

```
bash(find ... |head -10)
```

```
/repo/src/target.py  
/repo/test/test_target.py  
...
```

```
bash(cat target.py << 'EOF'  
... EOF)
```

```
Command succeeds: exit 0.
```

```
bash(python -c "...")
```

```
func@20 output "True"  
...(output of py script)
```

(a) Bash only: Bash is the only available tool.

```
grep(/repo, "set*msg")
```

```
/repo/src/target.py:32:  
def set_input_msg(...
```

```
view(target.py, 20, 65)
```

```
20: def func(...)  
21: ...  
...  
65: return True
```

```
edit(target.py, old, new)
```

```
Replaced old with new.
```

(b) Bash+Atomic: Bash augmented with simple atomic tools for searching, viewing, and editing code.

```
hypo("H2: The error is caused by  
...", confidence=0.6)
```

```
Hypothesis tracked. Here are  
hypotheses so far:  
[Validated]H1:... Conf: 0.9  
*[Open]H2:... Conf: 0.6  
*: new added
```

...

```
hypo("H2:... Invalidated",  
confidence=1.0)
```

```
Hypothesis tracked...  
*[Invalidated]H2:...Conf:1.0  
*: changed
```

(c) Bash+HypoTrack: Bash augmented with a tool for recording and updating intermediate hypotheses.

```
scratchpad("The issue is  
... The user said not to  
install..., so we need to  
...")
```

```
Scratchpad updated.  
History length: 2.  
Latest scratchpad length:  
1631 chars
```

(d) Bash+Scratchpad: Bash augmented with a scratchpad tool for recording intermediate reasoning.

```
nl_search("raise  
CalledProcessError")
```

```
Here are the files that may  
raise this error:  
/repo/src/file1.py  
20: ...  
21: ...  
...  
/repo/src/file2.py  
...
```

(e) Bash+NLSearch: Bash augmented with a search subagent for repository exploration from NL queries.

```
Let's look at the issue closely  
and fix by ...
```

```
<python>  
for file in os.walk (...):  
    for line in file:  
        if ... in line:  
            new_line = line.replace(...)  
            #...(write new lines)  
</python>
```

```
...(output of py script)
```

(f) Python only: Python is the only available tool; the agent writes Python code blocks instead of issuing tool calls.