GuixHPC

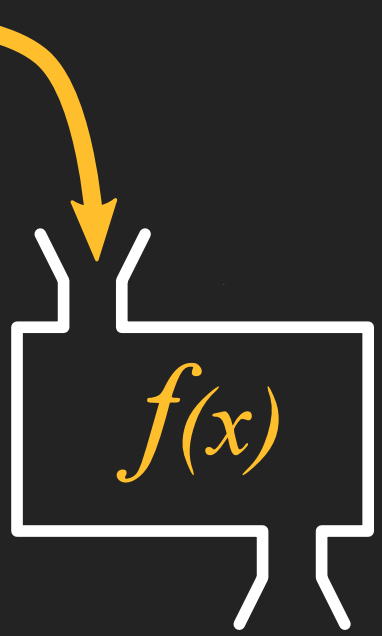
reproducible software deployment for HPC

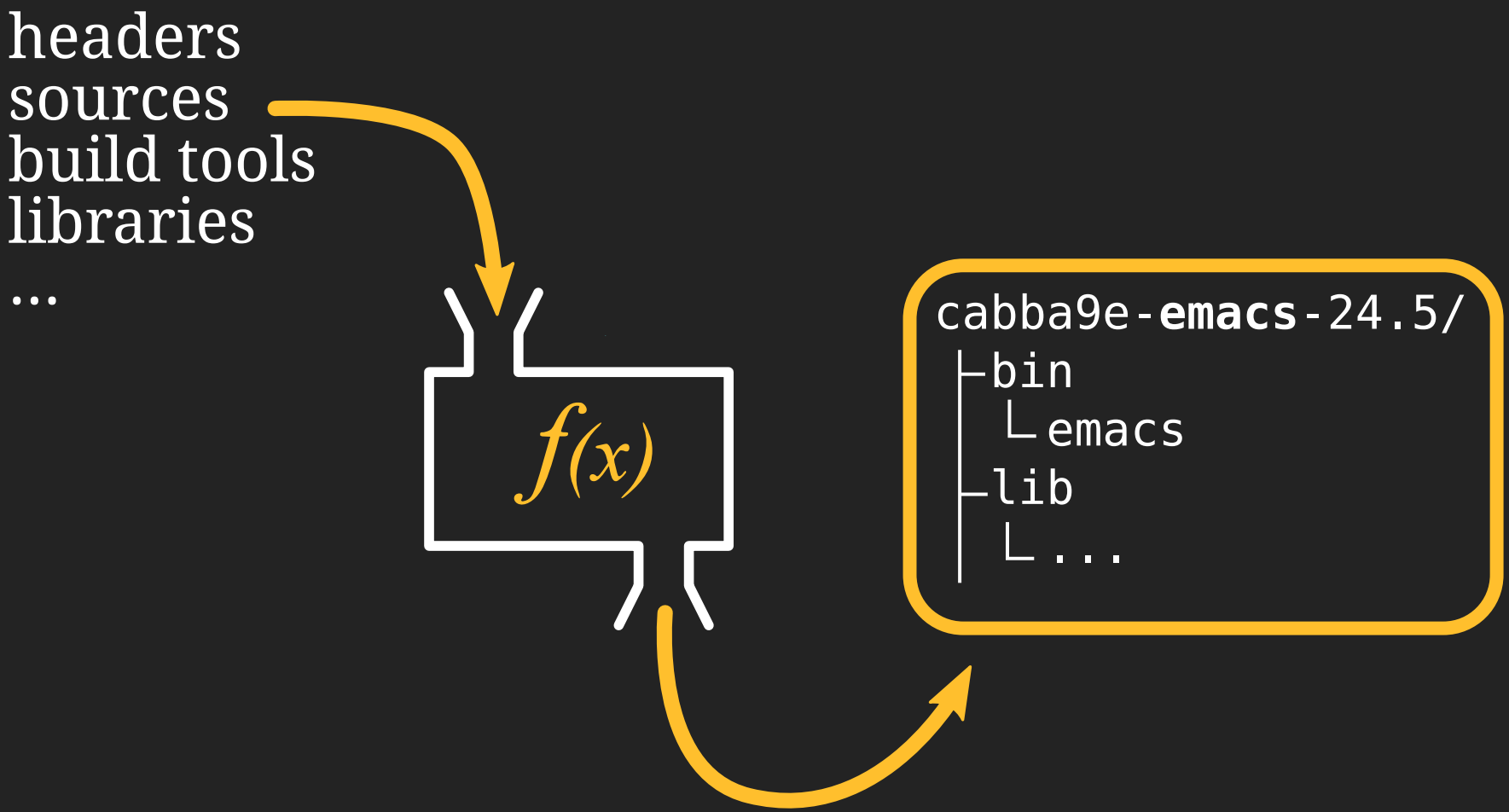
Ricardo Wurmus + Altuna Akalin

3rd EasyBuild User Meeting, 2018, Amsterdam

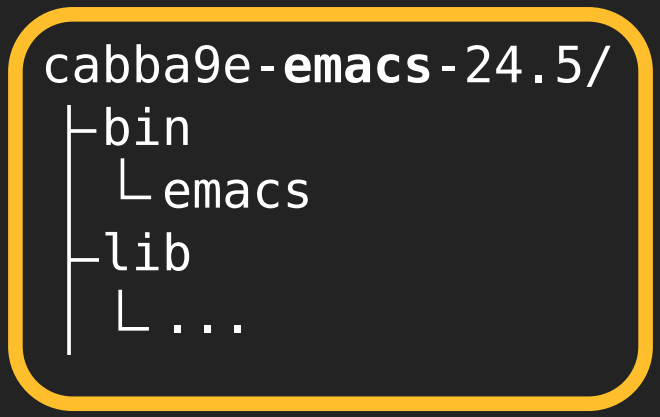
f(x)

headers
sources
build tools
libraries
...



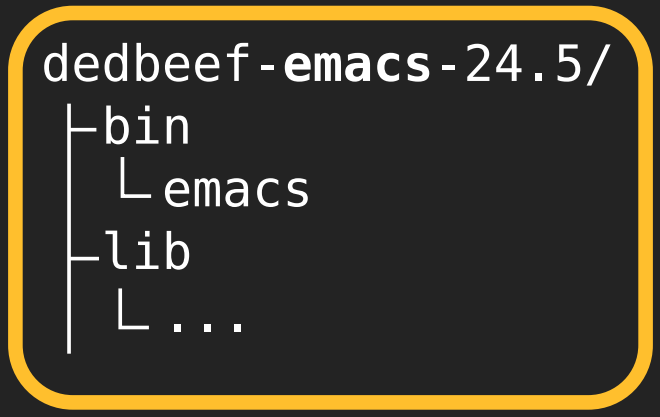

headers
sources
build tools
libraries
...
f(x)
cabba9e-emacs-24.5/
bin
emacs
lib
...

Same inputs?

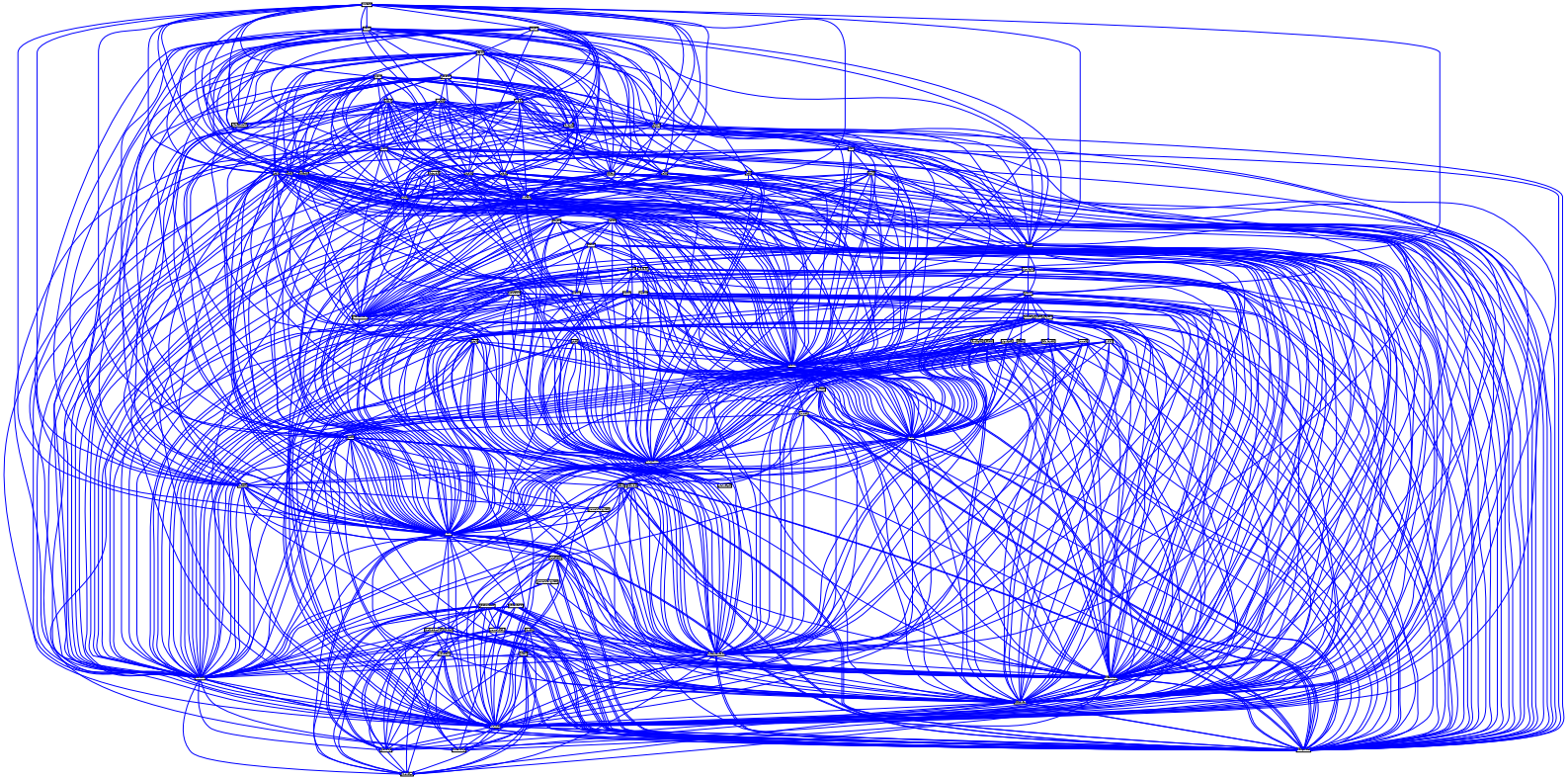


Same output!

Different inputs?

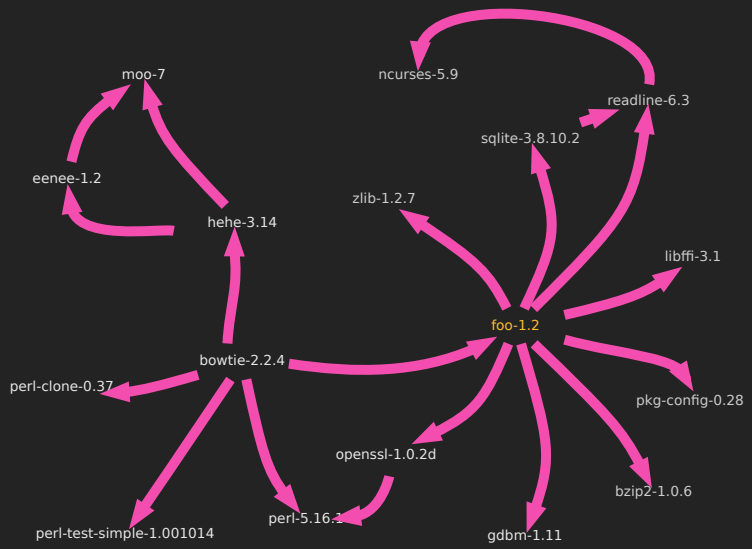


Different outputs



Scientists

guix package -i foo --with-input hello=bye



Scientists

guix package --profile

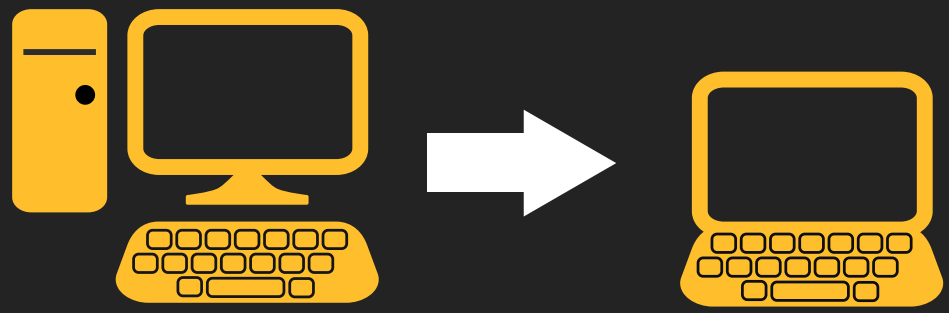
Scientists

guix package --manifest

```
(specifications->manifest
  (list "samtools"
        "star"
        "r-minimal"
        "r-rcas"))
```

Scientists

guix package --manifest



Scientists

per-project profiles

fully specified environments

describe, share, reproduce

precision experimentation

Developers

guix environment hello
--ad-hoc
--container

Developers

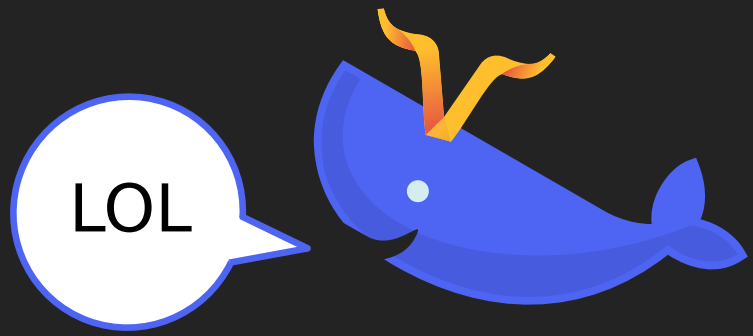
```
guix build --sources foo
guix build foo --with-sources /my/foo
```

Developers

guix pack salmon sailfish star

Developers

guix pack --format docker
salmon sailfish star



HPC admins

How much space does this need?

guix size

But why is this so large?

guix graph

What did they really mean by "lightweight"?

HPC admins

remove only provably unused software

`guix gc`

what variants are in use?

what depends on this vulnerable package?

HPC admins

No more version/variant conflicts: let the users decide

Keep track of installed and unused applications

Save space with deduplication

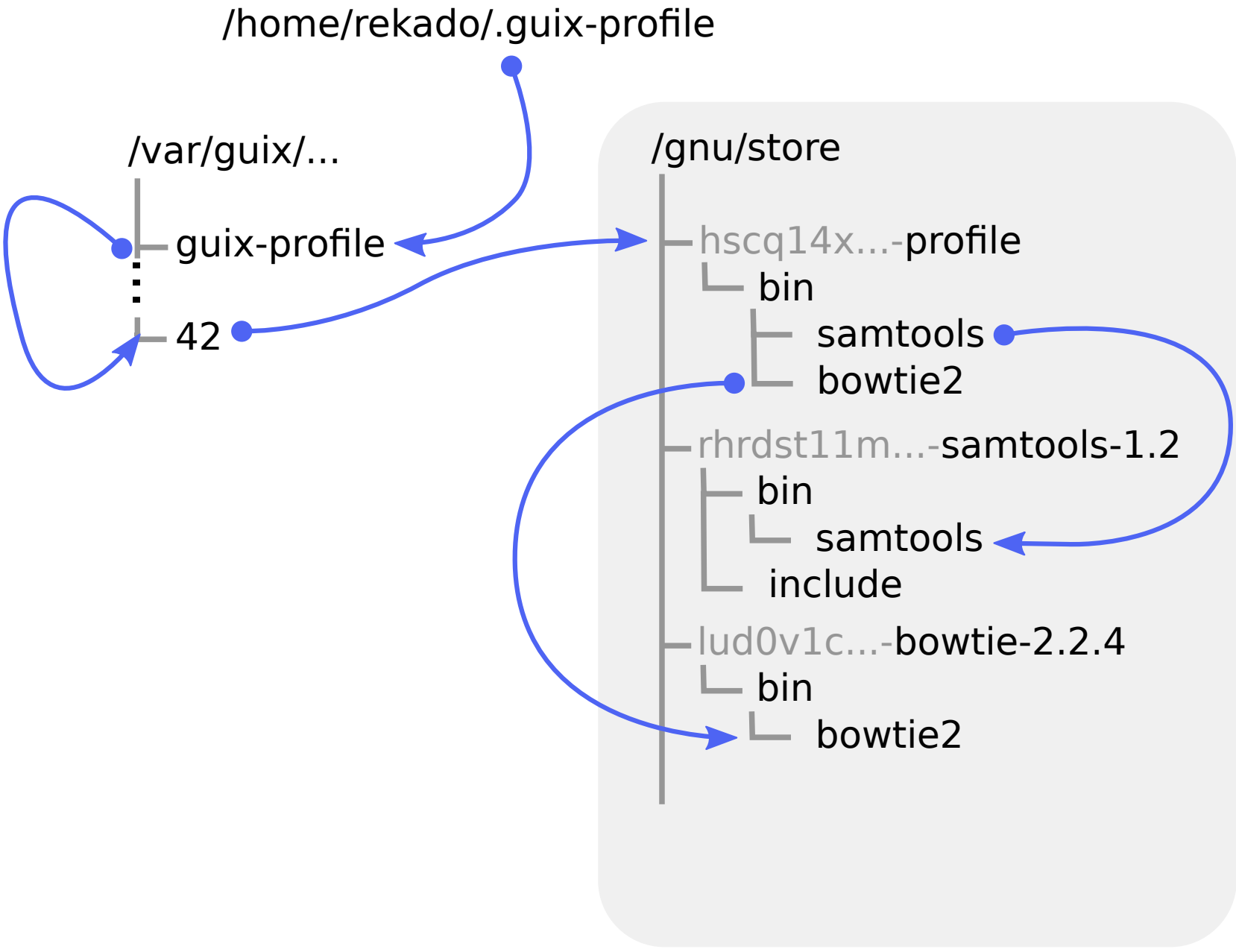
No more trouble with environment modules

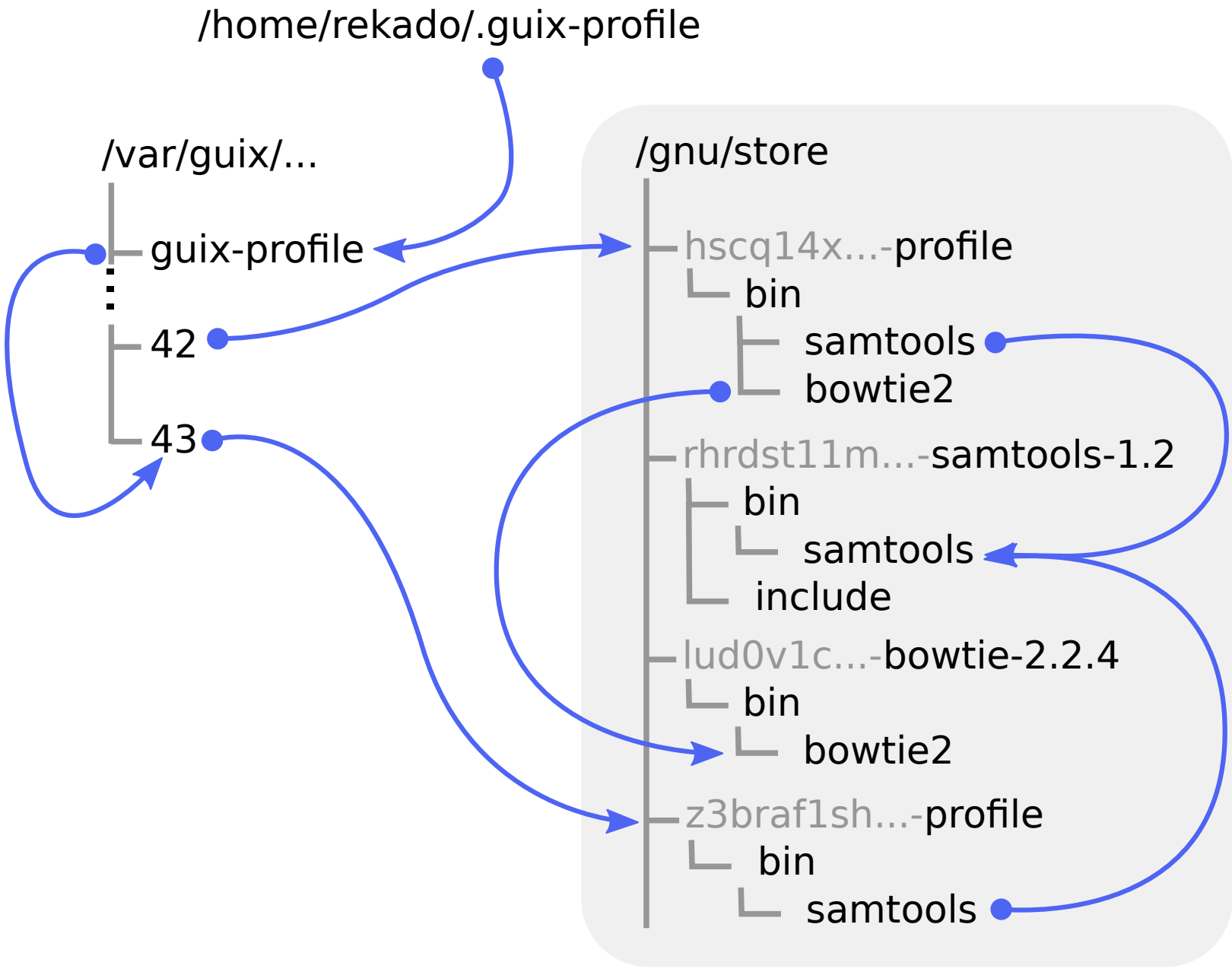
Let's talk!

#guix on irc.freenode.net

https://hpc.guixsd.org

ricardo.wurmus@mdc-berlin.de


/home/rekado/.guix-profile
/var/guix/...
guix-profile
42
/gnu/store
hscq14x...-profile
bin
samtools
bowtie2
rhrdst11m...-samtools-1.2
bin
samtools
include
lud0v1c...-bowtie-2.2.4
bin
bowtie2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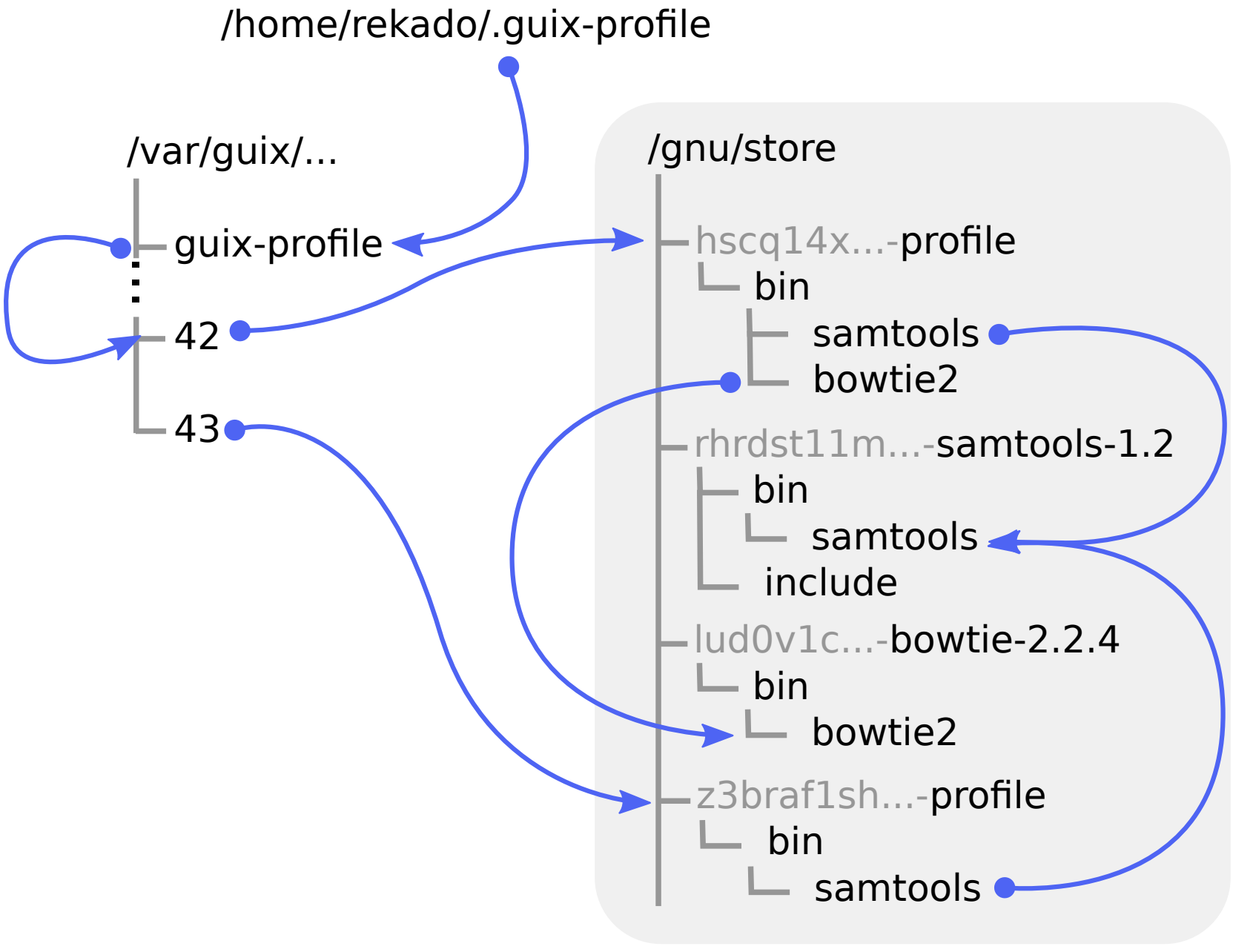
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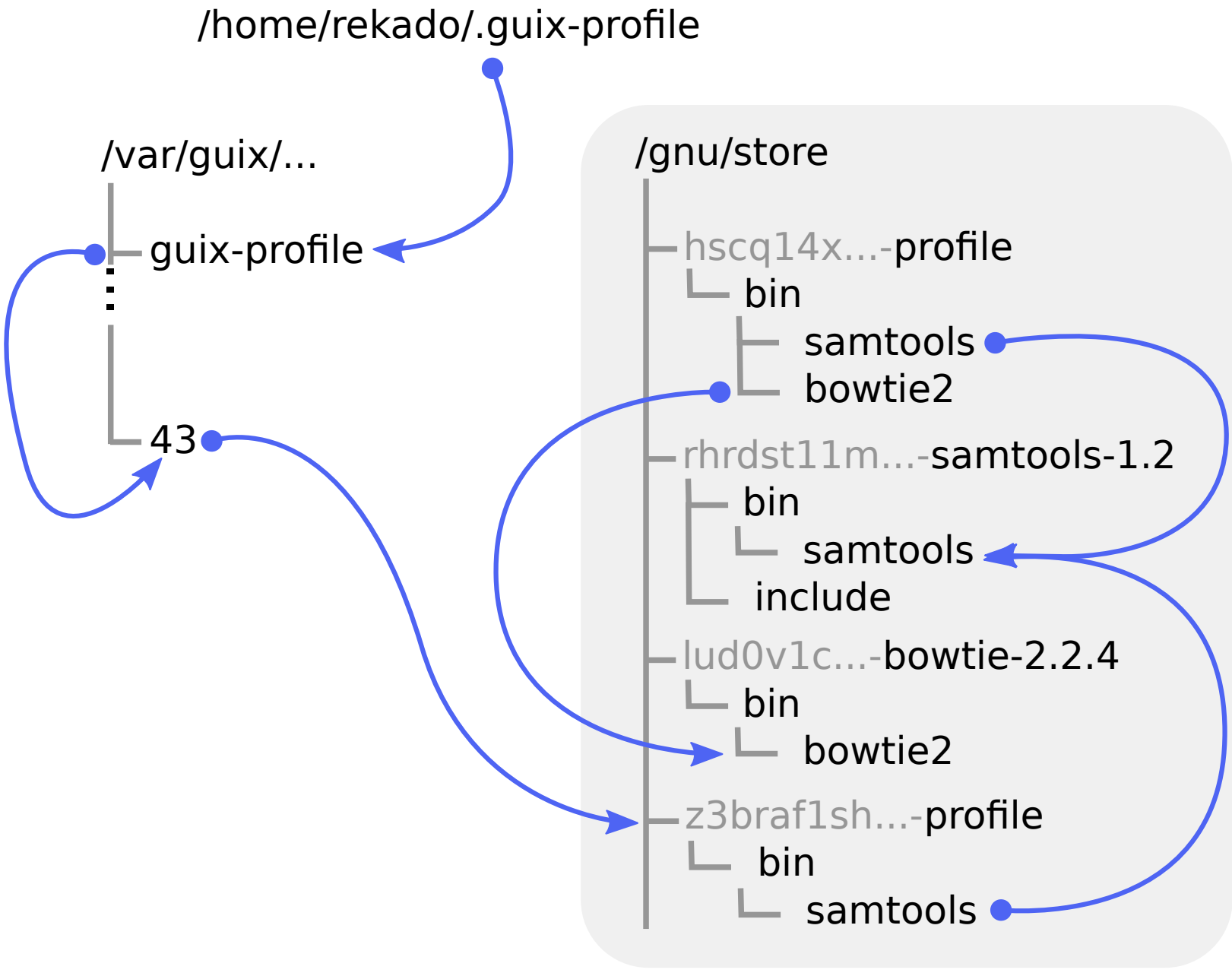
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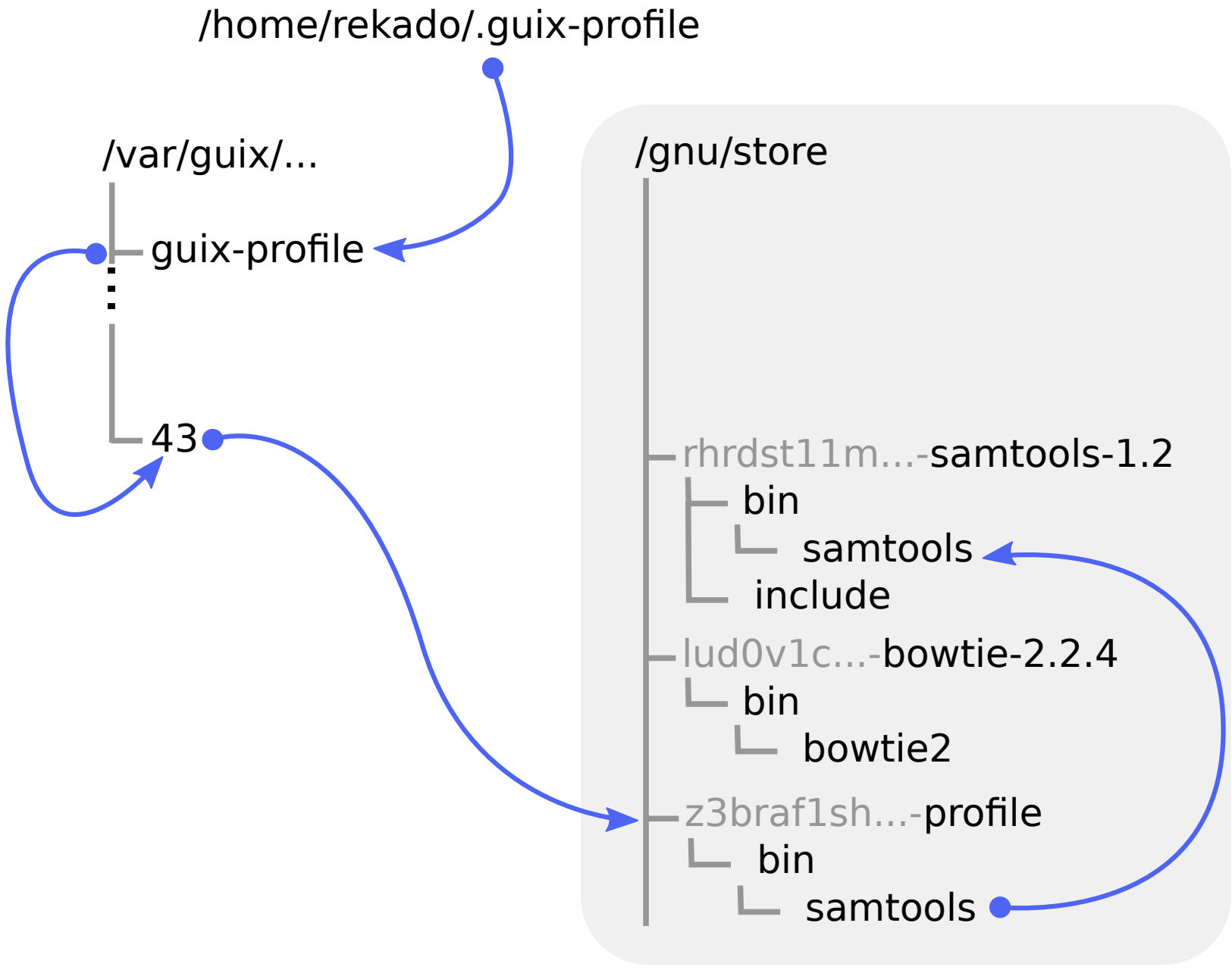
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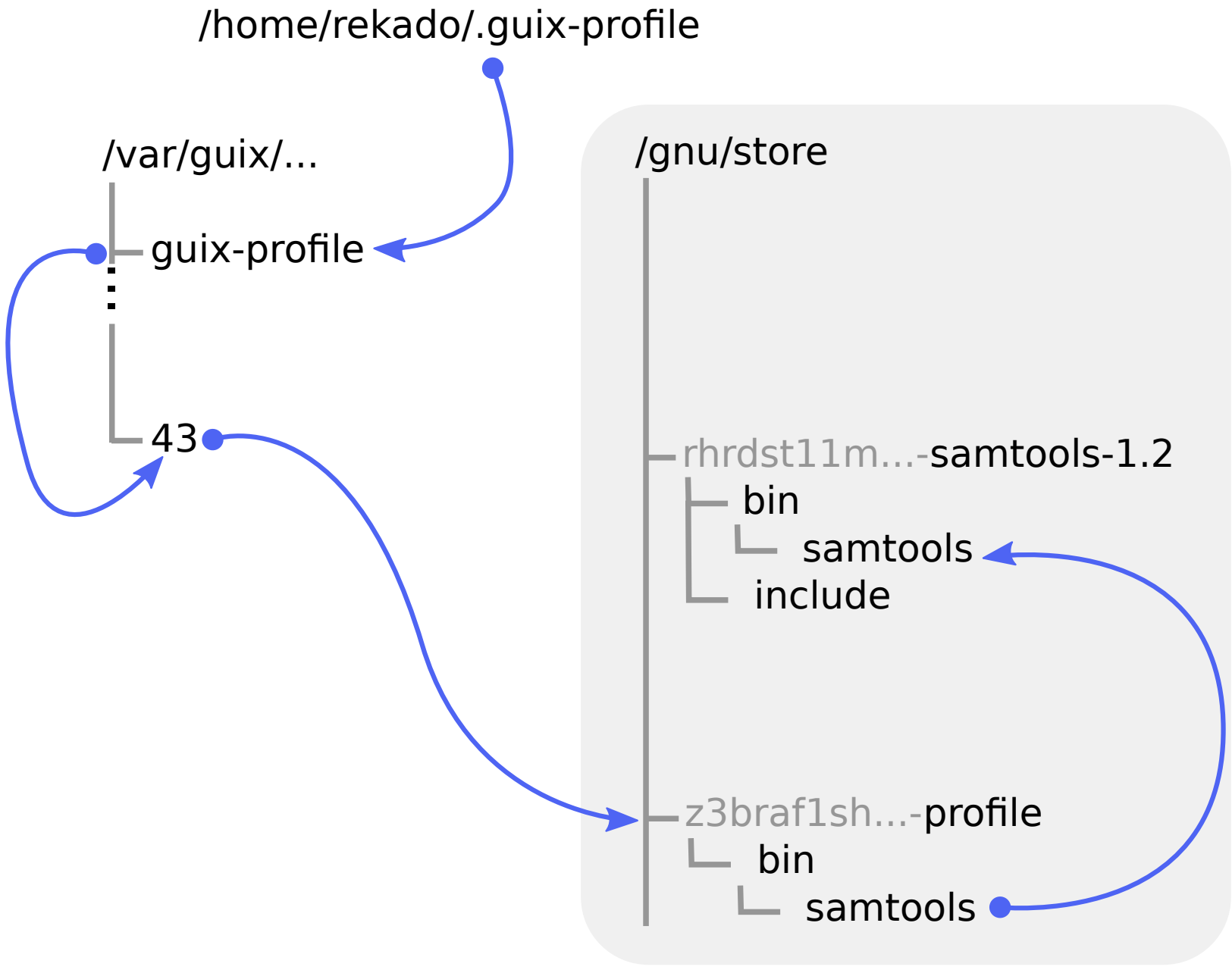
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