Why So Consistent?
Dynamic Enforcement of Fine-grained Weak Consistency

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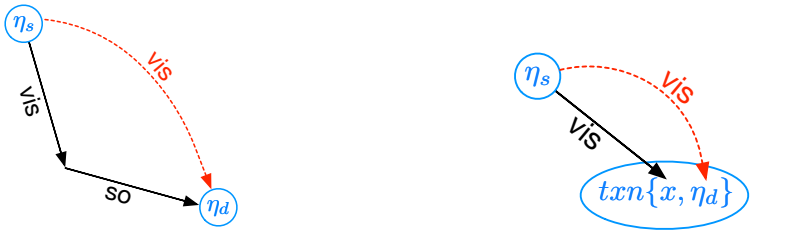

(a) Monotonic Read (MR) (b) Monotonic Atomic View (MAV)

Fig. 1. Representation of Contracts

4.2 Specification Language

. Users in our system are offered with a contract language to specify their application-level consistency requirements. Developers must define a contract for each operation in the application, since the overall correctness of the program requires different levels of consistency for each operation. The constructing blocks of contracts are the relations over the set of effects generated by operations. Relations $vis(a, b)$, $so(a, b)$ and $sameobj(a, b)$ are defined to relate effects a and b, respectively if b was visible to the operation that generated a, if they are the result of two operations submitted by the same session, respecting their submission time, and if they were performed on the same data object.

Contracts are basically logical formulae that specify *when* (the pre-condition), *what* effects should be visible to an operation. For example, the Monotonic Read (MR) session guarantee, requires all the effects that are visible to an operation in a session, to be also visible to the later operations in that session. Figure 1a shows how this can be succinctly defined using the relations over the effects. It simply states that all effects η_s that satisfy the relation $(vis^{-1}(so^{-1}))$ to an effect η_d, must also be visible to η_d. We generalized this structure and came up with blah blah