

Efficient GPU Synchronization without Scopes: Saying No to Complex Consistency Models

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This is your brain



**This is your brain on ~~drugs~~
complex consistency models**

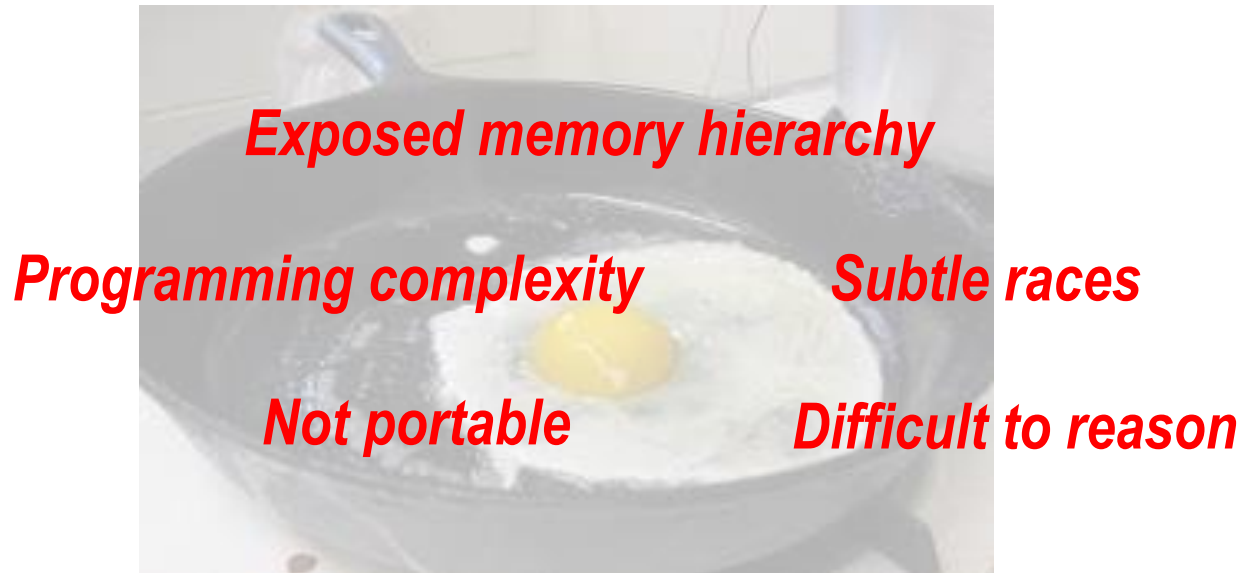




**complex
consistency
models**

Just Say No to Complex Consistency Models

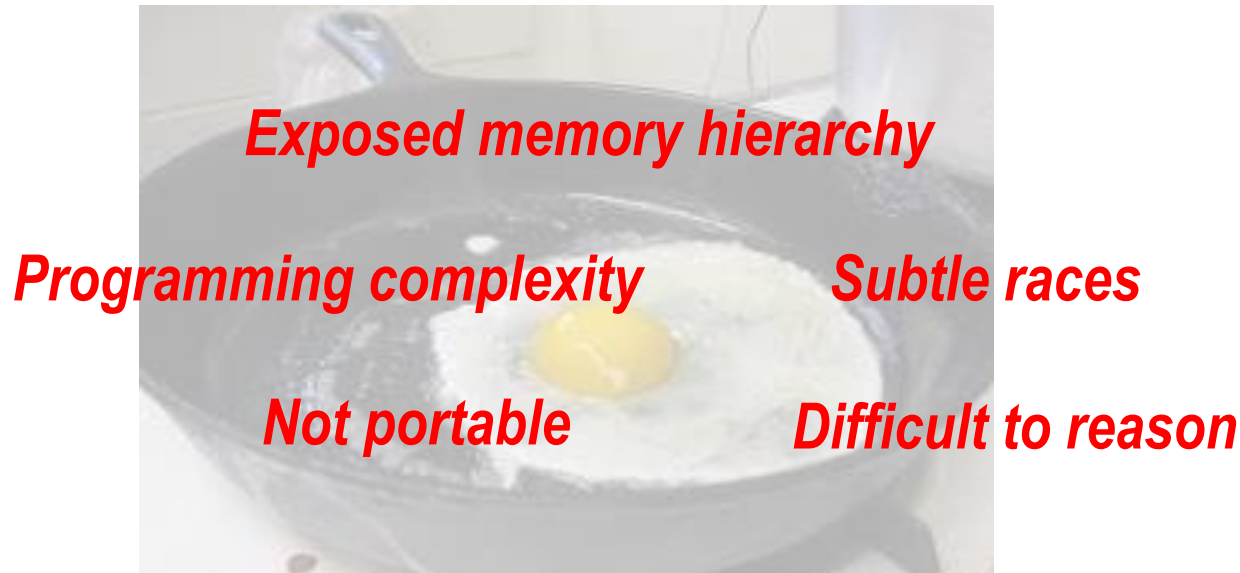
- 1970s-1990s: Addiction to complex CPU consistency models



- 1990s-2000s: War on Complex CPU Consistency Models
 - Won (mostly) by **data-race-free (DRF) model**
 - But still burdened by poorly designed **legacy** systems

Just Say No to Complex Consistency Models

- 2015: Déjà vu: Complex Models for Heterogeneous Systems
 - E.g., Heterogeneous-Race-Free (HRF) adopted by HSA [ASPLOS '14]



- This work
 - HRF's complexity arises due to poor coherence design
 - DeNovo coherence enables data-race-free \Rightarrow Simplicity + Efficiency



**complex
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