Bidirectional Transformations with Deltas: A Dependently Typed Approach (Talk Proposal)

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Abstract

In recent years in the bx literature, attention has turned to incorporating intensional information about edits (based on monoid actions [HPW12, AU14, for example]), or more generally, deltas (based on categories [DXC11a, DXC$^+$11b]), describing model updates. This talk sketches a dependently-typed approach to consistency maintenance, à la Meertens/Stevens [Mee98, Ste10], building on a propositions-as-types account of consistency [McK16]. The resulting definition of dependently-typed bx (dtbx) has identities and is closed under composition; examples include the above instances of delta-based bx. The definition is "pre-categorical", relying on no ambient assumptions about categorical structure on model spaces. We reconcile the dependently-typed approach to deltas with the categorical by examining analogues of the hippocraticness and overwriteability properties, and discuss this relationship in the context of recent developments in type theory.

References

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