

LGrudat: Logical Foundations of Databases

Exercise 6, Deadline 13 Dec 2013

Tadeusz Litak

8 Dec 2013

- This is just a little Bonusaufgabe which you can use to get a few additional points.

The [new lecture abstract for week 6 has been published online](#).

1 Undefinability Fraïssé style

Exercise 1.a (3 pts) Recall that during the lecture, we defined alternative characterization of FO-equivalence: using the notion of m -isomorphism (sequences of sets of partial isomorphisms with back-and-forth property) $\mathfrak{A} \cong_m \mathfrak{B}$. Try to prove FO undefinability of oddity in this way.

Hint Recall the notion of truncated metric I mentioned during the lecture. You might want to use it in defining your sequence of sets of elements of $\text{Part}(\mathfrak{A}, \mathfrak{B})$, e.g., taking as elements of I_m those ones which preserve this truncated d_m . You might also prefer to insist minimal and maximal elements are always in the domain.

Exercise 1.b (4 pts) Now can you think about proving that the property of being a tree (in terms of the immediate-child relation) is not FO definable either using a modified version of the above strategy.