Readme

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Explanation of each file or folder:

- **Survey_Property:**
  This folder contains the code for the system implemented in this research. Detailed explanations are provided in **Explanation_of_Survey_Property.** The contents of the folder include the following two files:
  - **config_and_execute.py**
    This file allows you to input parameters such as the range of the number of nodes in the graph to be surveyed and the number of iterations. By executing this file, the actual survey will commence.
  - **main.py**
    This file contains the source code of the system's program. There is no need to manipulate this file to operate the system.

- **Explanation_of_Survey_Property:**
  Detailed explanations of the system.

- **Proof_of_Dependency**:
  This text file contains the proofs of each dependency. For some of the proofs, I received significant assistance from my co-author, Ryuta Arisaka.

- **Counterexamples_of_N-to-1_dependency** (At the current time (as of the paper), N=1,2):
  This pickle file contains the counterexamples outputted by the system for N-to-1 dependencies. The structure of Counterexamples_of_N-to-1_dependency is as follows:

  The included files are in the form of a nested list (denoted as L), where the counterexample for (property1 and ⋯ and propertyN-1 → propertyN) is contained in the element L[property1's number][property2's number]⋯[propertyN's number]. Each property is assigned a specific number, showed below. For example, if you want to see the counterexample for VP → DP, you should look at the element L[0][4], and if you want to see the counterexample for AE → QP, you should look at the element L[11][3]. Similarly, if you want to see the counterexample for VP and CP → DP, you should look

at the element L[0][2][4].

Each element contains a counterexample composed of [set of arguments, set of attack relations, ranking], each provided as a list. For example, [[a,b,c],[(a,b),(b,c)],[[b,a],[a,c]]] represents a set of arguments A = {a,b,c}, a set of attack relations R = {(a,b),(b,c)}, and a ranking b ≺ a ≺ c. The ranking indicates the relation ⪯ between each pair, where [b,a] and [a,b] means a ≃ b.

VP : 0　SC : 1　CP : 2　QP : 3　DP : 4　CT : 5　SCT : 6　NaE : 7
AvsFD : 8　DDP : 9　OE : 10　AE : 11　PR : 12　MVP : 13　MDP : 14
MCP : 15　MQP : 16　MDDP : 17　COM21 : 18　na-co : 19　adm-co : 20
gr-co : 21　st-co : 22　na-weak : 23　adm-weak : 24　comp-weak : 25　gr-weak : 26
st-weak : 27　pr-weak : 28　adm-strong : 29　comp-strong : 30　⊕DB : 31　+DB : 32
↑DB : 33　↑AB : 34　+AB : 35