

????-Harness12????

????????????????x Harness 12 ?? ?????

```
“ [ ] Agent/design/[ ] .md [ ] Agent/design/Agent-Harness[ ]  
[ ] .md [ ] 12 [ ] Harness [ ] [ ] “ [ ] “ [ ]  
Anthropic/OpenAI/LangChain [ ] [ ] [ ] [ ]  
[ ] [ ]
```

????????

#	Harness []	[]	[] []	[]
1	Orchestration Loop	[] []	\$4.5 [] / [] \$4.5.4 []	"[] "= dumb loop []
2	Tools	[] []	\$4.4.7 Frame [] \$5.4	[] ToolRegistry + [] PDF []
3	Memory	[] [] + []	\$2.2 [] \$4.2 [] \$4.3 [] \$5.1	[] / [] [] Claude Code []
4	Context Management	[] [] + []	\$3.4 [] \$4.4 [] \$4.4.7 [] \$4.4.8 [] \$6.1 [] \$6.3	[] + "[] " [] []
5	Prompt Construction	[] []	\$5.3 [] \$3.1 [] \$4.5.1	[] + []
6	Output Parsing	△ []	\$4.4.3 [] \$5.3	[] "LLM [] [] " [] native tool calling []

#	Harness			
7	State Management		\$4.4.2 \$4.4.6 \$5.1	Frame + SUBFRAME_DONE git checkpoint
8	Error Handling	△	\$4.4.3 \$4.4.5	" " "+" "
9	Guardrails & Safety	△	\$4.1 \$6.6 \$3.1	" " + " + " " tripwire /
10	Verification Loops	△	\$4.4.4 \$4.5.2	" " " LLM-as-judge rules-based / visual
11	Subagent Orchestration		\$4.4.3 \$4.4.6 \$6.3	SubFrame nested-to-tree Fork/Worktree
12	Long-Horizon Execution		\$4.5.4 \$6.4	" " + " " + " " = " Ralph Loop

Guardrails & Safety 12 7 3 2 Output Parsing

????????

1. Orchestration Loop?????— ? ??

Harness TAO Thought-Action-Observation —assemble prompt → call LLM → parse → execute tools → loop Anthropic "dumb loop"

- \$4.5 / "dumb loop"
- \$4.5.4 " " " " ↔

- §2.4 在 "..." / ... / ... "—" TAO

loop ... + ... "harness ... " ... Anthropic ... dumb

2. Tools????— ???

Harness ... Schema ... name/description/parameters ... Tool
 Claude Code ... 6 ...

...

- §4.4.7 **Frame** ...
 - ... ToolRegistry ... Frame ...
 - ... memory/* ... frame/* ... file/* ... skill/*
 - ... Frame.Next() ... prompt ... / ... **System** ...
- §5.4 ... **LLM** ... Frame/Action ...

... **PDF** ...

- "Registry + ... + ... " ... **Harness** ... **6** ... **Tool**
Scoping ... Vercel ... 80% ...
- ... Claude Code ... " ... / Skills" ...

3. Memory????— ??? + ???

Harness ... session ... + ... session ... Anthropic ... **agent** ... **hint**
 ~150 ... → ... → ... transcript ...

...

- §2.2 ... " ... "
- §4.2 ... Frame ...
- §4.3 ...
- §5.1 ...

... **Claude Code** ...

- Claude Code ... CLAUDE.md + MEMORY.md ...
- ... + **Info** ... + ... \$4.3 ... WeaveAgentDesign.md \$8

- MindStore Qdrant +

Anthropic "agent hint " " §4.3
 " Frame "

4. Context Management??????— ? ?? + ??

Harness Context Rot Compaction / Observation Masking / Just-in-time Retrieval / Sub-agent Delegation Anthropic " token "

Harness	
Compaction	§4.4.8 + " " LLM O(1)
Observation Masking	§4.4.7
Just-in-time Retrieval	§4.4.7 + §6.3 " "
Sub-agent Delegation	§4.4.3 SubFrame nested-to-tree + §6.3 sub-agent
Frame	§4.4.6 " Frame session Frame "

Compaction —

- §3.4 " LLM " "
- §6.1 "LLM " = Context Rot
- "Frame + " " PDF 3 "sub-agent delegation + structured note-taking"
- **§4.4.8** Anthropic Compaction
 - TOP+ BOT
 $\text{len(TOP)+len(BOT)} \ll \text{len(LLM_max_context)}$
 - = MID LLM O(1)
 - MID " " §4.4.5 " / /
 " Frame / / —LLM

	Anthropic Claude Code	§4.4.8
		80%
	LLM	MID
	1 LLM call	0 LLM call
		Frame /

Harness — Frame §4.4.5 / / / / / / / / tool tool calling

7. State Management??????— ? ??

Harness LangGraph typed dict + checkpoint OpenAI Claude Code git commit checkpoint + progress

- §4.4.2 Frame /
- §4.4.6 Frame Frame SUBFRAME_DONE
- §5.1

- Frame 7 LangGraph typed dict
-

checkpoint / LangGraph super-step checkpoint Claude Code "git commit checkpoint" Frame git

8. Error Handling??????— ?? ??

Harness 10 × 99% = 90.4% LangGraph Transient retry LLM-recoverable ToolMessage User-fixable interrupt Unexpected bubble up Stripe 2

- §4.4.3 token LLM-recoverable
- §4.4.5 5

- " " bubble up
- retry/backoff interrupt bubble up
- Stripe 2
- 99%

9. Guardrails & Safety

Harness OpenAI input/output/tool guardrails + tripwire Anthropic Claude Code ~40

- §4.1
- §3.1
- §4.4.4
- §6.6

- +
- Harness input/output/tool guardrails + tripwire
- guardrail

§5

- Tool Anthropic ~40
- API tripwire
- /

10. Verification Loops

Harness verification—Rules-based /linter/ Visual Playwright LLM-as-judge subagent Boris Cherny 2-3x

- §4.4.4 LLM-as-judge
- §4.5.2
- §3.2

LLM-as-judge

- LLM

- **rules-based** linter **ground truth**
- **visual** UI /

§4.4.4 " "—

1. schema
2. / /
3. LLM

Martin Fowler/Thoughtworks **guides** **feedforward** **vs sensors** **feedback**

11. Subagent Orchestration?? agent ???— ? ??

Harness Claude Code Fork Teammate +
 Worktree git OpenAI agents-as-tools + handoffs LangGraph
 state graph

- **§4.4.3** "SubFrame List nested to tree" = LangGraph state graph
- **§4.4.6 Frame** Frame `SUBFRAME_DONE` LangGraph reducer
- **§6.3** sub-agent

- "Frame + " = LangGraph " "
- **Frame ID + Session/Frame** §4.4.6 = Anthropic Fork

Claude Code Worktree

12. Long-Horizon Execution????? / Ralph Loop ?— ? ?? + ??

Harness Anthropic Ralph Loop—Initializer Agent init script + progress
 + feature + commit Coding Agent git log + progress
 feature → → commit →

Revision #1

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