

Simplified programming of population model user interfaces

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Objectives

✓ Simplify implementation of option-heavy user interfaces.

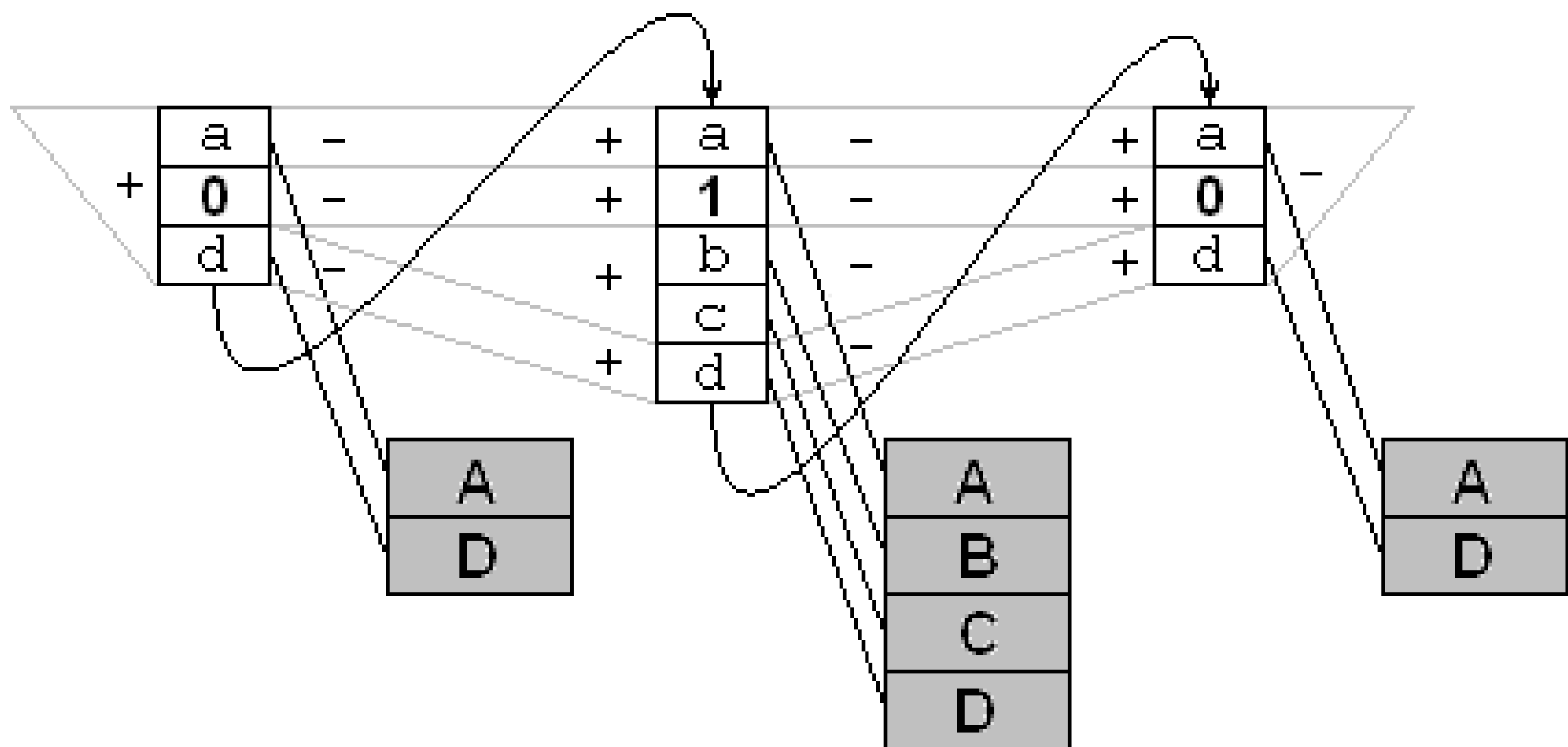
Differential Execution Algorithm

Allows any procedure to be executed repeatedly, retaining information from prior execution in a FIFO cache. It can run in these basic modes:

- SHOW mode creates objects and writes to cache.
- UPDATE mode both reads from and writes to cache, while updating objects.
- ERASE mode only reads from cache, and destroys objects.
- EVENT mode only reads from cache, and passes UI input events to proper object.

Conditional statements like IF—END create or destroy objects by temporarily entering SHOW or ERASE mode.

+ SHOW	-+ UPDATE	-+ UPDATE	- ERASE
+ button("A")	-+ button("A")	-+ button("A")	- button("A")
+ IF(0)	-+ IF(1)	-+ IF(0)	- IF(0)
	+ button("B")	- button("B")	
	+ button("C")	- button("C")	
+ ENDIF	-+ ENDIF	-+ ENDIF	- ENDIF
+ button("D")	-+ button("D")	-+ button("D")	- button("D")



- 1 Model type changed to PK/Indirect
- 2 PK parameterization changed to Clearance
- 3 Using clearance, Saturating is an option
- 4 Type of indirect model can be chosen
- 5 Type of error model can be chosen
- 6 For mixed error model, mix ratio parameter appears
- 7 Structural parameters updated dynamically
- 8 Structural model statements updated dynamically
- 9 Number of compartments affects parameters and statements
- 10 Scrollbar automatically appears if necessary

- Parameter model UI
- 1 Multiple nested tab levels
 - 2 For each structural parameter, there are options for mixed effect model
 - 3 Statements for mixed effect model, including covariate effects, are updated dynamically.

- Covariate effect page
- 1 Covariates can be added
 - 2 Can specify which covariates affect which structural parameters
 - 3 Fixed effect parameters for covariate effects are dynamically updated

Comparison of UI Programming Paradigms:

Event-Based Object Oriented:

- Must declare all UI objects.
- Must create UI objects and construct object hierarchy of panels.
- Must write code to handle all events.

Differential Execution:

- Just "paint" the UI, not "build" it.
- all events handled automatically.

Java Swing – 270 lines of code

Differential Execution – 60 lines of code

Contact

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