



Rivar

Rivka Altshuler

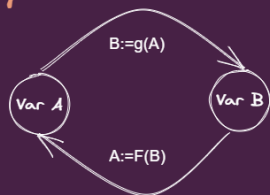
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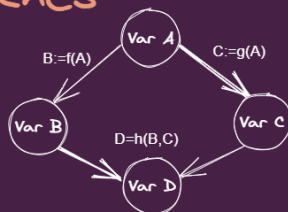
Goal: "Support Excel-like Formula in your Object's Class"

State-of-the-Art: Reactive variables by their nature suffer from:

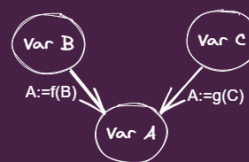
(1) cycles



(2) glitches

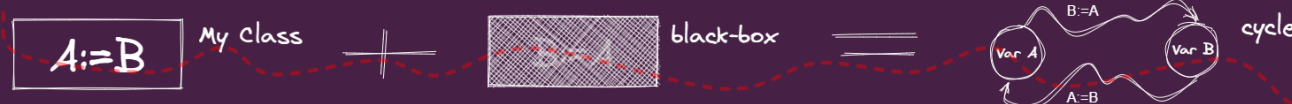


(3) reassignments



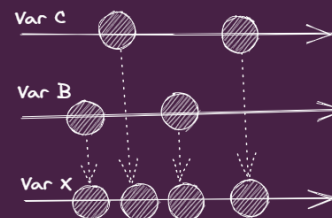
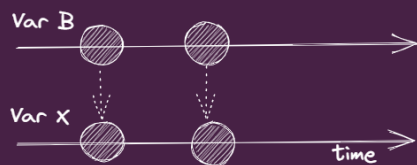
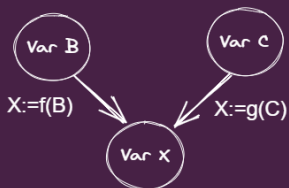
Limitation of Current Approaches

Current approaches include: avoidance, several iterations, and central management. However, when combining reactive variables with instance variables in OOP -- RIVars are subject to unsupported constructions, unpredictable results, and no-isolation.



Our Approach:

(1) support multiple assignments; (2) streams: values over time; (3) merge streams



Elvar בעברית

משתנה מופע ריאקטיבי (Variable Instance Reactive)
הוא שילוב של משתנה ריאקטיבי (Variable Reactive)
מן הפרדיגמה של תכנות ריאקטיבי-פונקציונלי (FRP),
יחד עם משתנה מופע (Variable Instance)
מן הפרדיגמה של תכנות מונחה עצמים (OOP).

Events

Drug	VolumeOfFluid	Concentration
100 99	300	0.33
Dose	Duration	Rate
10	10	30

פורמט רגיל: הוזן על ידי משתמש, פורמט *Italic*: ערכים מחושבים

Reactive Programming

בשיטה החדשה



Constraints Programming

```
public class Pump
{
    public RVar<decimal> Rate = new RVar<decimal>();
    public RVar<decimal> Dose = new RVar<decimal>();
    public RVar<decimal> Duration = new RVar<decimal>();

    public Pump(IBag bag)
    {
        Dose.Set(bag.Amount.Div(Duration));
        Rate.Set(bag.Volume.Div(Duration));

        Duration.Set(bag.Amount.Div(Dose));
        Duration.Set(bag.Volume.Div(Rate));

        bag.Amount.Set(Duration.Mul(Dose));
        bag.Volume.Set(Duration.Mul(Rate));
    }
}
```

בביסוס של constraints, אפשר להגדיר מוסכמות והמערך מעדכנת את השדות אוטומטית בהתאם לקלט ולמוסכמות.

Implementation:

- US Provisional Application No. 63/061204 August 5, 2020 entitled "Reactive Calculated Signals Method"



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<https://www.r-project.org/doc/news/NEWS.html> 1.0.0