with parameters in $\langle \mathrm{Aut}(A_2), A_2 \rangle$, the elementary theory of the automorphism group of any non-abelian free two-step nilpotent group is unstable and undecidable. The fact that the ring of integers $\mathbf{Z}$ can be reconstructed in the automorphism group $\mathrm{Aut}(N_2)$ of a two-generator free two-step nilpotent group N_2 seems to be quite interesting, because $\mathrm{Aut}(N_2)$ is 'close' in some sense to the group $\mathrm{GL}(2, \mathbf{Z})$, which is isomorphic to the automorphism group of a two-generator free abelian group.

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[2] V. Tolstykh, *Elementary equivalence of infinite-dimensional classical groups*, ***Annals of Pure and Applied Logic***, to appear.

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► LORENZO TORTORA DE FALCO, *Coherent obsessional experiments for linear logic proof-nets.*
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This talk is a contribution to the research field of proof-theory initiated in [1] with the discovery of linear logic (LL) and (1) its syntax: proof-nets (2) its underlying notion of computation: cut-elimination for proof-nets (3) the equivalence relation on proof-nets induced by the coherent semantics.

The cut-elimination procedure for proof-nets induces a (syntactical) equivalence relation on proof-nets, which can be roughly defined by: R and R' are syntactically equivalent if and only if they have the same normal form.

Denotational semantics gives an "extensional" description of proofs as functions, which is invariant with respect to cut-elimination: if π' is obtained from π by applying some steps of cut-elimination, then π and π' are interpreted by the same function. Every semantics induces then an equivalence relation on proofs, which can be roughly defined by: π and π' are semantically equivalent if and only if they have the same interpretation.

Clearly, two syntactically equivalent proof-nets are also semantically equivalent. In [2], we try to "measure" the quality of the representation of proofs as proof-nets by asking whether the converse holds for coherent semantics (which gave birth to LL): in case of positive answer we say that the semantics is injective.

Starting from the definition of experiment of [1], we introduce the key-notion of "injective obsessional experiment", which allows to give a positive answer to our question for certain fragments of LL, and to build counter-examples to the injectivity of coherent semantics in the general case.

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► SERGEI TUPAILO, *Realization of intuitionistic KPM in explicit mathematics.*
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We continue the study of realizability of different intuitionistic theories in Feferman's Explicit Mathematics began in [1] and [2]. It's easily seen that intuitionistic Kripke-Platek Set Theory **IKP** is a subsystem of Aczel's Constructive Set Theory **CZF**, so that embedding of **IKP** into $\mathbf{T}_0$ is already contained in [2]. However, analogous relations don't obviously hold for much stronger theories **IKPi** and **IKPM**, which are intuitionistic versions of familiar