Mets du Rust dans ton Python

Simon Sapin, Mozilla Research

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Python, c’est lent…

SECOND EDITION

THE C PROGRAMMING LANGUAGE

BRIAN W. KERNIGHAN
DENNIS M. RITCHIE

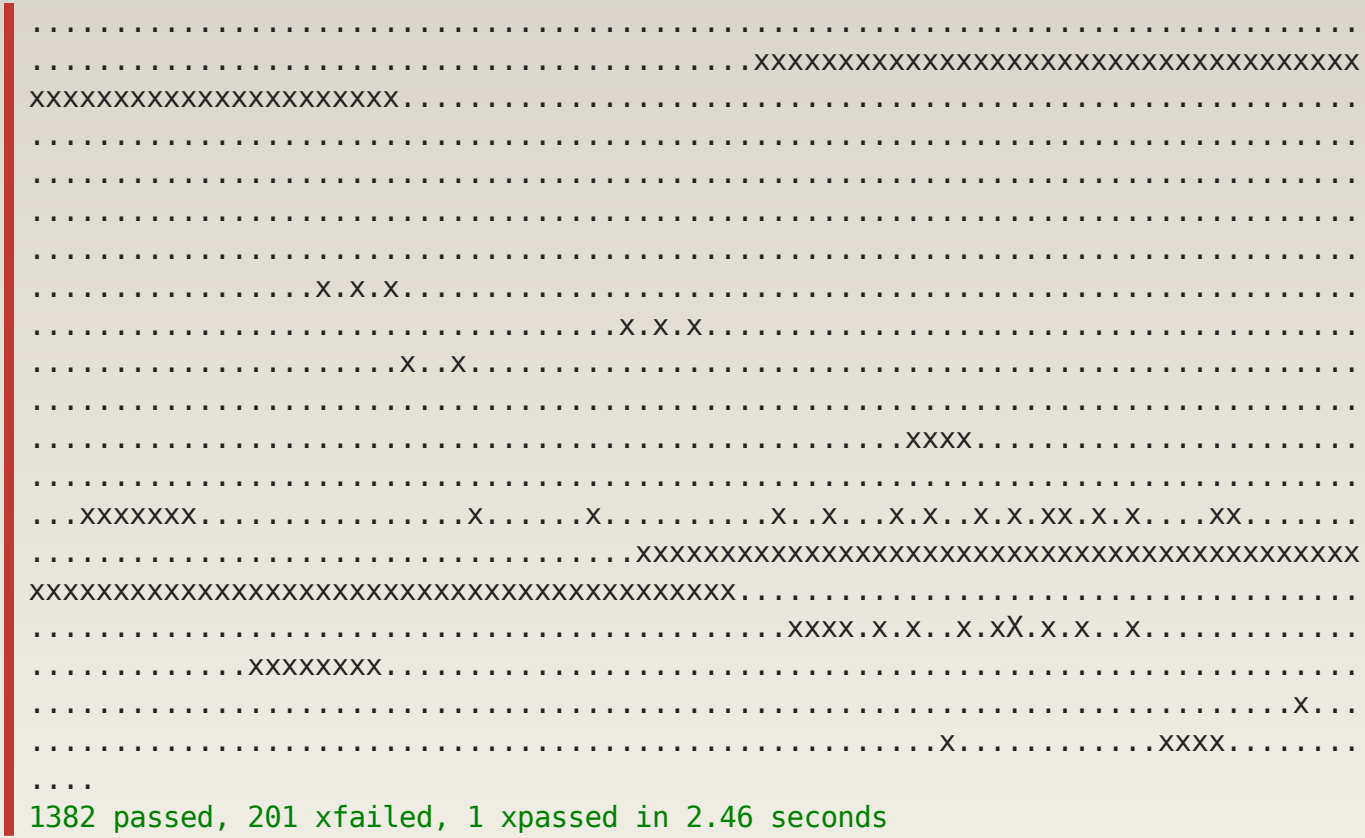
PRENTICE HALL SOFTWARE SERIES


Here
Be
Dragons

```
unsafe {
    // …
}
```

Parseurs HTML

- `html5lib`
- `lxml.html`
- `html5ever`


1382 passed, 201 xfailed, 1 xpassed in 2.46 seconds

lib.rs

```
#[no_mangle]
pub fn double_input(input: i32) -> i32 {
    input * 2
}
```

Cargo.toml

```
# …

[lib]
name = "double_input"
crate-type = ["dylib"]
```

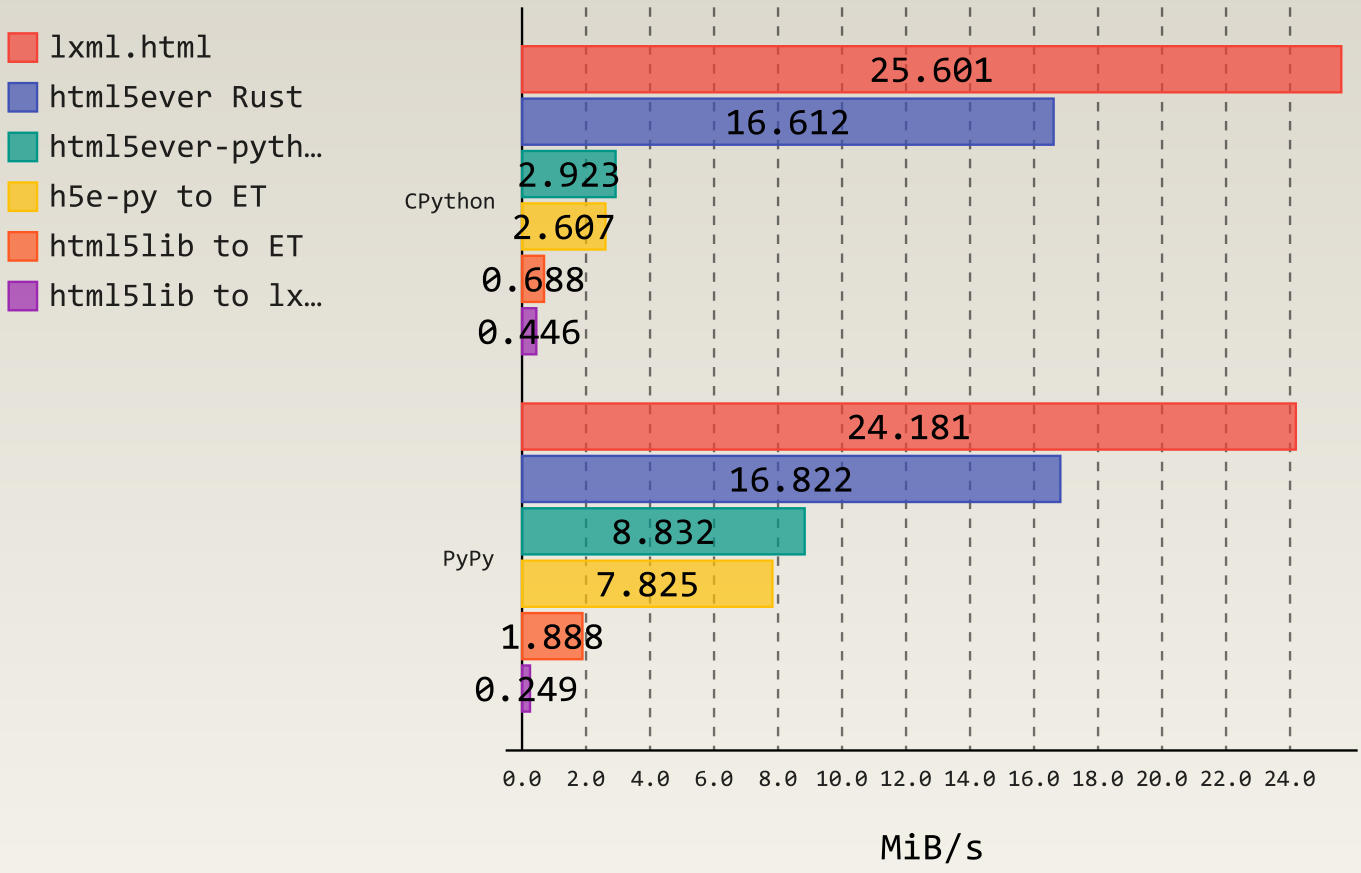
```
$ cargo build --verbose
   Compiling python-to-
rust v0.1.0 (file:///home/simon/projects/
rust-ffi-examples/python-to-rust)
     Running `rustc src/lib.rs --crate-
name double_input --crate-type dylib -g --
out-dir /home/simon/projects/rust-ffi-
examples/python-to-rust/target/debug --
emit=dep-info,link -L dependency=/home/
simon/projects/rust-ffi-examples/python-
to-rust/target/debug -L dependency=/home/
simon/projects/rust-ffi-examples/python-
to-rust/target/debug/deps`
```

__main__.py

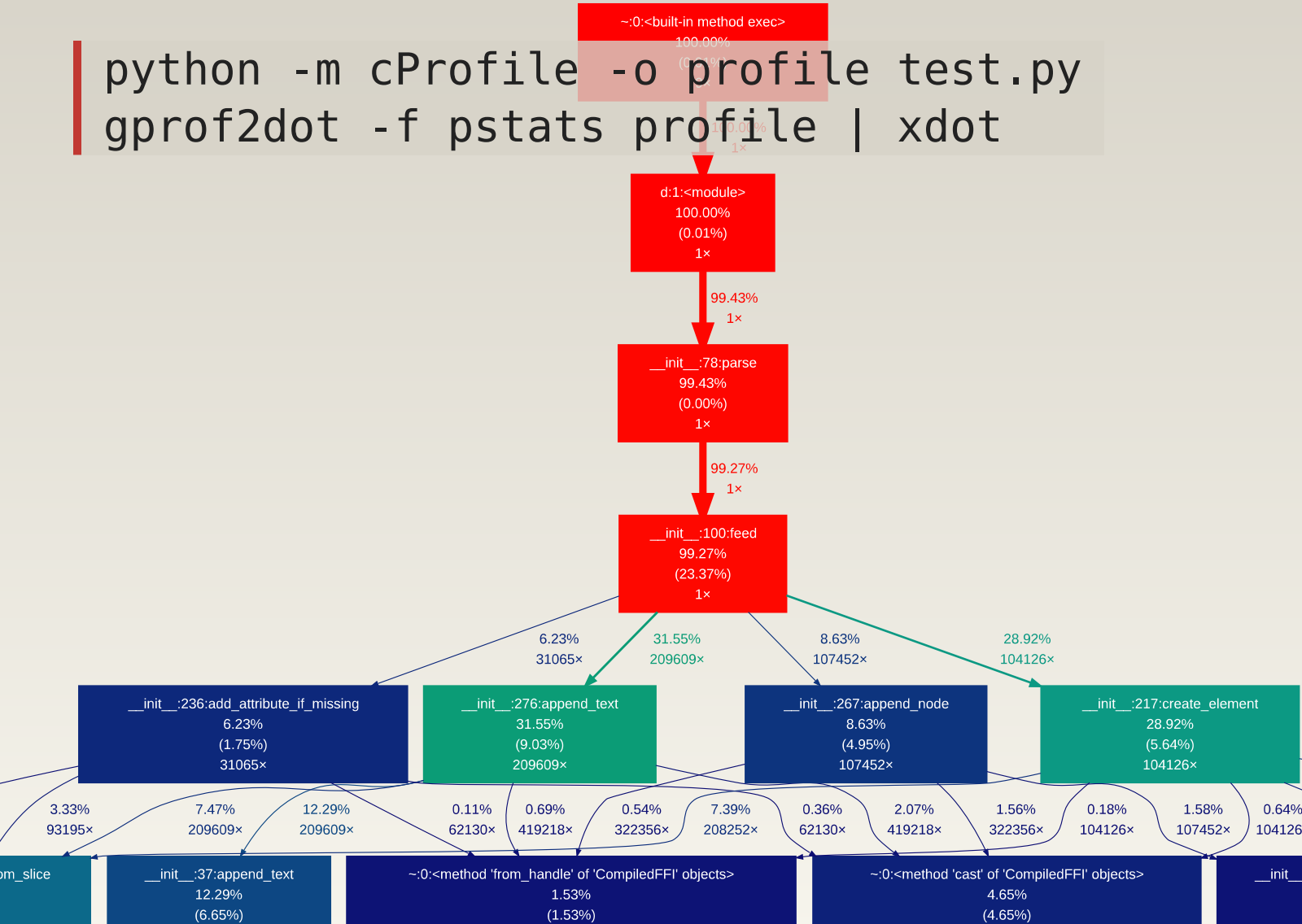
```
from cffi import FFI

ffi = FFI()
ffi.cdef('''
  uint32_t double_input(uint32_t input);
''')
lib = ffi.dlopen('target/debug/
libdouble_input.so')

input = 4
output = lib.double_input(input)
print('%s * 2 = %s' % (input, output))
```

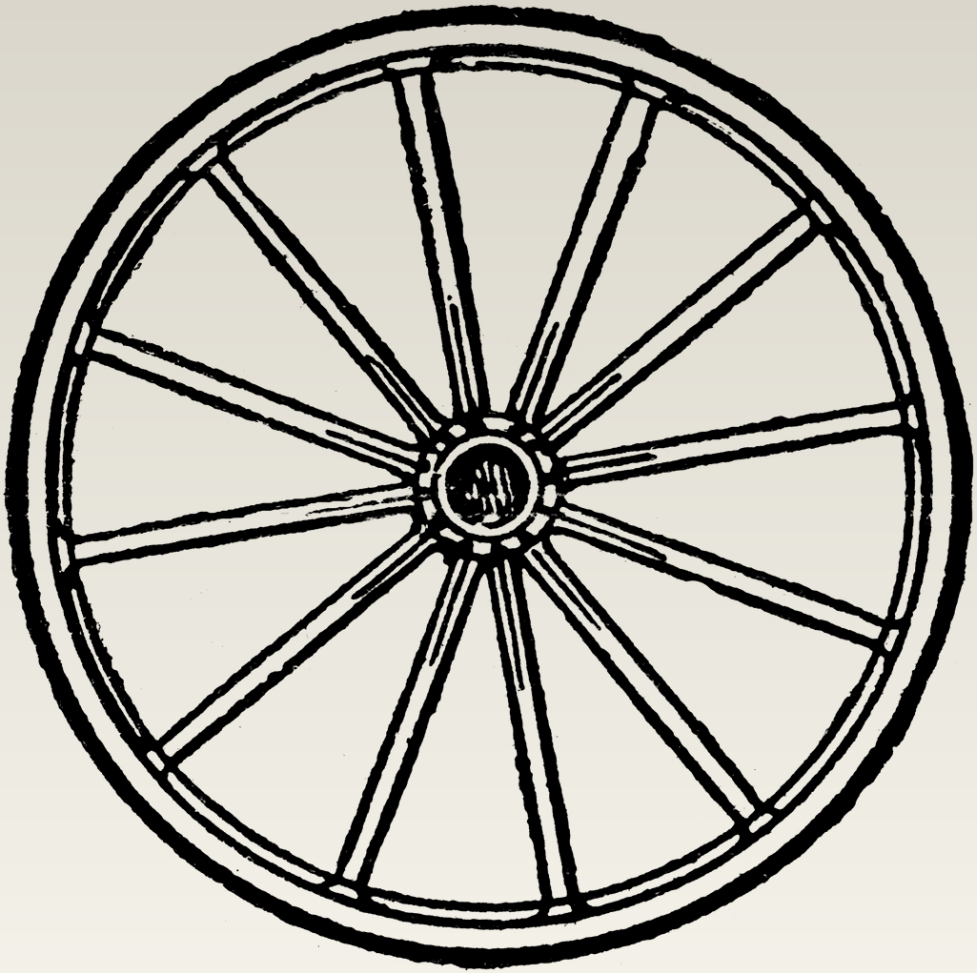
Rust ↔ C ↔ Python

- `str` ↔ (pointer, length) ↔ `str`
- Trait impl ↔ callback function pointers ↔ `class`
- `panic!` ↔ -1 / `NULL` ↔ `Exception`
- opaque ↔ `void*` ↔ `ffi.handle(obj)`
- …


lxml.html
html5ever Rust
html5ever-pyth…
h5e-py to ET
html5lib to ET
html5lib to lx…
CPython
25.601
16.612
2.923
2.607
0.688
0.446
PyPy
24.181
16.822
8.832
7.825
1.888
0.249
0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0
MiB/s

```
python -m cProfile -o profile test.py
gprof2dot -f pstats profile | xdot
```





github.com/SimonSapin/html5ever-python