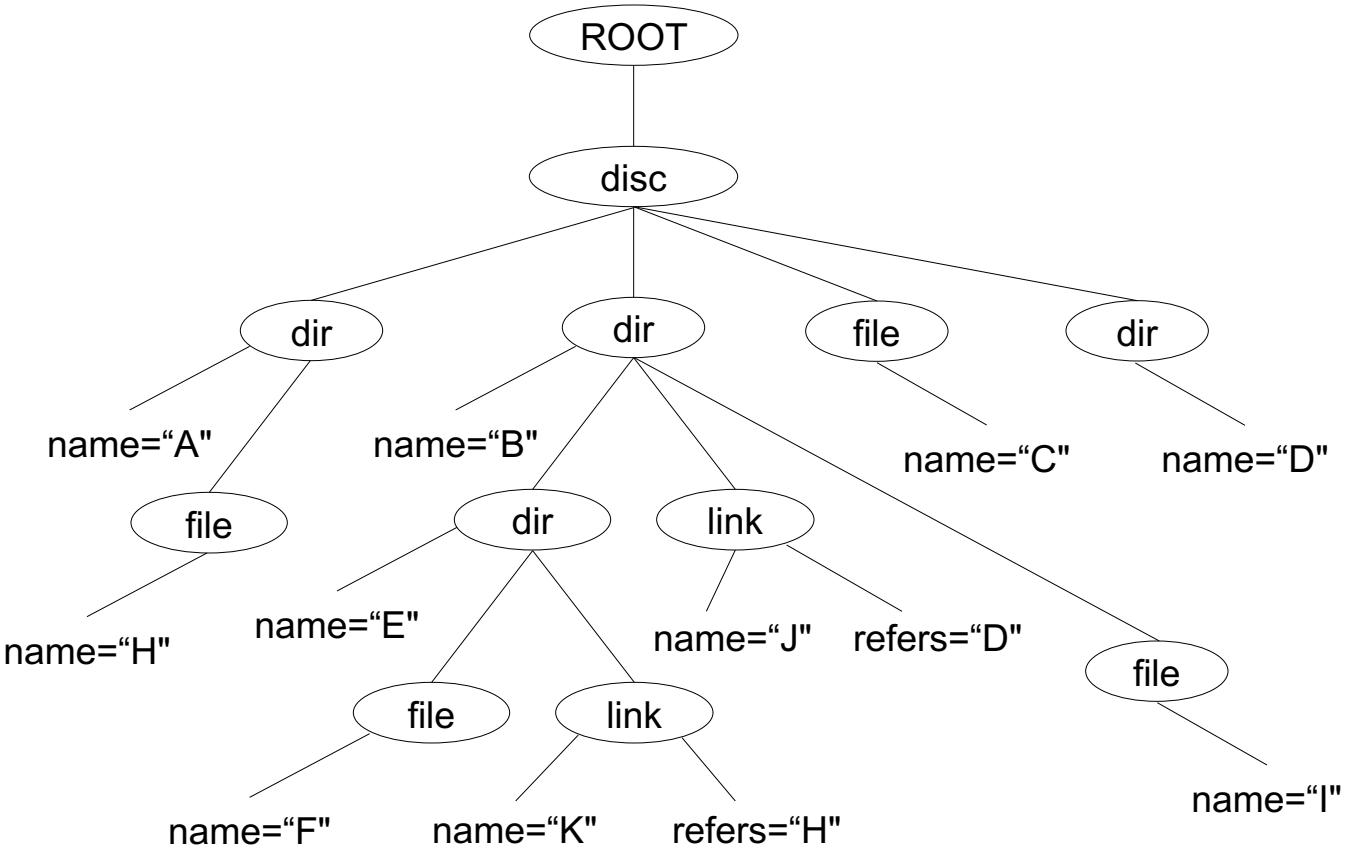
Further Examples



//file[@name="H"]/../@name | //file[@name="I"]/../@name

give me the names of the parent directories of files H and I

Further Examples



//file[@name="H" or @name="I"]/../@name

give me the names of the parent directories of files H and I

The final Example

```
<code>
   <if cond="x=0">
      <code id="fehler">ausgabe: fehler</code>
      <code id="main">
         ausgabe: ok
         <if cond="x=1">
            <code ref="odd"/>
         </if>
      <if cond="x=2">
         <code id="even">ausgabe: even number</code>
      </if>
      <if cond="x=3">
         <code id="odd">ausgabe: odd number</code>
         <code>exit</code>
      </if>
      <if cond="true">
         <code>exit</code>
         <!-- (never) do the loop -->
         <code ref="main"/>
      </if>
      </code>
   </if>
</code>
```

//code[2]

Give me the code elements that are the second code element child of some node

Output:

```
<code id="main">
…
</code>
<code>exit</code>
<code ref="main"/>
```