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Fool

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Thema: ζ -calc.

Ausgabetermin: May 13, 2005

Abgabe:

Aufgabe 1 (Big vs. small) We have learnt two version of the semantics. In the lecture, we called them *small-step* semantics and *big-step semantics*. In the book they are called ...and weak reduction.¹ As we discussed, they do not coincide 100%, in the sense that their normal forms do not coincide.

Is it a “law of nature” or a “design choice” by [1]? I.e., can you define a big-step semantics of the object calculus which coincides with the small-step semantics, when considering the normal forms? Think of what you mean by “coincidence”. Can you think of a reason why [1] have chosen a *weak* form of reduction and not a *strong* one?

Aufgabe 2 (Backup example) Consider the backup object example from page 70. One thing that is a bit weird is the “initial value”. As mentioned, it would be nice if the retrieve method had the property that if one calls retrieve without doing a backup before, one get’s the initial value of the object. Can you program this?

Literatur

[1] Martín Abadi and Luca Cardelli. *A Theory of Objects*. Monographs in Computer Science. Springer, 1996.

¹Probably the word “weak” refers to the fact that the reduction relation does not insist on reducing to the very end, to a normal form, but does not reduce under a binder. In the λ -calculus, there are similar notions as weak head normal form (and head normal form) and weak head reduction, where the reduction stops at weak head normal form.