Foundations 2 **Heriot Watt University**
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Foundations 2 Assignment: Part 2 24. Februar 2013

1 Part-2

`part-2.c` is the main file for the second part of the assignment. The *JSON* input file was used with the cJSON (http://sourceforge.net/projects/cjson/) C library. *cJSON* was used as it uses a tree structure for the JSON making parsing simpler. The main methods of `part-2.c` are:

- `parse_operator`: This method is the outermost part of the parser. It takes the root node and then loops through the array of variable objects. While doing this, it builds a global *Variable* array.
- `parse_equal_op` The first equal operation is used as allocator. It allocates the values in t
- `parse_tuple_op`, `parse_set_op` build the basic structures used, the Set and the Pair from the underlying JSON.
- `parse_equality_op`: Compares two values, sets containg the same elements are equal. Pairs are equal if the elements are equal and in the same order.
- `parse_member_op`: Checks if a value is contained in a set. Returns 1 if the element is contained within the set and 0 if otherwise.
- `parse_base_type` Used to check the types of operators and execute the method related to that type of operation, e.g. building a set for a set operation.

Added a Variable type for handling the variables in a reasonable manner. Store the name, e.g. x1 and the value that the name corresponds to.

1.1 Error Handling

There is very minimum error handling for file input and output. There is limited error checking for undefined variables and incorrect operator names. Errors only print to stderr, they do not print to the file, this was a design decision to reduce unnecessary passing of the output file pointer.

2 Changes

There were several changes made to the structures from Part 1. Here is a breif summary:

- Changed print methods so that they can optionally be printed out to a file, rather than always standard out
- Made some new create statements in Pair and Value to assist in a few pointer issues.
- Fixed the Set Equality method to work with sets not in sequence.