THEOREM 1.
(i) *Modal logic* $L(\mathcal{K}_c)$ *of all complete information frames is the logic* K.
(ii) *Modal logic* $L(\mathcal{K}_{c,s})$ *of all complete and sound information frames is the logic* T.
(iii) *Modal logic* $L(\mathcal{K}_{c,h})$ *of all complete and hereditary information frames is the logic* $K4$.
(iv) *Modal logic* $L(\mathcal{K}_{c,h,s})$ *of all complete hereditary and sound information frames is the logic* $S4$.
(v) *Modal logic* $L(\mathcal{K}_{c,con})$ *of all complete and consistent information frames is the logic* D.

THEOREM 2.
(i) *The weak modal logic* $L_w(\mathcal{K}_c)$ *of all information frames is the logic* K.
(ii) *The weak modal logic* $L_w(\mathcal{K}_h)$ *of all hereditary information frames is the logic* $K4$.

THEOREM 3. *Any Kripke complete normal modal logic is complete with respect to the appropriate class of complete information frames, i.e., is information frames complete.*

THEOREM 4. *For any rarefied information frame IF the context's logical consequence relation* $\Vdash_s$ *can be presented by accessibility context's consequence of usual Kripke frames.*

THEOREM 5. *All modal logics generated by arbitrary classes of complete, rarefied and fully classified information frames are Kripke complete.*

[1] J. BARWISE, *Information and impossibilities*, ***Notre Dame Journal of Formal Logic***, vol. 38 (1997), no. 4, pp. 488–515.
[2] J. BARWISE and J. SELIGMAN, ***Information flow in distributed systems***, Tracts in Theoretical Computer Science, vol. 44, 1997.
[3] F. DRETSKE, ***Knowledge and the flow of information***, Bradford Books, MIT Press, 1981.

► SAEED SALEHI, *A generalized realizability for constructive arithmetics*.
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We introduce a generalized notion of realizability, appropriate for constructive arithmetics, in particular Basic Arithmetic, **BA**. This arithmetic is equivalent of **HA** on intuitionistic logic and of **PA** on classical logic, based on Basic Logic, the propositional counterpart of which, was invented by Visser, and is developed for the quantifier case by Ardeshir and Ruitenburg [1].

The crucial different cases from the Kleene's one, are $\rightarrow$ and $\forall$. We restrict the recursive functions, associated for these cases, to a definable subclass, for example total recursives or primitive recursives. So the primitive recursive (PR-)realizability for $A \rightarrow B$ is:

$$n\,\mathbf{r}^{\mathrm{PR}}\,A \rightarrow B \;\equiv\; \mathrm{PR}(n) \wedge \forall x\,(x\,\mathbf{r}^{\mathrm{PR}}\,A \longrightarrow \exists z\,\{\mathbf{T}(n,x,z) \wedge \mathbf{U}z\,\mathbf{r}^{\mathrm{PR}}\,B\}).$$

The (primitive recursive) formula $\mathrm{PR}(x)$, intuitively says that in the "program" of the recursive function with code x, there is no use of (unbounded) minimalization. So if $\mathbb{N} \models \mathrm{PR}(n)$ then φ_n is primitive recursive (but not necessary vice versa.)

One can prove the soundness of PR-realizability for **BA**, in the usual way. In the "usual" proof for **HA**, one can not restrict the partial recursives to a proper subclass, so it seems that Kleene's definition, for HA, can not be optimized in this way.

A generalized form of *Church's Thesis*, $\mathbf{GCT}^{\mathrm{PR}}$:

$$\begin{aligned}&\forall x\,\big(\exists z\,(z\,\mathbf{r}^{\mathrm{PR}}\,A(x)) \rightarrow \exists y\,\phi(x,y)\big)\\ &\qquad\Longrightarrow \exists u\,\Big[\mathrm{PR}(u) \wedge \forall x\,\big(\exists z\,(z\,\mathbf{r}^{\mathrm{PR}}\,A(x)) \rightarrow \exists w\,\{\mathbf{T}(u,x,w) \wedge \phi(x,\mathbf{U}w)\}\big)\Big]\end{aligned}$$

is realizable in **BA**, and the completeness theorem of Troelstra [2], holds for $\mathbf{BA}+\mathbf{GCT}^{\mathrm{PR}}$ and $\mathbf{r}^{\mathrm{PR}}$:

$$\mathbf{BA} \vdash \exists x\,(x\,\mathbf{r}^{\mathrm{PR}}\,\psi) \iff \mathbf{BA}+\mathbf{GCT}^{\mathrm{PR}} \vdash \psi.$$

As applications, we deduce that **BA** enjoys the traditional constructive properties: Disjunction Property and Explicit Definability by Numbers, also each provably total function of **BA** is primitive recursive.

[1] WIM RUITENBURG, *Basic predicate calculus*, ***Notre Dame Journal of Formal Logic***, vol. 39 (1998), no. 1, pp. 18–46.

[2] A. S. TROELSTRA, editor, ***Metamathematical investigations of intuitionistic arithmetic and analysis***, Springer-Verlag, Berlin, 1974.

► THOMAS SCANLON, *Groups definable in compact complex manifolds*.

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A compact complex manifold considered as a first-order structure with the closed analytic subvarieties of its Cartesian powers as the basic definable sets is a totally transcendental structure of finite Morley rank. We classify the groups interpretable in compact complex manifolds. Our main results are the following theorems.

THEOREM 1. *A complex Lie group G is definable in a compact complex manifold if and only if it has the structure of a meromorphic group in the sense of Fujiki: there is a compact complex manifold $\overline{G}$ into which G embeds as a Zariski dense subset and for which the group operation on G extends to meromorphic operations on $\overline{G}$ and the left and right regular actions of G on itself extend to holomorphic actions of G on $\overline{G}$.*

THEOREM 2. *If G is a strongly minimal group interpretable in a compact complex manifold, then G is definably isomorphic to a one-dimensional connected algebraic group or to a non-algebraic simple complex torus.*

THEOREM 3. *If G is a connected group interpretable in a compact complex manifold, then G has a definable normal subgroup $L \leq G$ which is definably isomorphic to a linear algebraic group and for which G/L is definably isomorphic to a complex torus.*

This is a report on joint work with Anand Pillay.

[1] A. FUJIKI, *On automorphism groups of compact Kähler manifolds*, ***Inventiones Mathematicae***, vol. 44 (1978), no. 3, pp. 225–258.

► PAVEL SCHREINER, *Fragment of logic of finite constant domains without disjunction and existential quantifier*.

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It is known that the fragment of predicate intuitionistic logic in the language without the disjunction and existential quantifier is complete under Kripke frames with finite domains ([2]). On the other hand, D. Gabbay has proved [1] that the fragment of predicate intuitionistic logic without the disjunction and existential quantifier coincides with a similar fragment of logic of constant domains.

In this paper, we prove that it is impossible to combine of these two results, i.e., the fragment of logic of finite constant domains without the disjunction and existential quantifier does not coincide with a similar fragment of the logic of constant domains and with a similar fragment of the logic of finite domains.

Namely, we construct a formula which contains neither disjunction nor existential quantifier and is valid in all Kripke frames with finite constant domains but refutable in the logic of constant domains and in the logic of finite domains.

[1] D. GABBAY, ***Semantical investigations in Heyting's intuitionistic logic***, D. Reidel Publ. Co., Dordrecht, Holland, 1981.