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| |  |  | | --- | --- | | **Balance Scale Data Set**  *Download*: [Data Folder](http://archive.ics.uci.edu/ml/machine-learning-databases/balance-scale/), [Data Set Description](http://archive.ics.uci.edu/ml/machine-learning-databases/balance-scale/balance-scale.names)  **Abstract**: Balance scale weight & distance database |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Data Set Characteristics:** | Multivariate | **Number of Instances:** | 625 | **Area:** | Social | | **Attribute Characteristics:** | Categorical | **Number of Attributes:** | 4 | **Date Donated** | 1994-04-22 | | **Associated Tasks:** | Classification | **Missing Values?** | No | **Number of Web Hits:** | 69001 |   **Source:**  Generated to model psychological experiments reported by Siegler, R. S. (1976).  Three Aspects of Cognitive Development. Cognitive Psychology, 8, 481-520.  Donor:  Tim Hume (hume **'@'** ics.uci.edu)  **Data Set Information:**  This data set was generated to model psychological experimental results. Each example is classified as having the balance scale tip to the right, tip to the left, or be balanced. The attributes are the left weight, the left distance, the right weight, and the right distance. The correct way to find the class is the greater of (left-distance \* left-weight) and (right-distance \* right-weight). If they are equal, it is balanced.  **Attribute Information:**  1. Class Name: 3 (L, B, R)  2. Left-Weight: 5 (1, 2, 3, 4, 5)  3. Left-Distance: 5 (1, 2, 3, 4, 5)  4. Right-Weight: 5 (1, 2, 3, 4, 5)  5. Right-Distance: 5 (1, 2, 3, 4, 5)  **Relevant Papers:**  Klahr, D., & Siegler, R.S. (1978). The Representation of Children's Knowledge. In H. W. Reese & L. P. Lipsitt (Eds.), Advances in Child Development and Behavior, pp. 61-116. New York: Academic Press  [[Web Link]](http://rexa.info/paper/2ef380b06ce9d1b17eb4cd74ef3a90099d8d713b)  Langley,P. (1987). A General Theory of Discrimination Learning. In D. Klahr, P. Langley, & R. Neches (Eds.), Production System Models of Learning and Development, pp. 99-161. Cambridge, MA: MIT Press  [[Web Link]](http://rexa.info/paper/faf49a24bd50d12e111dd6cc6a3b2833189b3375)  Newell, A. (1990). Unified Theories of Cognition. Cambridge, MA: Harvard University Press  [[Web Link]](http://rexa.info/paper/9d57f20c42bc53c5becb15e127ccfc0ed8a22132)  McClelland, J.L. (1988). Parallel Distibuted Processing: Implications for Cognition and Development. Technical Report AIP-47, Department of Psychology, Carnegie-Mellon University  [[Web Link]](http://rexa.info/paper/7d9ba067ebaac69829036f782e6b99d4449b561f)  Shultz, T., Mareschal, D., & Schmidt, W. (1994). Modeling Cognitive Development on Balance Scale Phenomena. Machine Learning, Vol. 16, pp. 59-88.  [[Web Link]](http://rexa.info/paper/c59164e3cbba0f0f49b4538806ced684bc1690e2)  **Papers That Cite This Data Set1:**  Zhi-Hua Zhou and Yuan Jiang and Shifu Chen. [Extracting symbolic rules from trained neural network ensembles](http://rexa.info/paper/faf03ce4427609aa6db25e3d0e6479fb2ae153a7). AI Commun, 16. 2003. [[View Context](http://archive.ics.uci.edu/ml/support/Balance+Scale#faf03ce4427609aa6db25e3d0e6479fb2ae153a7)].  Jianbin Tan and David L. Dowe. [MML Inference of Decision Graphs with Multi-way Joins and Dynamic Attributes](http://rexa.info/paper/14f025e969e3a0418fd852ee46e54039ab3f216a). Australian Conference on Artificial Intelligence. 2003. [[View Context](http://archive.ics.uci.edu/ml/support/Balance+Scale#14f025e969e3a0418fd852ee46e54039ab3f216a)].  Remco R. Bouckaert. [Accuracy bounds for ensembles under 0 { 1 loss](http://rexa.info/paper/e140ecaac8486469d0ef5b237f4fa08d7315c5ed). Xtal Mountain Information Technology & Computer Science Department, University of Waikato. 2002. [[View Context](http://archive.ics.uci.edu/ml/support/Balance+Scale#e140ecaac8486469d0ef5b237f4fa08d7315c5ed)].  Peter Sykacek and Stephen J. Roberts. [Adaptive Classification by Variational Kalman Filtering](http://rexa.info/paper/d328ae33fb50756832a1c6cd703f7176c361923f). NIPS. 2002. [[View Context](http://archive.ics.uci.edu/ml/support/Balance+Scale#d328ae33fb50756832a1c6cd703f7176c361923f)].  Nir Friedman and Moisés Goldszmidt and Thomas J. Lee. [Bayesian Network Classification with Continuous Attributes: Getting the Best of Both Discretization and Parametric Fitting](http://rexa.info/paper/2ea57412a6ce00f095ef1a23aba00961bb392bf0). ICML. 1998. [[View Context](http://archive.ics.uci.edu/ml/support/Balance+Scale#2ea57412a6ce00f095ef1a23aba00961bb392bf0)].  Alexander K. Seewald. [Dissertation Towards Understanding Stacking Studies of a General Ensemble Learning Scheme ausgefuhrt zum Zwecke der Erlangung des akademischen Grades eines Doktors der technischen Naturwissenschaften](http://rexa.info/paper/e2b2b723df700c90e69a31a4403b740c2d2a7b2f). [[View Context](http://archive.ics.uci.edu/ml/support/Balance+Scale#e2b2b723df700c90e69a31a4403b740c2d2a7b2f)].  Hirotaka Inoue and Hiroyuki Narihisa. [Experiments with an Ensemble Self-Generating Neural Network](http://rexa.info/paper/c171fe96d278ffa703aa1310c738cad8586b4cb3). Okayama University of Science. [[View Context](http://archive.ics.uci.edu/ml/support/Balance+Scale#c171fe96d278ffa703aa1310c738cad8586b4cb3)].  Alexander K. Seewald. [Meta-Learning for Stacked Classification](http://rexa.info/paper/944b9d70eb0a01d18c91109dfeb566936461a194). Austrian Research Institute for Artificial Intelligence. [[View Context](http://archive.ics.uci.edu/ml/support/Balance+Scale#944b9d70eb0a01d18c91109dfeb566936461a194)].  **Citation Request:**  Please refer to the Machine Learning Repository's [citation policy](http://archive.ics.uci.edu/ml/citation_policy.html) |

[1] Papers were automatically harvested and associated with this data set, in collaboration with [Rexa.info](http://rexa.info/)

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