Agentic Design Patterns

*A Hands-On Guide to Building Intelligent Systems[[1]](#footnote-0),* [*Antonio Gulli*](https://www.linkedin.com/in/searchguy/)

Table of Contents - total 424 pages = 1+2+1+1+4+9+103+61+34+114+74+5+4 11

[Dedication](https://docs.google.com/document/d/1cQ61mNpiWn6eSORmWjEjF44vN2Lpba8kyKmNwIC60ig/edit?usp=sharing), 1 page

[Acknowledgment](https://docs.google.com/document/d/1u2y6tY48bw8nriDUuwWEf9s8g66vyIqBKSKZDOS-n0s/edit?tab=t.0#heading=h.y1l1kh7vu0qi), *2 pages* [final, last read done]

[Foreword](https://docs.google.com/document/d/18Q9kfZuCTL37ztrSjLxwf8Elr5UfAiAavmnj0IqSpbU/edit?tab=t.0#heading=h.5wi2c0amdd0f), 1 page [final, last read done]

[A Thought Leader's Perspective: Power and Responsibility](https://docs.google.com/document/d/1PWhaXD_UNKgJaxYe3JBxRFRt3_B8Wm67CFxtSBQ4LkU/edit?tab=t.0#heading=h.2v348nrvaqww) [final, last read done]

[Introduction](https://docs.google.com/document/d/1K5jwqB6jh20uHL0TTWxqWOxFk-dzFxRvHzrRRV79hrg/edit?tab=t.0), 4 pages [final, last read done]

[What makes an AI system an "agent"?](https://docs.google.com/document/d/1Nw6hRa7ItdLr_Tj5hF2q-OH8B_uPKb--RLn8SXZKA94/edit?usp=sharing), 9 pages [final, last read done]

Part One, (Total: 103 pages)

1. [Chapter 1: Prompt Chaining](https://docs.google.com/document/d/1flxKGrbnF2g8yh3F-oVD5Xx7ZumId56HbFpIiPdkqLI/edit?usp=sharing) ([code](https://colab.research.google.com/drive/15XCzDOvBhIQaZ__xkvruf5sP9OznAbK9)), 12 pages [final, last read done, code ok]
2. [Chapter 2: Routing](https://docs.google.com/document/d/1ux_n8n3T4bYndOjs1DKW5ccpC802KISdy2IWnlvYbas/edit?tab=t.0) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 13 pages [fina, last read done, code ok]
3. [Chapter 3: Parallelization](https://docs.google.com/document/d/1XVMp4RcRkoUJTVbrP2foWZX703CUJpWkrhyFU2cfUOA/edit?tab=t.0) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 15 pages [final, last read done, code okl]
4. [Chapter 4: Reflection](https://docs.google.com/document/d/1HXXJOQIMWowtLw4WMiSR360caDAlZPtl5dPPgvq9IT4/edit?tab=t.0#heading=h.a7nkedxjnyap) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 13 pages [final, last read done, code okl]
5. [Chapter 5: Tool Use](https://docs.google.com/document/d/1bE4iMljhppqGY1p48gQWtZvk6MfRuJRCiba1yRykGNE/edit?usp=sharing) [(code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 20 pages [final, last read done, code ok]
6. [Chapter 6: Planning](https://docs.google.com/document/d/18vvNESEwHnVUREzIipuaDNCnNAREGqEfy9MQYC9wb4o/edit?usp=sharing) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 13 pages [final, last read done, code ok]
7. [Chapter 7: Multi-Agent](https://docs.google.com/document/d/1RZ5-2fykDQKOBx01pwfKkDe0GCs5ydca7xW9Q4wqS_M/edit?tab=t.0) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 17 pages [final, last read done, code ok], **121**

Part Two (Total: 61 pages)

1. [Chapter 8: Memory Management](https://docs.google.com/document/d/1asVTObtzIye0I9ypAztaeeI_sr_Hx2TORE02uUuqH_c/edit?tab=t.0) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 21 pages [final, last read done, code ok]
2. [Chapter 9: Learning and Adaptation](https://docs.google.com/document/d/1UHTEDCmSM1nwB-iyMoHuYzVcu_B_4KkJ2ITGGUKqo8s/edit?tab=t.0) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 12 pages [final, last read done, code ok]
3. [Chapter 10: Model Context Protocol (MCP)](https://docs.google.com/document/d/1e6XimYczKmhX9zpqEyxLFWPQgGuG0brp7Hic2sFl_qw/edit?usp=sharing) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 16 pages [final, last read done, code ok]
4. [Chapter 11: Goal Setting and Monitoring](https://docs.google.com/document/d/10ndlCB39BWjyFRWKpcoKib4vuPD1ojD-x0-ynMaf5uw/edit?tab=t.0) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 12 pages [final, last read don, code oe], **182**

Part Three (Total: 34 pages)

1. [Chapter 12: Exception Handling and Recovery](https://docs.google.com/document/d/1C07AuMur6-infwE0viCp4QtAy_wWI-uceFm6MaYHQGk/edit?tab=t.0#heading=h.m2kk4kdjt6ir) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 8 pages [final, last read done, code ok]
2. [Chapter 13: Human-in-the-Loop](https://docs.google.com/document/d/1ImOZcw6yeb7a-uRBMNP1VdovYfyip4IdsAcLu9yue-0/edit?usp=sharing) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 9 pages [final, last read done, code ok]
3. [Chapter 14: Knowledge Retrieval (RAG)](https://docs.google.com/document/d/1v96Oobio6xDOqbK8ejsXjmOc4Dp2uoLMo5_gfJgi-NE/edit?usp=sharing) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 17 pages [final, last read done, code ok], **216**

Part Four (Total: 114 pages)

1. [Chapter 15: Inter-Agent Communication (A2A](https://docs.google.com/document/d/1H6HmUYcy5kugt5gt7Kh2Zzb8C62d5pu36RsgMNDCX24/edit?usp=sharing)) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 15 pages [final, last read done, code ok]
2. [Chapter 16: Resource-Aware Optimization](https://docs.google.com/document/d/1nAN58l6JjqEJHk43126uh7xgdEblCpcbsNUHXgtBmJQ/edit?usp=sharing) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 15 pages [final, last read done, code ok]
3. [Chapter 17: Reasoning Techniques](https://docs.google.com/document/d/1Yt1W_hLaC6ZNgJXfT4W6NrCL4TzNVdKOX50kgpHiIq4/edit?usp=sharing) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 24 pages [final, last read done, code ok]
4. [Chapter 18: Guardrails/Safety Patterns](https://docs.google.com/document/d/1Gpc5af_okze1kprRLohP6-81e1KwL6HggjeLvxQyIuk/edit?usp=sharing) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 19 pages [final, last read done, code ok]
5. [Chapter 19: Evaluation and Monitoring](https://docs.google.com/document/d/1G3zOZM2ZOd0gUp5dy66FUjKMOcALh9l-JpvPxgGMm8w/edit?usp=sharing) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 18 pages [final, last read done, code ok]
6. [Chapter 20: Prioritization](https://docs.google.com/document/d/1qyXxGM2hNqW_qjXuBFxrEUeoYVO79BoW1ogKu1bfdCY/edit?usp=sharing) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 10 pages [final, last read done, code ok ]
7. [Chapter 21: Exploration and Discovery](https://docs.google.com/document/d/1zeeMVTqjqRIli6G9MMWThhoQhvKqLOjJF2EHHUXLhdk/edit?usp=sharing) ([code](https://drive.google.com/drive/u/0/folders/1Y3U3IrYCiJ3E45Z8okR5eCg7OPnWQtPV)), 13 pages [final, last read done, code ok], **330**

Appendix (Total: 74 pages)

1. [Appendix A: Advanced Prompting Techniques](https://docs.google.com/document/d/1V7EKEWibOH6IhHD_PtbFZiml492-2191jDQCcTkhtTI/edit?usp=sharing), 28 pages [final, last read done, code ok]
2. [Appendix B - AI Agentic ….: From GUI to Real world environment](https://docs.google.com/document/d/11pma_tCoC7uZ2SFKjcR5KyIq0_ooMGSoadI6f9mxG2I/edit?tab=t.0#heading=h.4bsgiycebw26), 6 pages [final, last read done, code ok]
3. [Appendix C - Quick overview of Agentic Frameworks](https://docs.google.com/document/d/151rGsiEYOkXUcNDRus_N8TxxuvjoyTDViBhzt9z0Mfw/edit?tab=t.0#heading=h.8y2llpsk10ds), 8 pages [final, last read done, code ok] ,
4. [Appendix D - Building an Agent with AgentSpace (on-line only)](https://docs.google.com/document/d/1bDRJ8mKtLTeWNC-cGD0Cr8pEJQgJHNcjqz5ekloAjaE/edit?tab=t.0), 6 pages [final, last read done, code ok]
5. [Appendix E - AI Agents on the CLI (online)](http://docs.google.com/document/d/1W4znto0a8Ikajw5a4tEyRAaB2nJPJw_iFc4w4qNnjho/edit?tab=t.0#heading=h.6zaq0kvy131m) , 5 pages [final, last read done, code ok]
6. [Appendix F - Under the Hood: An Inside Look at the Agents’ Reasoning Engines](https://docs.google.com/document/d/14q3fQ-FZmDgiughno_WLSILMWkURvUgR7mlGiFtvwd4/edit?tab=t.0), 14 pages [final, lrd, code ok],
7. [Appendix G - Coding agents](https://docs.google.com/document/d/1tVyhgwrD4fu_D_pHUrwhNxoguRG3tLc1KObXFxrxE_s/edit?tab=t.0), 7 pages **406**

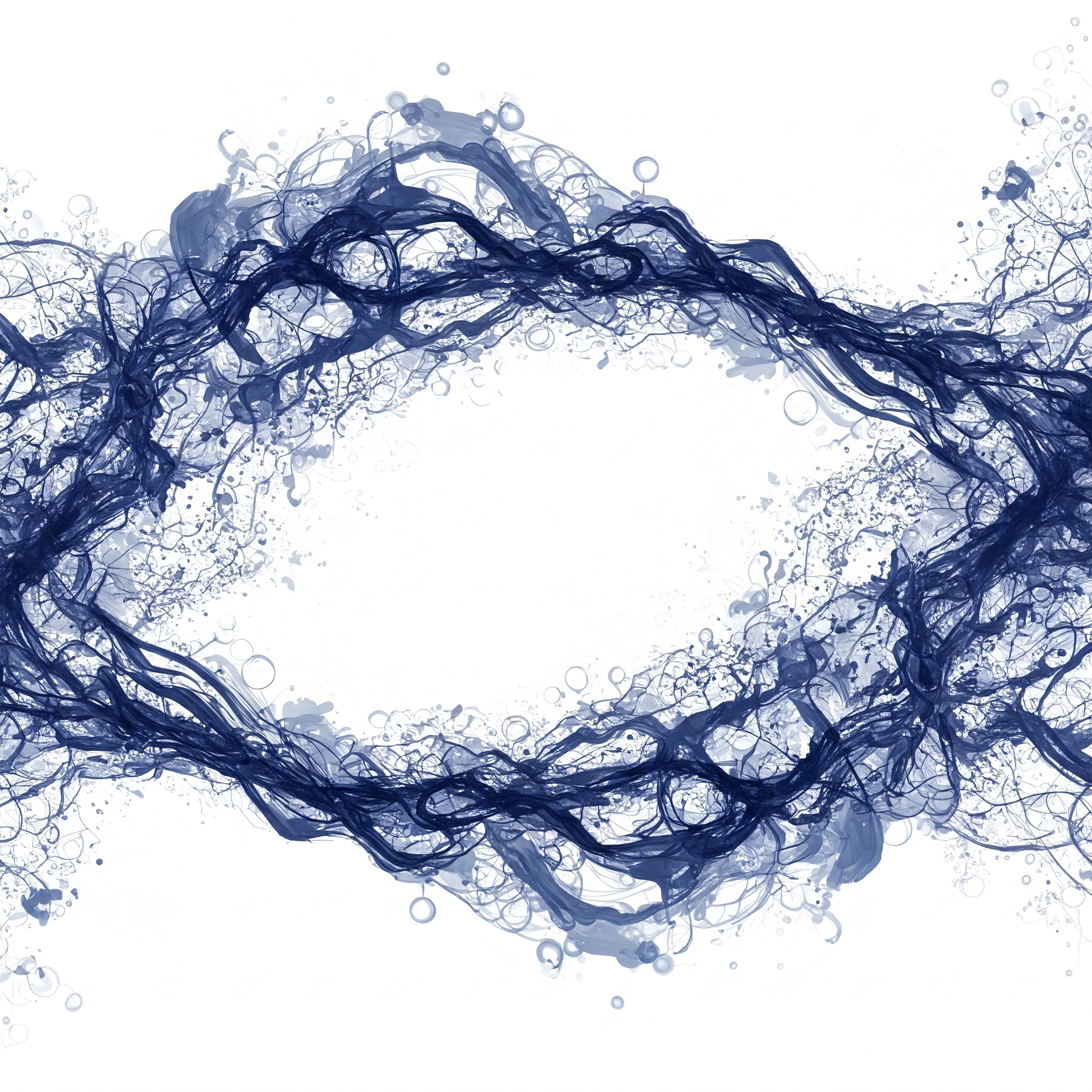
[Conclusion,](https://docs.google.com/document/d/1NGzpg9VldtStb_7jRkXJYBaHFwPwJ7WN6ZcTr7dNSVA/edit?usp=sharing) 5 pages [final, last read done]

[Glossary](https://docs.google.com/document/d/1_j_OdzeUALluBUO1GkZ48DsHbbDETiM_1G4farVLPnE/edit?usp=sharing), 4 pages [final, last read done]

[Index of Terms](https://docs.google.com/document/d/15MrpoJBrZIi6aEZrBJCeCvVsIoC-EecYG9EWVk3YCKw/edit?tab=t.0), 11 pages (*Generated by Gemini. Reasoning step included as an agentic example*) [final, lrd]

[Online Contribution - Frequently Asked Questions: Agentic Design Patterns](https://docs.google.com/document/d/1XxQsHX3FWEP3TisQeWZwFfYw81zDwEHfHdIfjypa_0g/edit?tab=t.0)

**Pre Prin**t: [*https://www.amazon.com/Agentic-Design-Patterns-Hands-Intelligent/dp/3032014018/*](https://www.amazon.com/Agentic-Design-Patterns-Hands-Intelligent/dp/3032014018/)



1. All my royalties will be donated to Save the Children [↑](#footnote-ref-0)