Toward a Description
Of My Logic
With Relative Product
Theory of Belief

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December 2019

I am going to try to work out a scheme of representation.
I am just trying to work out a sketch of what I want to do.

Ontology

(1) First, I will assume all entities can be set into correspondence with a subset of the real numbers. Non-linguistic reals r
- This includes both universal and individuals. There will be reals that do not correspond to any linguistic representation. (By the Church Turing Thesis)

(2) 0.0 <= r < 0.1

(3) The set of first order ideas will be denumerable. They can be set into a correspondence with a subset of the i1

(4) 0.1 <= i1 < 0.2

(5) Next the set of first order thoughts can be set into one to one correspondence with a subset of the reals t1

(6) 0.2 <= t1 < 0.3

(7) – using a Turing tape code of the ideas in (3).

(8) Next a one to one correspondence can set between first order ideas and the first order words w1

(9) 0.3 <= w1 < 0.4

(10) Next a correspondence between first order thoughts and first order sentences s1

(11) 0.4 <= s1 < 0.5

(12) using a Turing tape code of the words in (8).

Next a one to one correspondence can be set between first order thoughts and the reals between 0.4 and 0.5 (first order sentences). Also using Turing machine type coding.

(13) And so on.

(14) There will be a non-denumerable number of entities not mapped to any idea, word, thought or sentence of any order.

(15) Each set of ideas, words, thoughts or sentences will be denumerable.

(16) Each Higher type of thought or sentence will still have a denumerable number, but is in a way a superset of the next lower type, in that the ideas or words of its type can occur in it, but not in the lower type, but those of the lower type can occur in it.

Suppose V is the class of all entities.
V cannot be listed – [Ordinarily speaking, there are 2^{aleph0} entities, but at most aleph0 ideas, thought, words or sentences. So, the diagonal cannot be constructed.]

There are reals which cannot be represented by denumerable ideas, thoughts, words or sentences. The Church-Turing Thesis.

Turing Tape

Each statement will be represented as a sequence of marks on a Turing Machine. Each symbol of the symbols is a '0' or '1':
The statements are all real numbers. (in binary).
The number of initial 1's to the right of the decimal point
(0: non-linguistic
1 : 1^{st} order idea
2 : 1^{st} order thought
3: 1^{st} order word
4: 1^{st} order sentence
5: 2^{nd} order idea
6: 2^{nd} order thought, etc

CODES

'0' is a separator.

One 1 (separated by ‘0’s indicates a encoded ‘0’
Two 1 (separated by ‘0’s indicates a encoded ‘1’
Three 1 (separated by ‘0’ indicates a decimal point)
Four 1 (separated by ‘0’ indicates a unary minus)
Then the following number of 1’s for

5 N -- Not

6 C -- Material Implication

7 L -- Necessarily

8 / -- to indicate arity

9 B -- the psychological relation between ideas of belief.

10 |- is the assertion sign.

11 True|- -- indicates a true assertion

12 False|- -- indicates a false assertion.

13 Say -- is for says

14 E -- is for existential quantification – always followed by one variable.

15 R – is for Meaning Relation between word and idea

16 S – is for Meaning Relation between idea and object

17 = -- is for equality

18 *-- is multiplication

19 + -- is addition

20- -- is urinary negation (numeric)

21 X is a variable

22 ‘ prime to create more variables

23 @ is to indicate end (what happens to expressions which are a sentence – PROBLEM except they could have digits past 23?)

All the real numbers exist. So, the propositions exist. They may, when they exist be true or false, including assertions.

Some are logically true or false as well.

TERMS

Reals 0<= x < 0.1 correspond to objects

Constants are:

Ideas i1 of 1st order represent objects o = i1 – 0.1

Thoughts of 1st order are certain sequences of 1st order ideas or variable ideas.

Words w1 of 1st order correspond to ideas i1 = w1 – 0.1

Sentences of 1st order are certain sequences of 1st order words or variable words

Ideas i2 of 2nd order represent ideas of 1st order i1 = i2 – 0.1

Thoughts of 2st order are certain sequences of 1st or 2nd order ideas or variable ideas

Words w2 of 1st order correspond to ideas w2 = i2 – 0.1

Sentences of 2st order are certain sequences of 1st or 2nd order words or variable words

Ideas i3 of 3rd order represent ideas of 2st order i2 = i3 – 0.1

Thoughts of 3st order are certain sequences of 1st or 2nd or 3rd order ideas or variable ideas

Words w3 of 1st order correspond to ideas i3 = w3 – 0.1

Sentences of 2st order are certain sequences of 1st or 2nd or 3rd order words or variable words

Variables are:

Variable ideas of 1st order 0.1[code for X][sequence of 0 or more primes]

Variable words of 1st order 0.111[code for X][sequence of 0 or more primes]

Variable ideas of 3rd order 0.11111[code for X][sequence of 0 or more primes]

Variable words of 4th order 0.1111111[code for X][sequence of 0 or more primes]

Sentences

If ϕ@ and ψ@ are 1st order sentences, then so are

N ϕ

The 1st order thought
0.11010111110[code for ϕ][code for @]
The 1st order sentence
0.111101110111110[code for ϕ][code for @]

And

C ϕ ψ
The 1st order thought
0.1101101111101111110[code for ϕ]0[code for ψ][code for @]
The 1st order sentence
0.1111011101111110[code for ϕ]0[code for ψ][code for @]

And

E var ϕ

The 1st order thought
0.1100101111111111111011111111110[code for var]0[code for ϕ][code for @]

The 1st order sentence
0.1111001110111111111111011111111110[code for var]0[code for ϕ][code for @]

And so on, …

Axioms

It seems impossible to formulate axioms. The axioms would need to apply to all real numbers, we can only formulate axioms for sentences – linguistic expressions. I am giving up for now. I hope to get a better Idea someday. At any rate, axiom systems seem very complex and tricky. I will study further and see what I can come up with.

Turing Machine

Then formulate way to describe Turing machine.

Results

Then see what I can prove about such a Turing machine.