



# Friends are better with Everything

A User's Guide to PROC FCMP Python Objects in Base SAS

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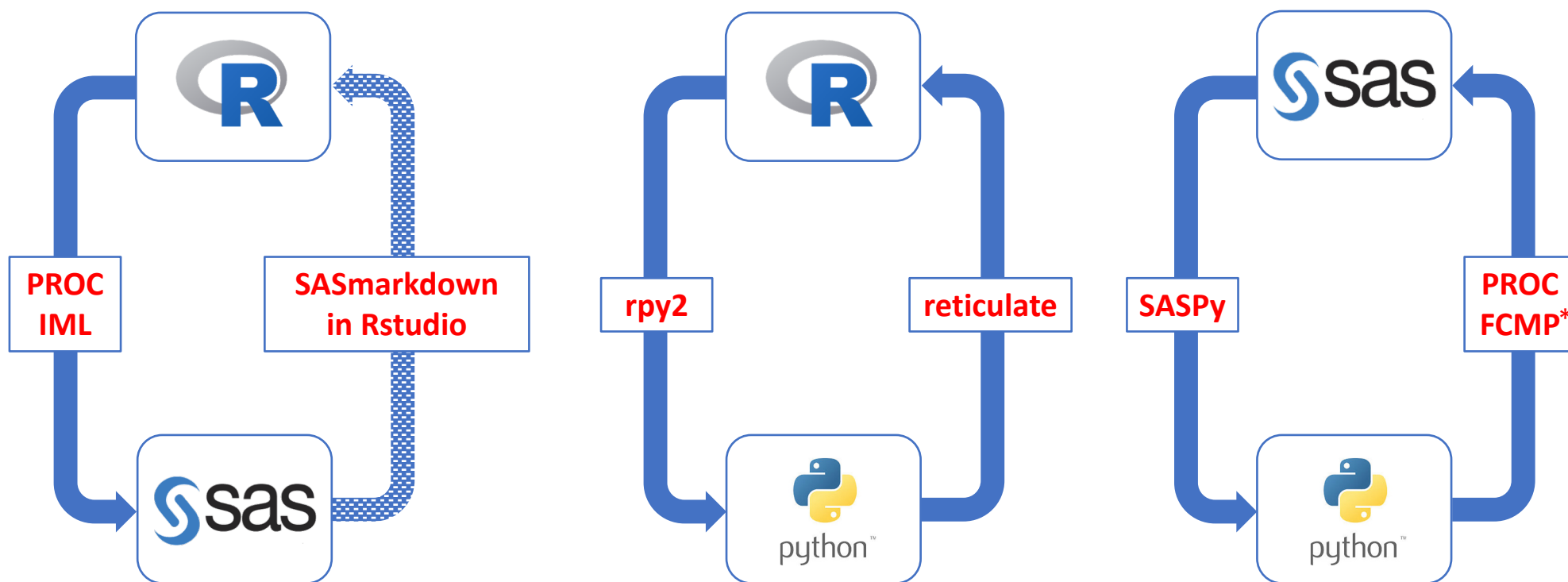
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Example files: <https://github.com/saspy-bffs>

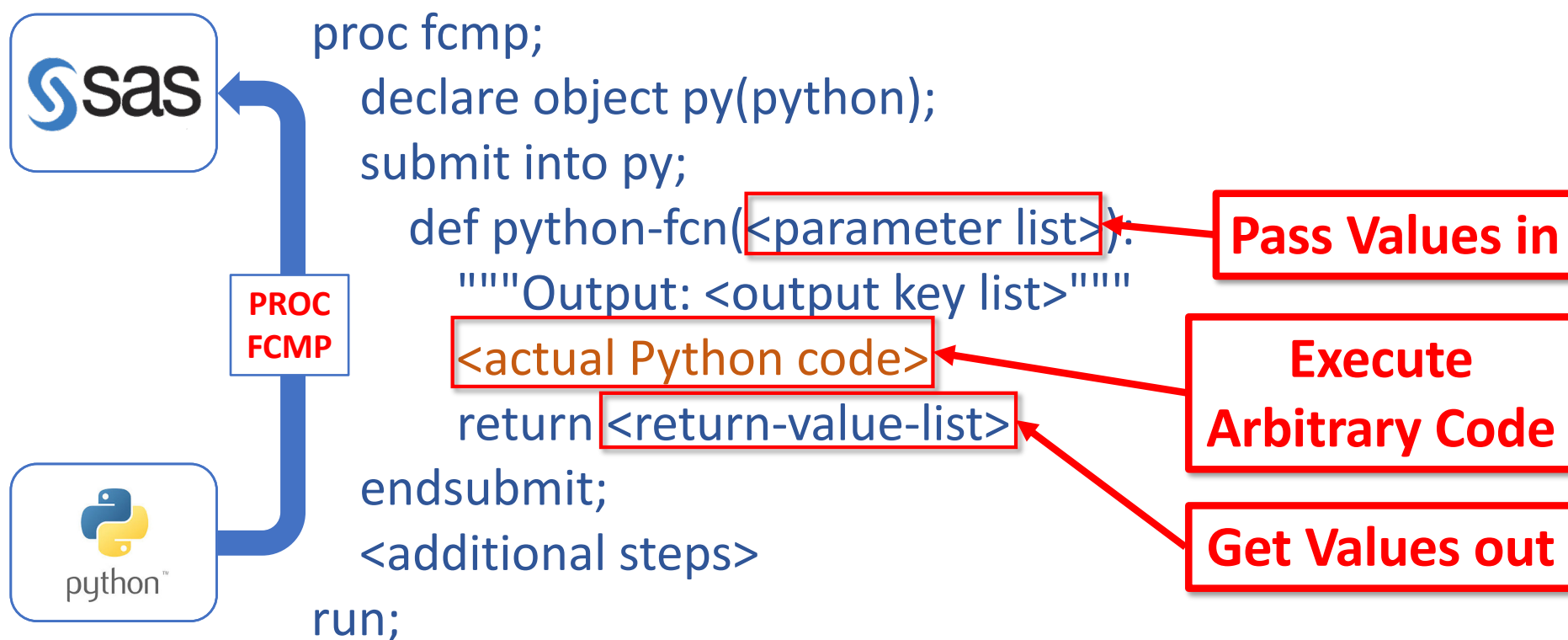
#PharmaSUG2023

# Data Work in a Polyglot World



\* SAS Viya also provides PROC PYTHON

# Embedding Python in SAS Programs



# Functions

vs

# Call Routines

```
options cmplib=work.functions;
proc fcmp outlib=work.functions;
```

```
function hello (name $);
  msg = 'Hello, ' || name;
  return(msg);
endfunc;
```

```
run;
data _null_;
  message = hello ('PharmaSUG');
  put message=;
run;
%put %sysfunc(hello ('PharmaSUG'));
proc sql; select hello(...) into ...
```

**one or more  
input values**

**only one  
output value**

**usable  
in many  
places**

```
options cmplib=work.functions;
proc fcmp outlib=work.functions.sas;
```

```
subroutine hello_goodbye(name $, msg1 $, msg2 $);
  outargs msg1, msg2;
  msg1 = 'Hello, ' || name;
  msg2 = name || ', Goodbye!';
endsub;
```

```
run;
data _null_;
  call hello_goodbye('PharmaSUG', msg1, msg2);
  put msg1= / msg2=;
run;
%syscall hello_goodbye(PharmaSUG, msg1, msg2);
```

**one or more  
output values**

**usable in fewer places**



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## Code Vignettes

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**Theme.** Strategically using Python to enhance SAS programming

**Example 1.** Python in PROC FCMP hello-world (as a function)

**Example 2.** Email Validation (using Python inside a function)

**Example 3.** Python in PROC FCMP hello-world (as a call routine)

**Example 4.** Geocoding (using Python inside a call routine)

**Example 5.** [if time allows] Turning YAML into a SAS Dataset

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## Call to Action!

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**Takeaway.** Using SAS and Python together, each according to its strengths, is the "best of both worlds"

**Read.** PharmaSUG 2023 Proceedings Paper AP-049  
(Python in SAS via PROC FCMP)

**Read.** WUSS 2019 Proceedings Paper 142  
(SAS in Python via the Python package SASPy)

**Replicate.** Full paper and example code on GitHub

