DATA IN BRIEF TEMPLATE

**Meta-Data (Mandatory information required for the transfer of your article to Data in Brief – will not be typeset)**

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| --- | --- |
| **\*Title:** | *Universal (Meta-)Logical Reasoning: The Wise Men Puzzle* |
| **\*Authors:** | Christoph Benzmüller |
| **\*Affiliations:** | Freie Universität Berlin and University of Luxembourg |
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**Data Article**

**Title**: *Universal (Meta-)Logical Reasoning: The Wise Men Puzzle*

**Authors**: Christoph Benzmüller

**Affiliations**: Freie Universität Berlin and University of Luxembourg

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**Abstract**

The authors universal (meta-)logical reasoning approach is demonstrated and discussed with a challenge puzzle in epistemic reasoning: the wise men puzzle. The presented solution puts a particular emphasis on the adequate modeling of common knowledge.

**Specifications Table** [*Please fill in right-hand column of the table below.*]

|  |  |
| --- | --- |
| Subject area | *Computer Science* |
| More specific subject area | *Artificial intelligence, knowledge representation and reasoning* |
| Type of data | *Formal encoding of the wise men puzzle in Isabelle/HOL* |
| How data was acquired | *Manual encoding* |
| Data format | *Isabelle/HOL source file* |
| Experimental factors | *n.a.* |
| Experimental features | *n.a.* |
| Data source location | *n.a.* |
| Data accessibility | *The data is with this article.* |
| Related research article | Christoph Benzmüller, Universal (Meta-)Logical Reasoning: Recent Successes, submitted to Science of Computer Programming |

**Value of the Data**

* Shallow embedding of higher-order multimodal logic (HOMML) in HOL
* Encoding of the wise men puzzle in HOMML
* Proper modeling of common knowledge (transitive closure of agents mutual knowledge)
* Modeling and proof automation benchmark in artificial intelligence

**Data**

The data is given as Isabelle/HOL source file.

**Experimental Design, Materials, and Methods**

The data was acquired through manual encoding of the problem in Isabelle/HOL.

**Acknowledgments**

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**References**

1. C. Benzmüller, Universal (Meta-)Logical Reasoning: Recent Successes, submitted to Science of Computer Programming (in press).
2. C. Benzmüller, L. Paulson, Quantified multimodal logics in simple type theory, Logica Universalis 7 (1) (2013)
3. T. Nipkow, L. C. Paulson, M. Wenzel, Isabelle/HOL: A Proof Assistant for Higher-Order Logic, no. 2283 in LNCS, Springer, 2002.