

A Proposal for Spry, A Syntax-Agnostic Language Front-End In ANTLR

For ANTLR2004

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Spry Syntax Goals

- Free Spry design from syntax debates
- Allow coders with favorite syntaxes to use their own favorite, lowering barrier to entry.
- Allow personal syntaxes
- Code sharing must still “work”
 - Round-trip lossless requirement
- Allow syntax changes in the future
- Allow syntax testing and evolution

Sample Syntaxes

Python style syntax

for i in list:

 if i > 0 and func(i): process(i)

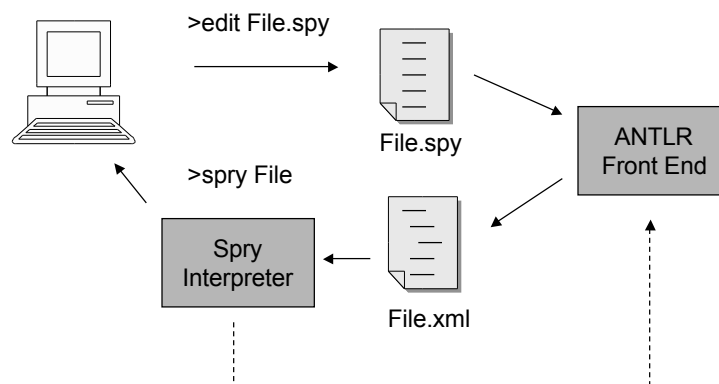
// C# style syntax

foreach (i in list) {

 if (i > 0 && func(i)) process(i);

}

Simple Workflow



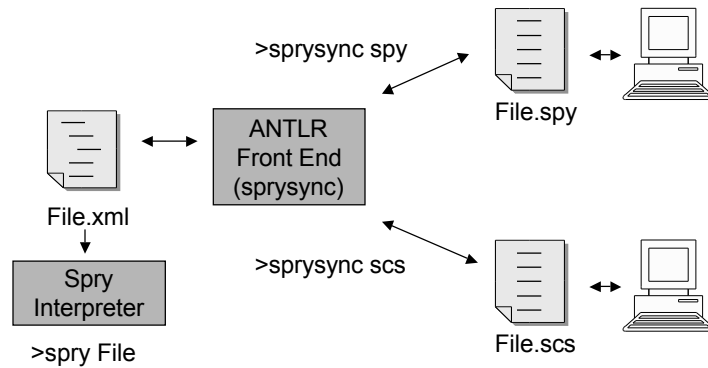
Simple ANTLR Front-End

- Parsing to AST in XML file
- Syntax errors reported here
- Source recoverable from XML file
- External tools may store metadata in XML
- ANTLR coding needed for each syntax
 - Parse, Un-Parse, & Report Error
- ANTLR problem: Requires C# in spec
 - Solution: Design meta-language?
 - Solution: Simple forms based tool?

Code Sharing

- One file editable in different syntaxes
- Switch syntaxes at any time
- Simultaneous editing using different syntaxes if source control used
- Round-Trip requirement
 - Original source must be reproducible
 - Machine translation is not good enough
 - Even when file is edited in different syntax
 - Even when only XML file is kept

Multiple Syntax Workflow



Multiple Syntax ANTLR

- Change detection required
 - Isolates changes to minimize impact
 - Same as source control
 - Change unit is statement not line
 - ANTLR capabilities for change detection?
- Whitespace storage
 - Store entire source?
 - Syntax-independent whitespace?

Syntax Independent Whitespace

```
<and>      <savehorizpos loc="1834"/> <var> a </var>  
           <newline/> <sethorizpos loc="1834"/> <var> b </var>  
</and>
```

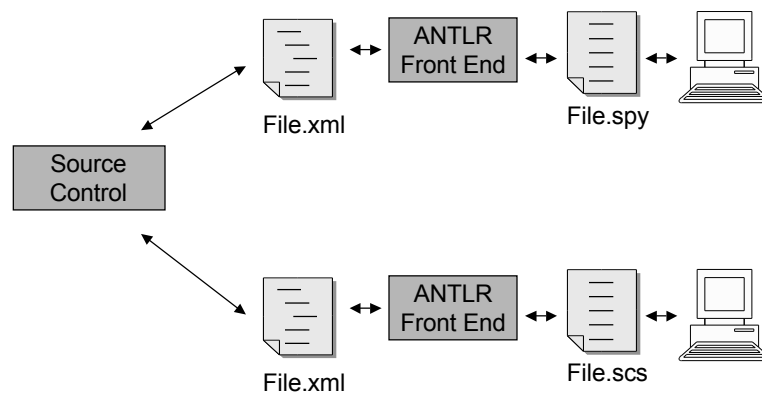
python like syntax

```
a and  
b
```

// C# like syntax

```
a &&  
b
```

Source Control Workflow



Source Control ANTLR

- Can existing CVS or SVN handle XML?
 - Does Spry have special needs?
- If not, an XML diff util is needed
 - Does one already exist?
 - Can it handle Spry?
 - Would an ANTLR one be easy to write?
 - Can it be added to CVS or SVN easily?
- Should we just write entire source control?
 - Could be part of special XML editor

Spry

<http://spry.to>

This talk available at:

<http://spry.to/docs/Spry-ANTLR2004.htm>

Long version at:

<http://spry.to/docs/spry-syntax.htm>