

- LUIZ CARLOS PEREIRA, EDWARD HERMANN HAEUSLER, MARIA DA PAZ,
Constructive Results in Fragments of Classical First order Logic.

Dep. Philosophy, PUC-Rio, Marques de Sao Vicente 225 Rio de Janeiro CEP 22453-300, Brasil.

E-mail: `luiz@inf.puc-rio.br`.

Dep. Informatics, PUC-Rio, Rio de Janeiro, Brasil.

E-mail: `hermann@inf.puc-rio.br`.

Dep.Philosophy, UFRN, Natal, Brasil.

E-mail: `mpaz@ufrnet.br`.

In 1933 Gödel proved that we cannot distinguish classical logic from intuitionistic logic with respect to their theorems in the fragment $\{\wedge, \neg\}$. Although the fragments $\{\forall, \neg, \wedge\}$ and $\{\exists, \wedge, \neg\}$ are sufficient to establish a distinction between classical logic and intuitionistic logic, there are several constructive results that can be proved in these fragments. For example, we can prove that negation is constructively involutive in the fragment $\{\forall, \neg, \wedge\}$ and that every classical theorem of the form $\exists x A(x)$ with $A(x)$ quantifier free is intuitionistically provable in the fragment $\{\exists, \wedge, \neg\}$. The aim of the present paper is to show that, as a consequence of these constructive results we can obtain (1) a proof-theoretical argument for the decidability of classical monadic predicate logic and (2) a proof that the logic of categorical propositions is constructive.