MANUSCRIPT – Reexamining the Formalized Notion of Truth

Tarski "proved" that there cannot possibly be any correct formalization of the notion of truth entirely on the basis of an insufficiently expressive formal system that was incapable of recognizing and rejecting semantically incorrect expressions of language.

The only thing required to eliminate incompleteness, undecidability and inconsistency from formal systems is transforming the formal proofs of symbolic logic to use the sound deductive inference model.

Stipulating this definition of Axiom:
An expression of language defined to have the semantic value of Boolean True.

Stipulating this specification of True and False:

Axiom(1) $\forall F \in Formal\_System\ \forall x \in Closed\_WFF(F)\ (True(F, x) \leftrightarrow (F \vdash x))$.

Axiom(2) $\forall F \in Formal\_System\ \forall x \in Closed\_WFF(F)\ (False(F, x) \leftrightarrow (F \vdash \neg x))$.

Stipulating that logic sentences are Boolean:

Axiom(3) $\forall F \in Formal\_System\ \forall x \in Closed\_WFF(F)\ (Logic\_Sentence(F, x) \leftrightarrow (True(F,x) \lor False(F,x)))$

Within the above stipulations formal proofs to theorem consequences now express the sound deductive inference model eliminating incompleteness, undecidability and inconsistency from the notion of formal systems.

The third step of the Tarski Undefinability Theorem proof:

(3) $x \notin Pr$ if and only if $x \in Tr$

Axiom(1) $True(x) \leftrightarrow Theorem(x) \therefore Provable(x)$ thus refuting: $x \notin Pr \leftrightarrow x \in Tr$

The following logic sentence is refuted on the basis of Axiom(3)

$\exists F \in Formal\_System\ \exists G \in Closed\_WFF(F)\ (G \leftrightarrow ((F \nvdash G) \land (F \nvdash \neg G)))$

When this: $(F \nvdash G) \land (F \nvdash \neg G)$ portion of the above expression is understood within the context of Axiom(1) and Axiom(2) it says that G is neither true or false. There is no G in any formal system F that is materially equivalent to neither true or false.

Making the following paragraph false:
The first incompleteness theorem states that in any consistent formal system F within which a certain amount of arithmetic can be carried out, there are statements of the language of F which can neither be proved nor disproved in F. (Raatikainen 2018)

Raatikainen, Panu, "Gödel's Incompleteness Theorems", The Stanford Encyclopedia of Philosophy (Fall 2018 Edition), Edward N. Zalta (ed.), URL =
https://plato.stanford.edu/archives/fall2018/entries/goedel-incompleteness/