

Extensibility for Two-phase Unwinding in Exception Handling

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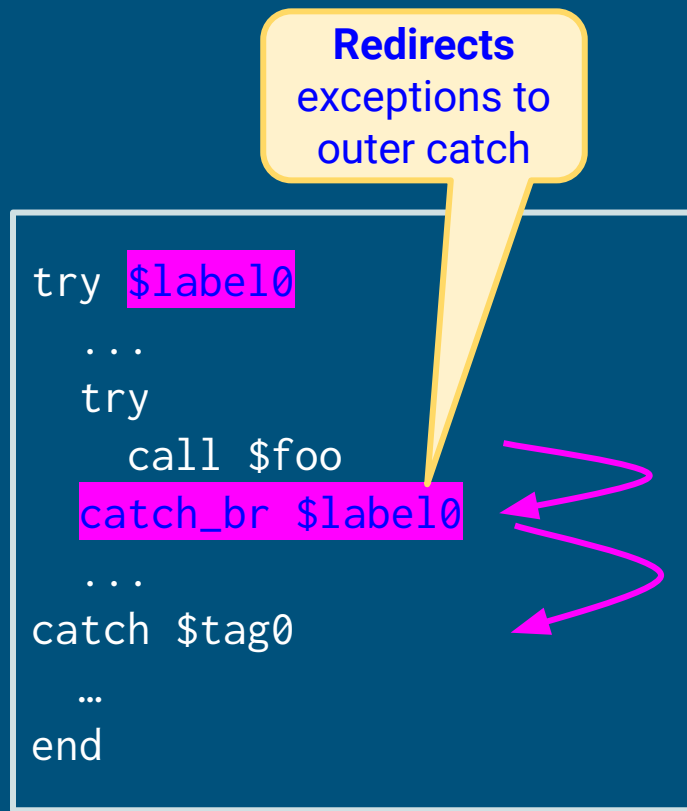
Suggested Changes

- Remove `exnref` and go back to the first proposal, with some changes:
 - `catch_br` instruction
 - Splitting `catch` and `unwind`

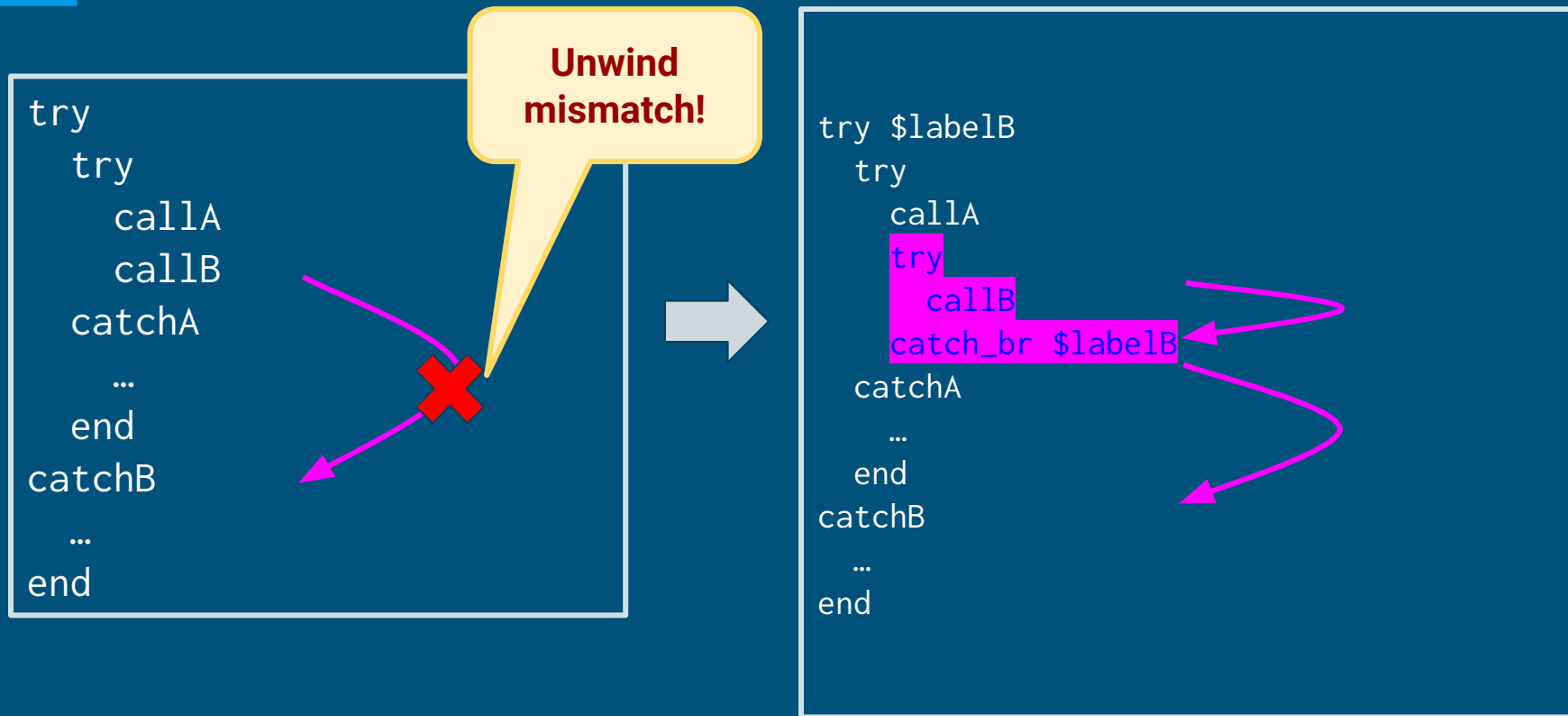
```
try
  ...
catch $tag0
  ...
catch $tag1
  ...
catch_all
  ...
end
```

Add `catch_br` Instruction

- Does not have a tag or a filter
- Only *redirects* exceptions to another catch in outer scope
- Does not have a catch body and thus no matching end instruction
- Can be examined *statically* by first phase search



Fixing Unwind Mismatches Revisited



Split catch and unwind

- Second (cleanup) phase runs destructors while unwinding the stack
- We need a way to *resume* the second phase after running destructors
 - rethrow is different; it starts a new two phase search
- At the end of unwind block, the second phase automatically resumes
- Unlike catch, unwind does not take a tag or a filter (in the presence of two-phase)

```
try
  ...
  unwind
    destructor code
end
```

Discussions
