

# High Performance FRP

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## Abstract

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**Categories and Subject Descriptors** D.3.2 [*Programming Languages*]: Language Classifications—Applicative (functional) languages

**Keywords** FRP, Functional, Reactive.

## 1. Introduction

```
type Event a = Time -> Maybe a

instance Functor Behavior where
  fmap f b = s t -> f . b $ t

instance Applicative Behavior where
  pure a = const a
  f <*> x = \ t -> (f t) (x t)

instance Monad Behavior where
  return = pure
  f >>= k = \ t -> k (f t) t

instance Functor Event where
  fmap f e = \ t -> f <$> e t

never :: Event a
never \ t -> Nothing
```