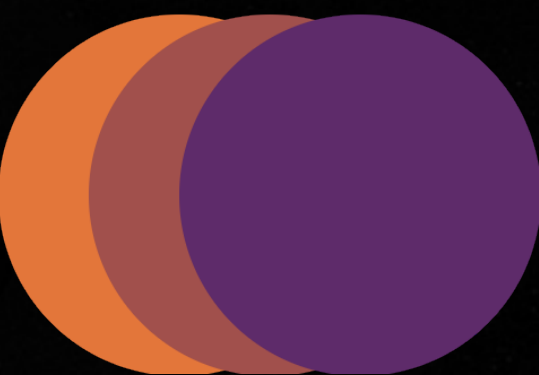


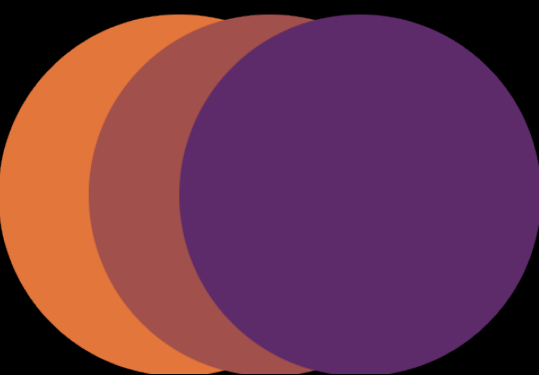
# **NOW WITNESS THE POWER OF FULLY OPERATIONAL PARTIAL EVALUATION!**



**MEINTE BOERSMA (DSL CONSULTANCY), LANGDEV 2023-11-14**



**PARTIAL EVALUATION**  
**IS A TECHNIQUE TO**  
**RUN A PROGRAM**  
**AGAINST INPUT DATA**  
**THAT'S (ONLY) PARTIALLY KNOWN.**

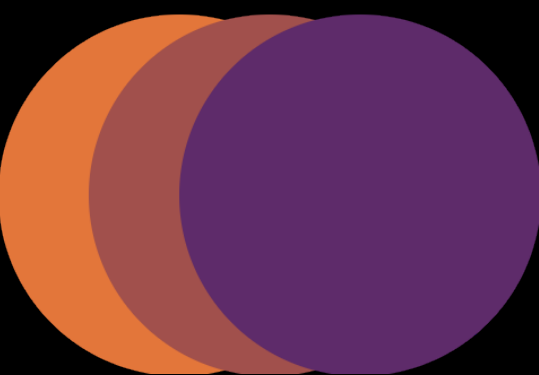


# GOALS

**PROGRAM OPTIMIZATION**

**REASONING ABOUT BEHAVIOR**






**(WITHOUT USING A DEBUGGER)**



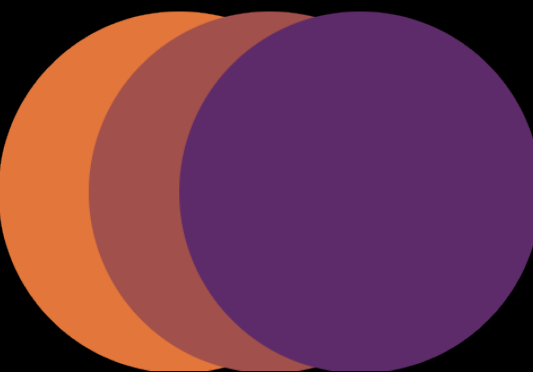


Vaccine	AL	AT	CH	CY	CZ	DE	EE	ES	FI	FR	HR	IE	LT	LU	LV	ME	MT	NL	PL	RO	RS	SI	SK	TG	UA
AZD2816																									
Abdala																									
BBIBP-CorV																									
CVnCoV																									
Convidecia																									
CoronaVac																									
Covaxin																									
CoviVac																									
Covid-19-adsorvida-inativada																									
Covid-19-recombinant																									
Covifenz																									
Covishield																									
Covovax																									
Spikevax (Moderna)																									
Janssen																									
Comirnaty (Pfizer/BioNTech)																									
Vaxzevria (AstraZeneca)																									
Nuvaxovid																									
EpiVacCorona																									
EpiVacCorona-N																									
Hayat-Vax																									
Inactivated-SARS-CoV-2-Vero-Cell																									
MVC-COV1901																									
NVSI-06-08																									
Nuvaxovid (deprecated encoding)																									
R-COVI																									
SCTV01C																									
Sputnik-Light																									
Sputnik-M																									
Sputnik-V																									
VLA2001																									
Vidprevlyn																									
WIBP-CorV																									
YS-SC2-010																									

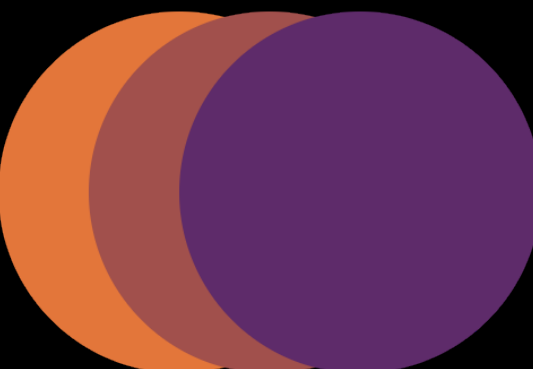
## USE CASE

Accepted vaccines	1/1	2/2	2/1	3/3
Luxembourg (LU -  )	<a href="#">regs. on</a>	<a href="#">Re-open EU</a>	<a href="#">(regs. on</a>	
Covid-19-recombinant, Covishield, Spikevax (Moderna), Janssen, Comirnaty (Pfizer/BioNTech), Vaxzevria (AstraZeneca), Nuvaxovid, Nuvaxovid (deprecated encoding), R-COVI	14-270	0-270	0-366	0-366
Latvia (LV -  )	<a href="#">regs. on</a>	<a href="#">Re-open EU</a>	<a href="#">(regs. on</a>	
BBIBP-CorV, CoronaVac, Covaxin, Covishield, Spikevax (Moderna), Comirnaty (Pfizer/BioNTech), Vaxzevria (AstraZeneca), Nuvaxovid, Nuvaxovid (deprecated encoding)	15-270	15-270	0-	0-
Janssen	15-270	0-	0-	0-
Montenegro (ME -  )	<a href="#">regs. on</a>	<a href="#">Re-open EU</a>	<a href="#">(regs. on</a>	
BBIBP-CorV, CoronaVac, Covishield, Spikevax (Moderna), Comirnaty (Pfizer/BioNTech), Vaxzevria (AstraZeneca), Inactivated-SARS-CoV-2-Vero-Cell, Sputnik-V, WIBP-CorV	0-	0-180	0-	0-
Janssen	0-180	0-180	0-	0-
Malta (MT -  )	<a href="#">regs. on</a>	<a href="#">Re-open EU</a>	<a href="#">(regs. on</a>	
Spikevax (Moderna), Janssen, Comirnaty (Pfizer/BioNTech), Vaxzevria (AstraZeneca)	0-	0-270	0-	0-
Netherlands (NL -  )	<a href="#">regs. on</a>	<a href="#">Re-open EU</a>	<a href="#">(regs. on</a>	
BBIBP-CorV, CoronaVac, Covaxin, Covishield, Spikevax (Moderna), Comirnaty (Pfizer/BioNTech), Vaxzevria (AstraZeneca), Nuvaxovid, Nuvaxovid (deprecated encoding)	14-270	14-270	0-	0-
Janssen	28-270	0-	0-	0-

# ANALYSIS OF BUSINESS RULES FOR THE EU DIGITAL COVID-19 CERTIFICATE

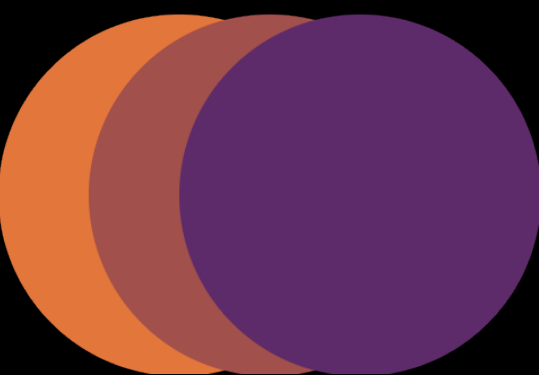


# EXAMPLE LANGUAGE

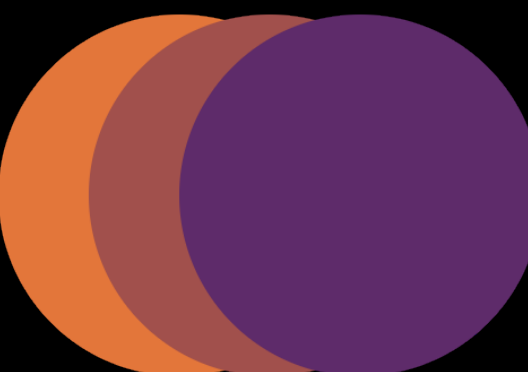
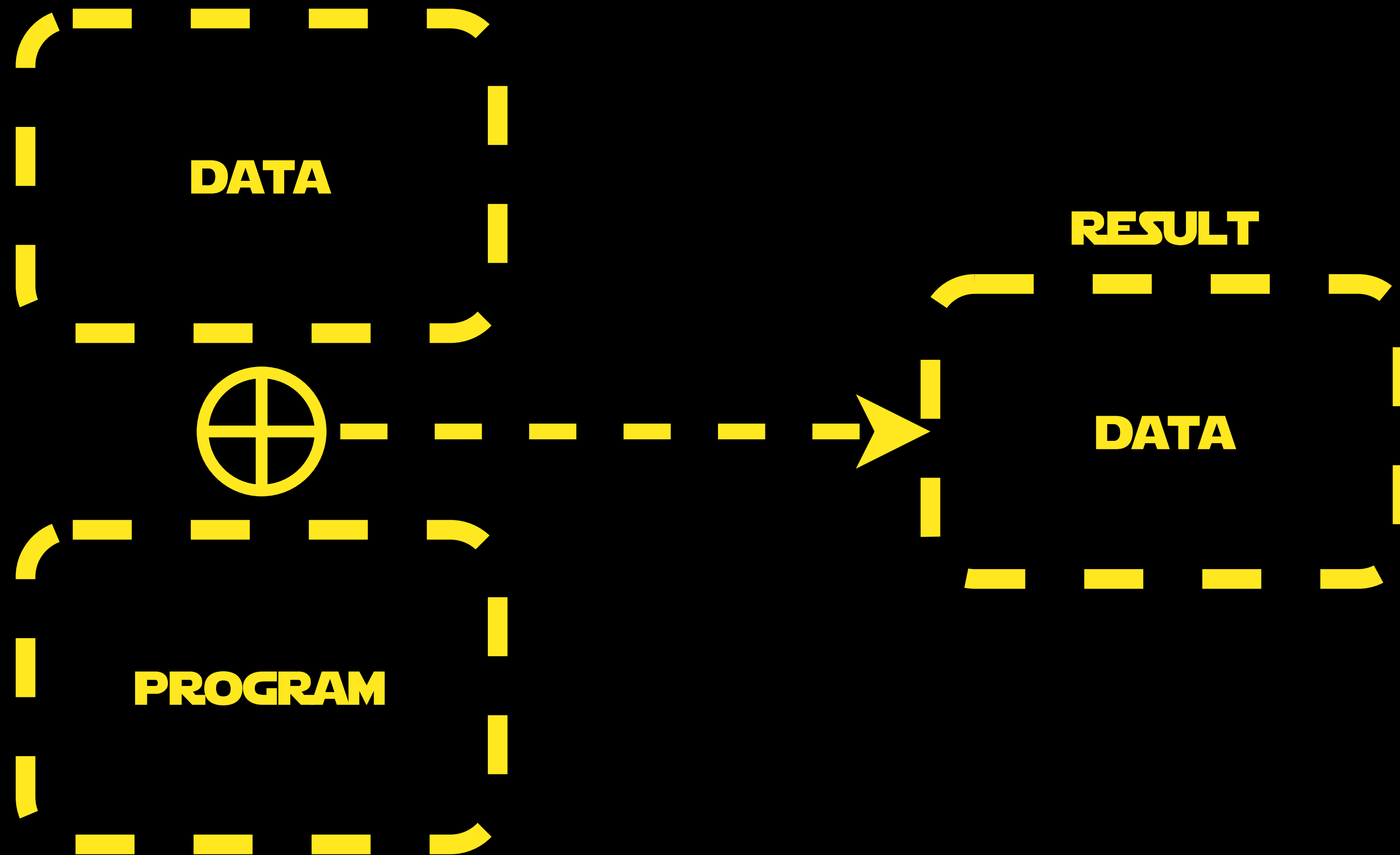


# CHALLENGE

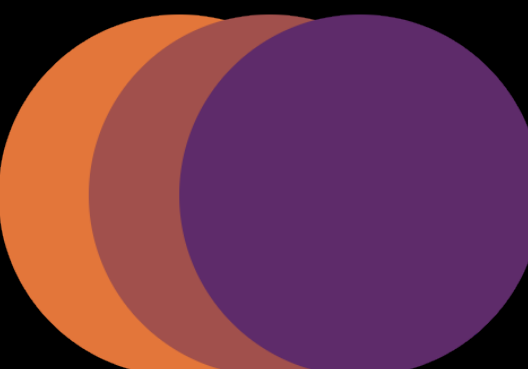
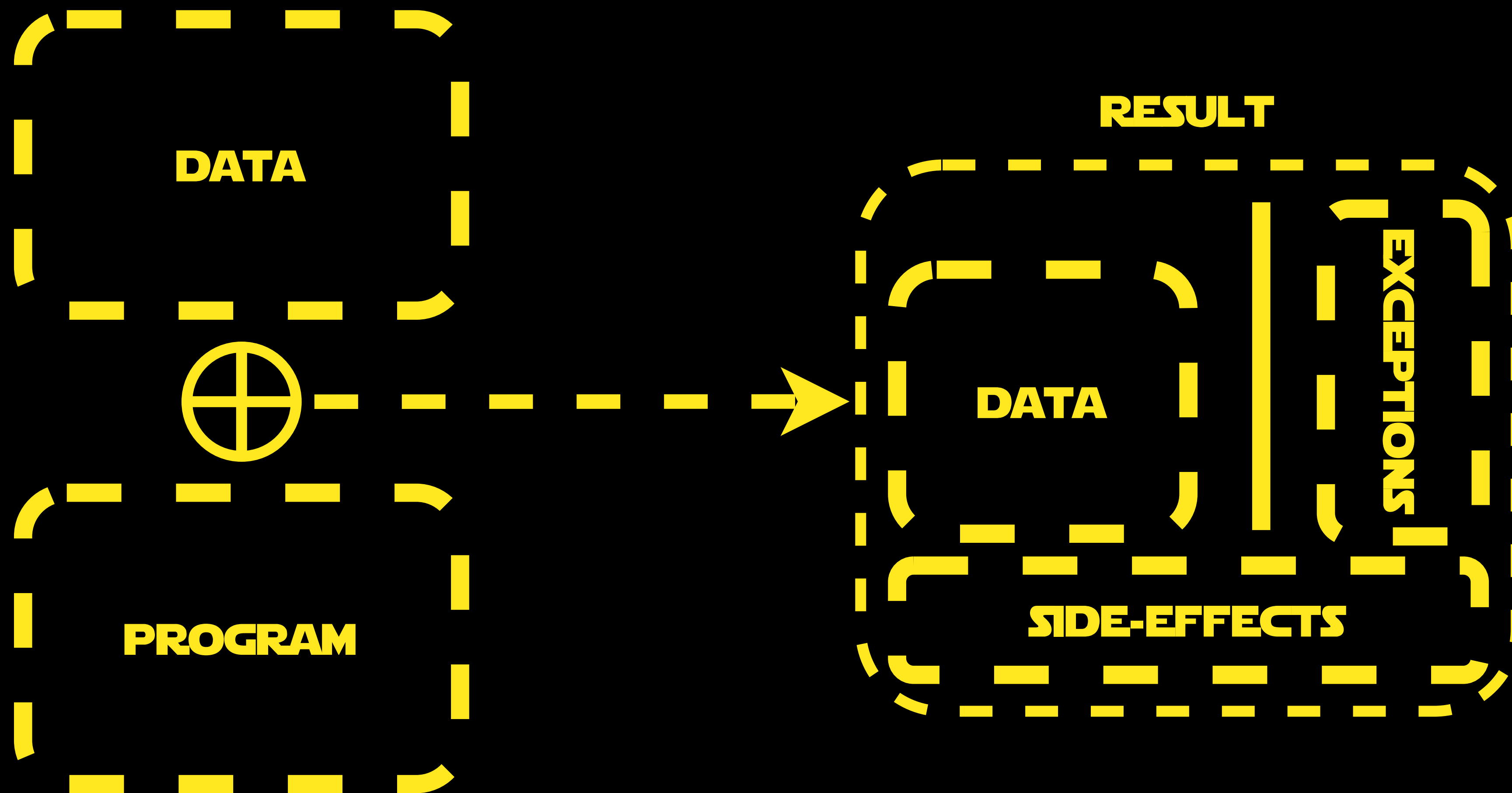
**EXTEND THIS EXAMPLE LANGUAGE  
WITH PARTIAL EVALUATION**



# RUNNING A PROGRAM



# RUNNING A PROGRAM

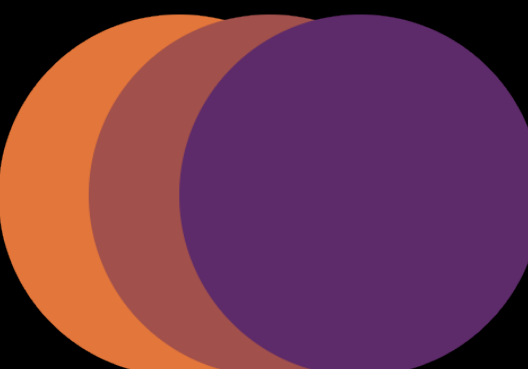




# STEPS

**1. GET RID OF SIDE-EFFECTS**

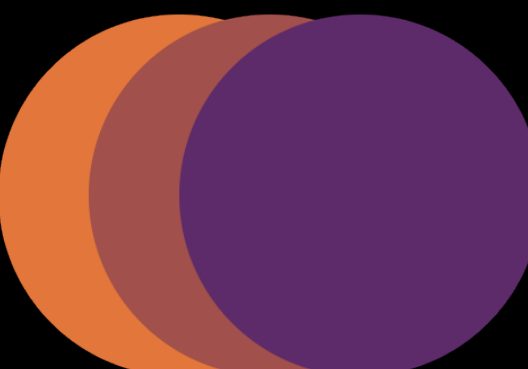
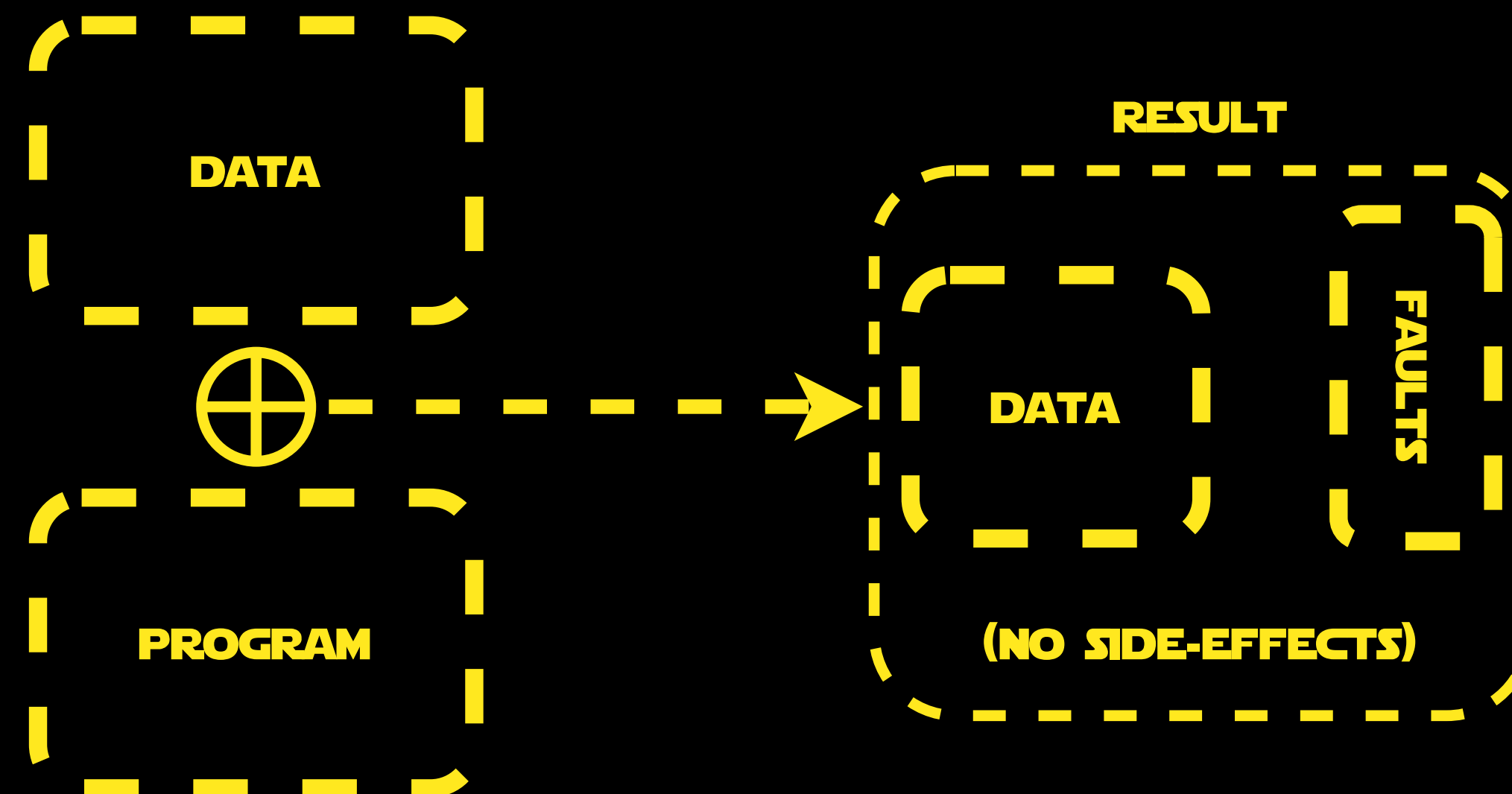
**2. FAULT AS LITERAL**



# STEPS

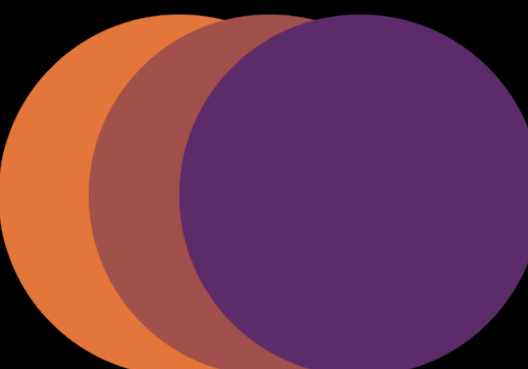
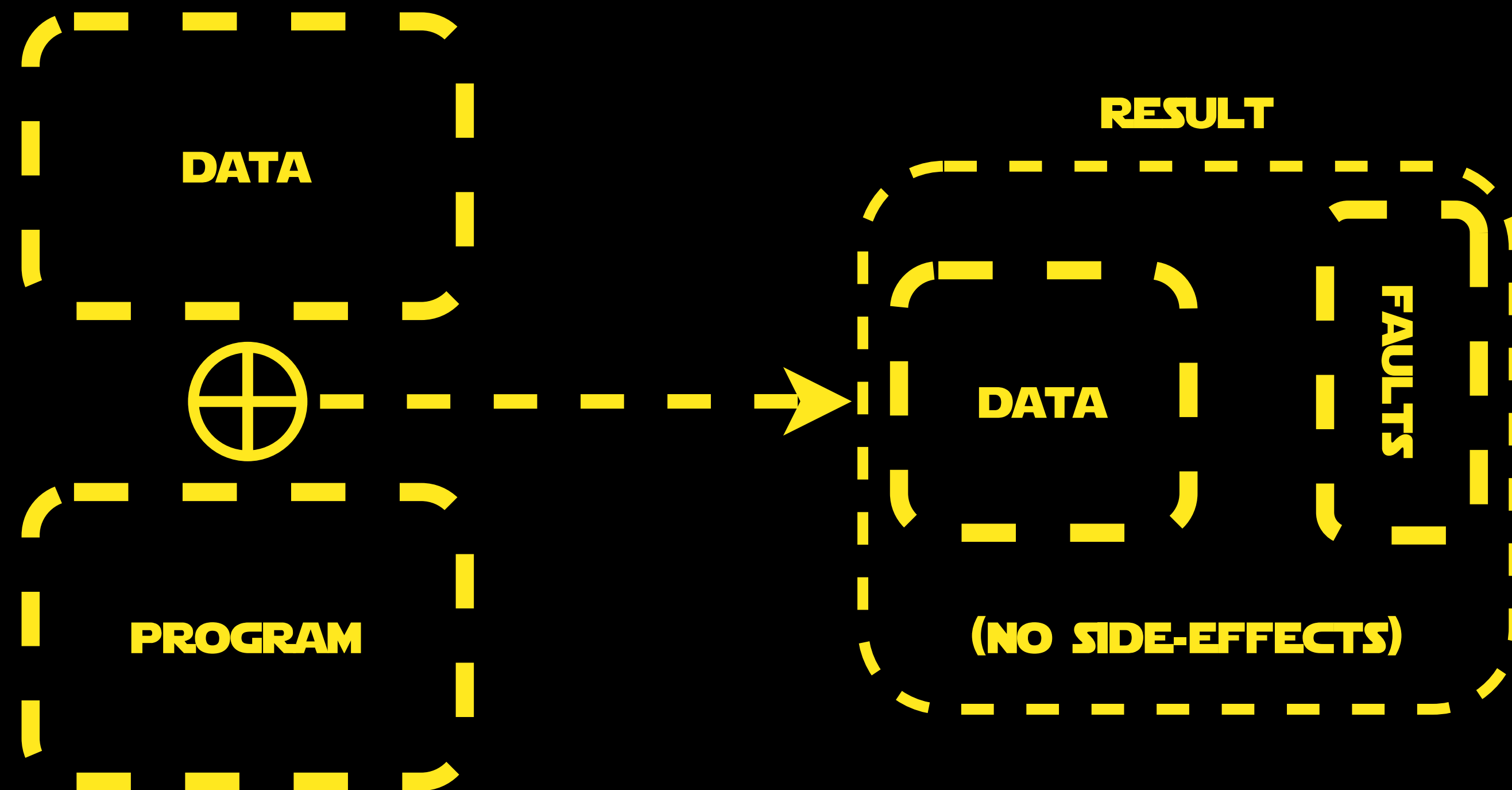
**1. GET RID OF SIDE-EFFECTS**

**2. FAULT AS LITERAL**



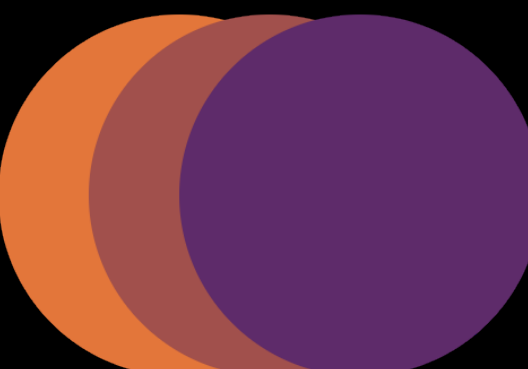
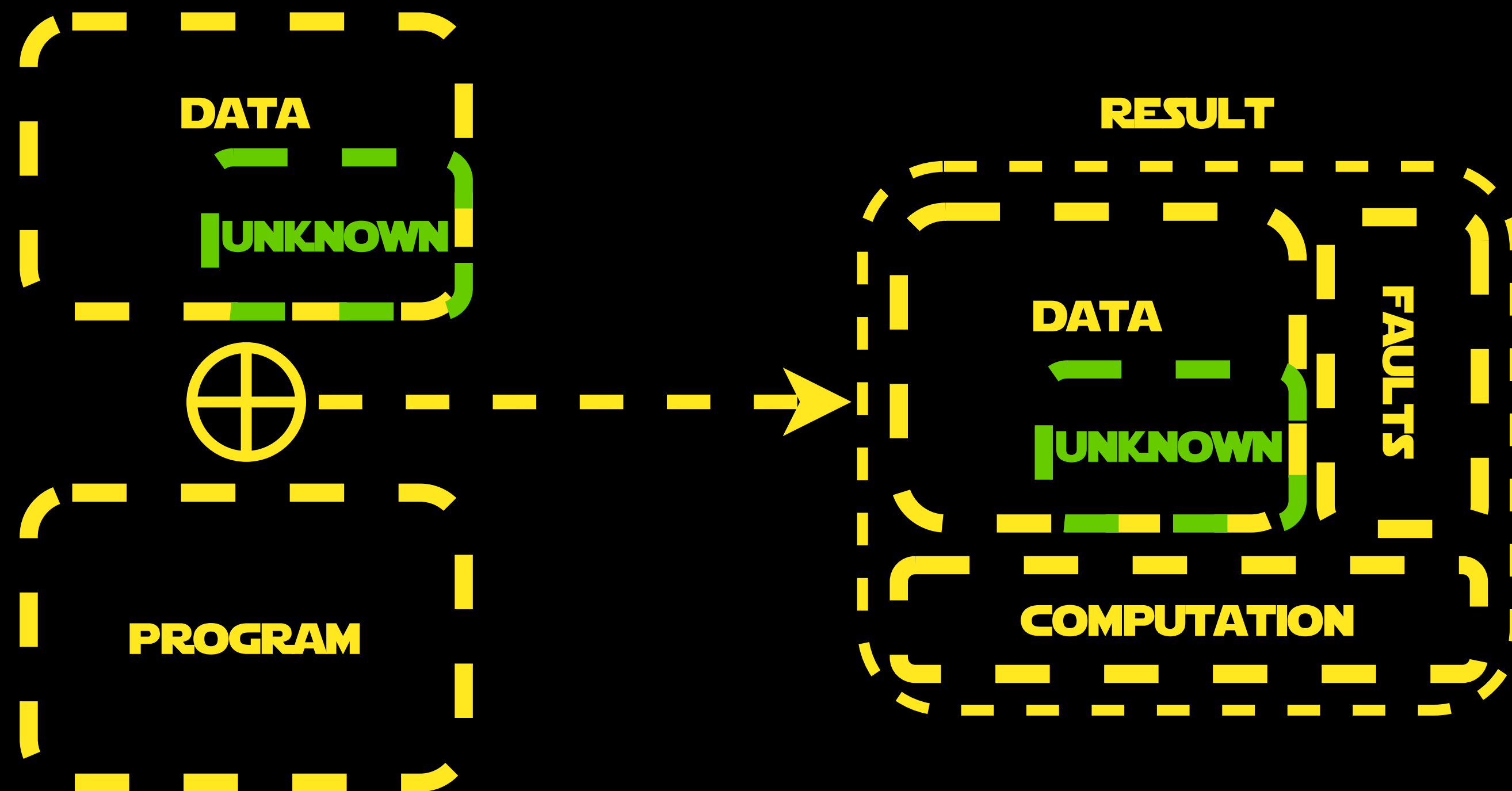
# STEPS

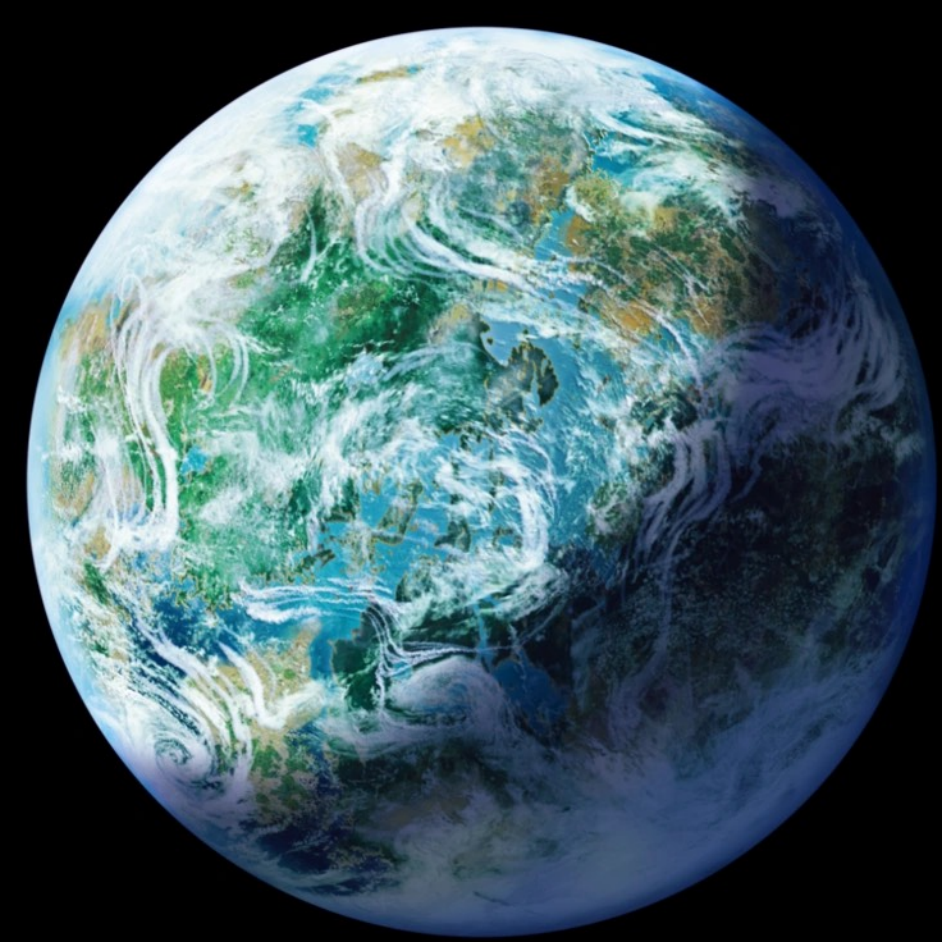
## 3. ADD LITERAL FOR UNKNOWN



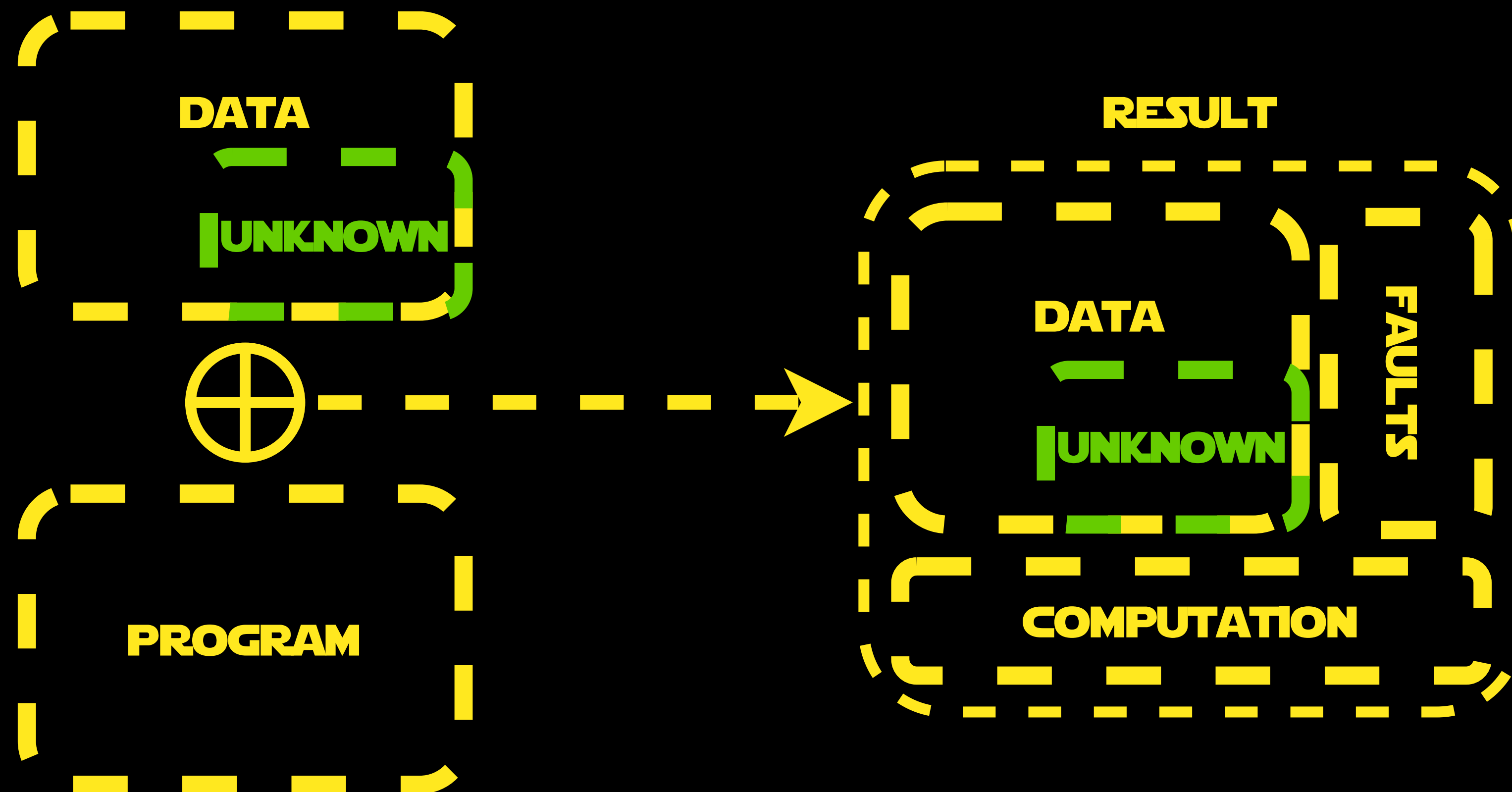
# STEPS

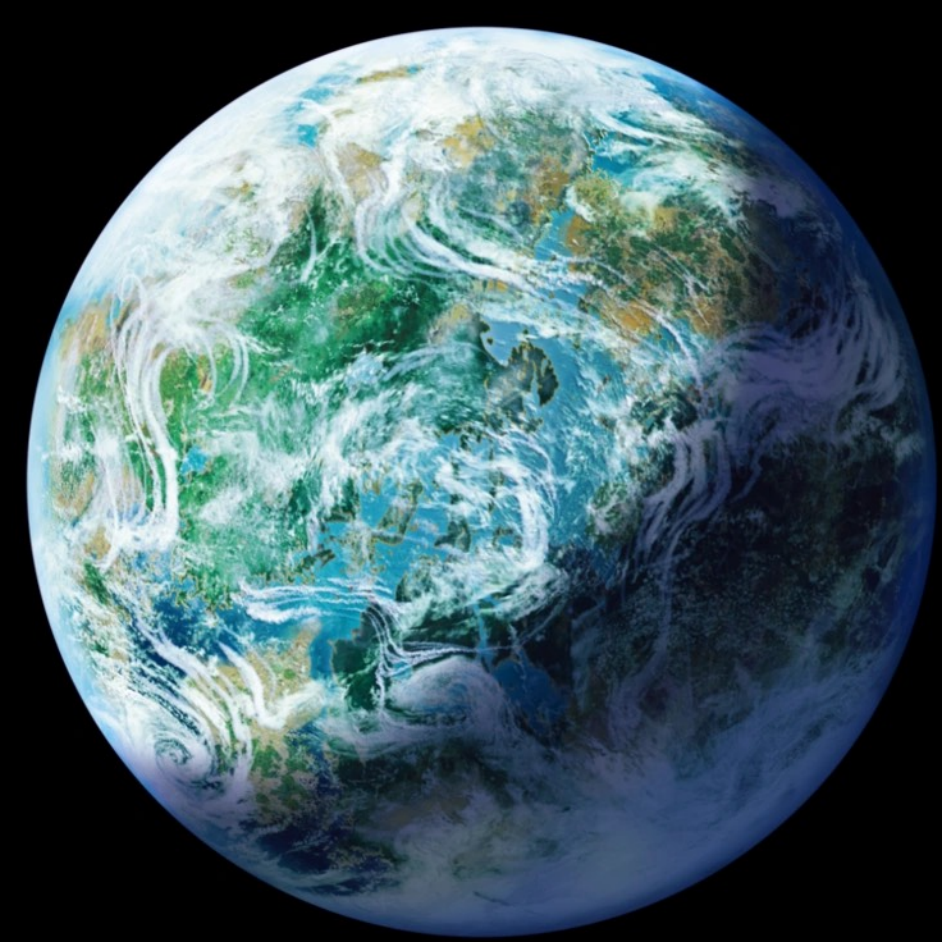
## 3. ADD LITERAL FOR UNKNOWN



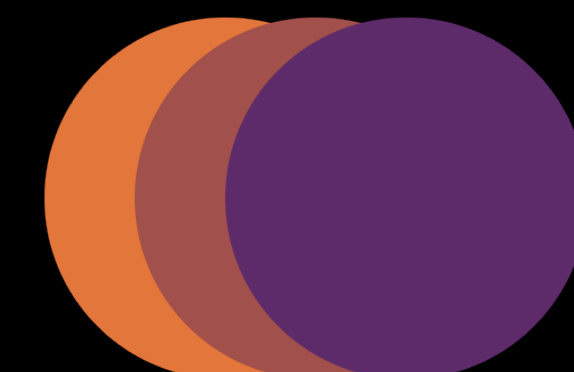
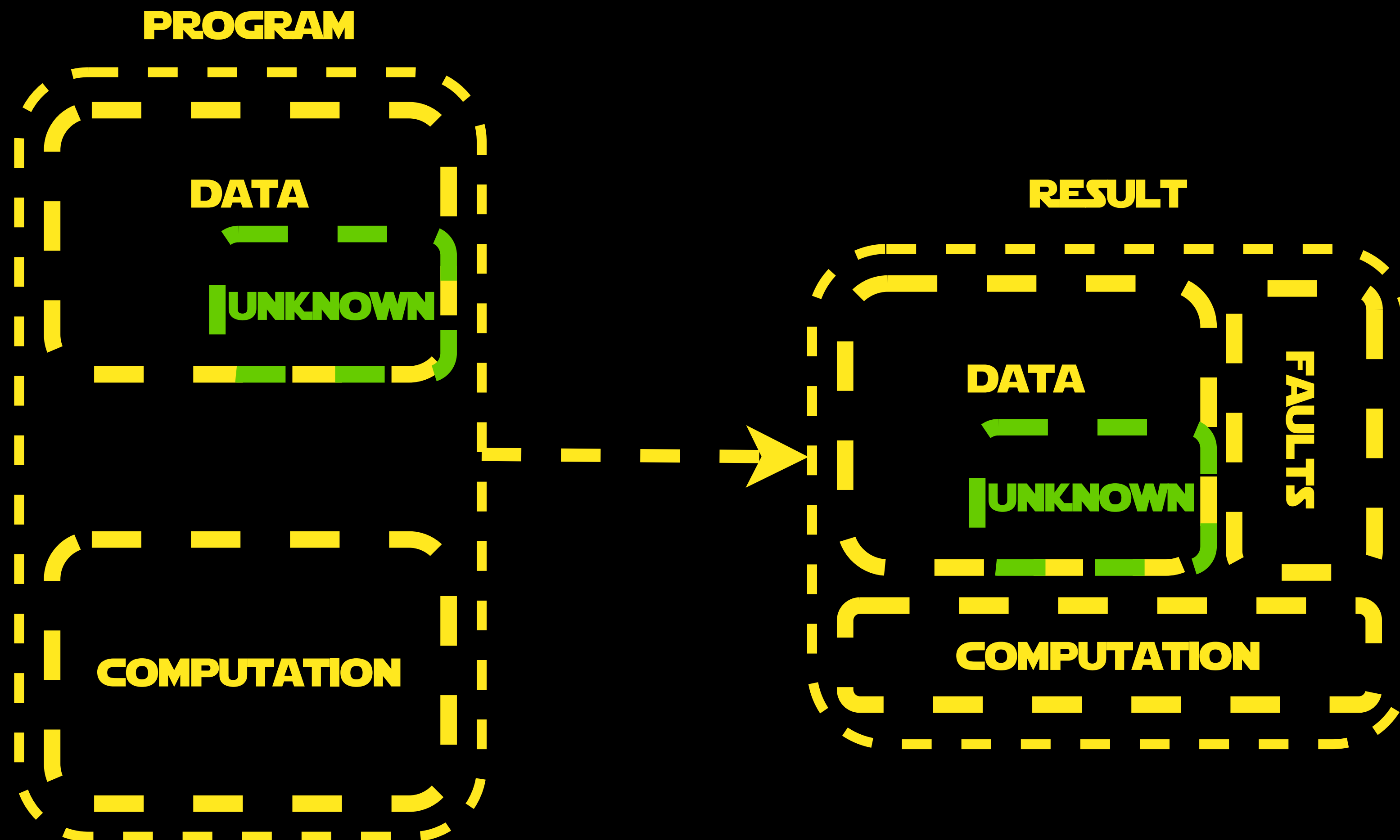


# ENDO(R)MORPHISM

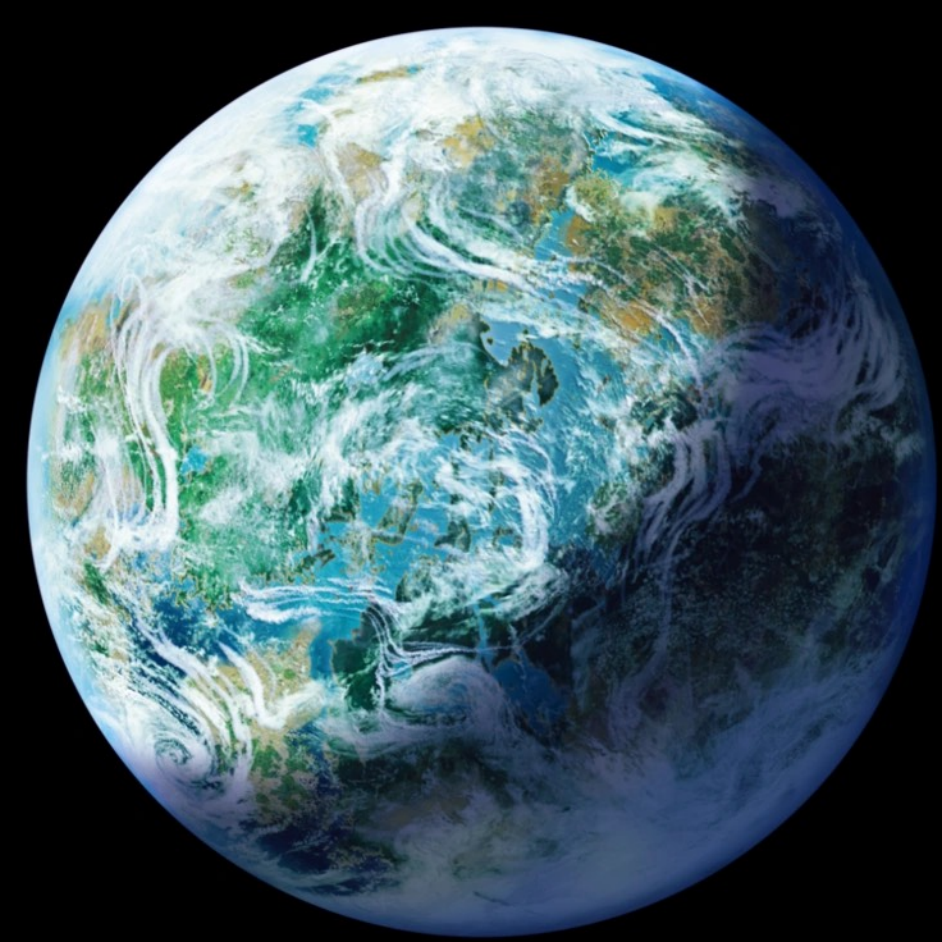




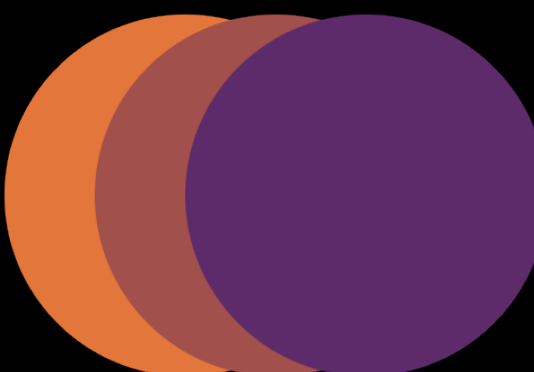
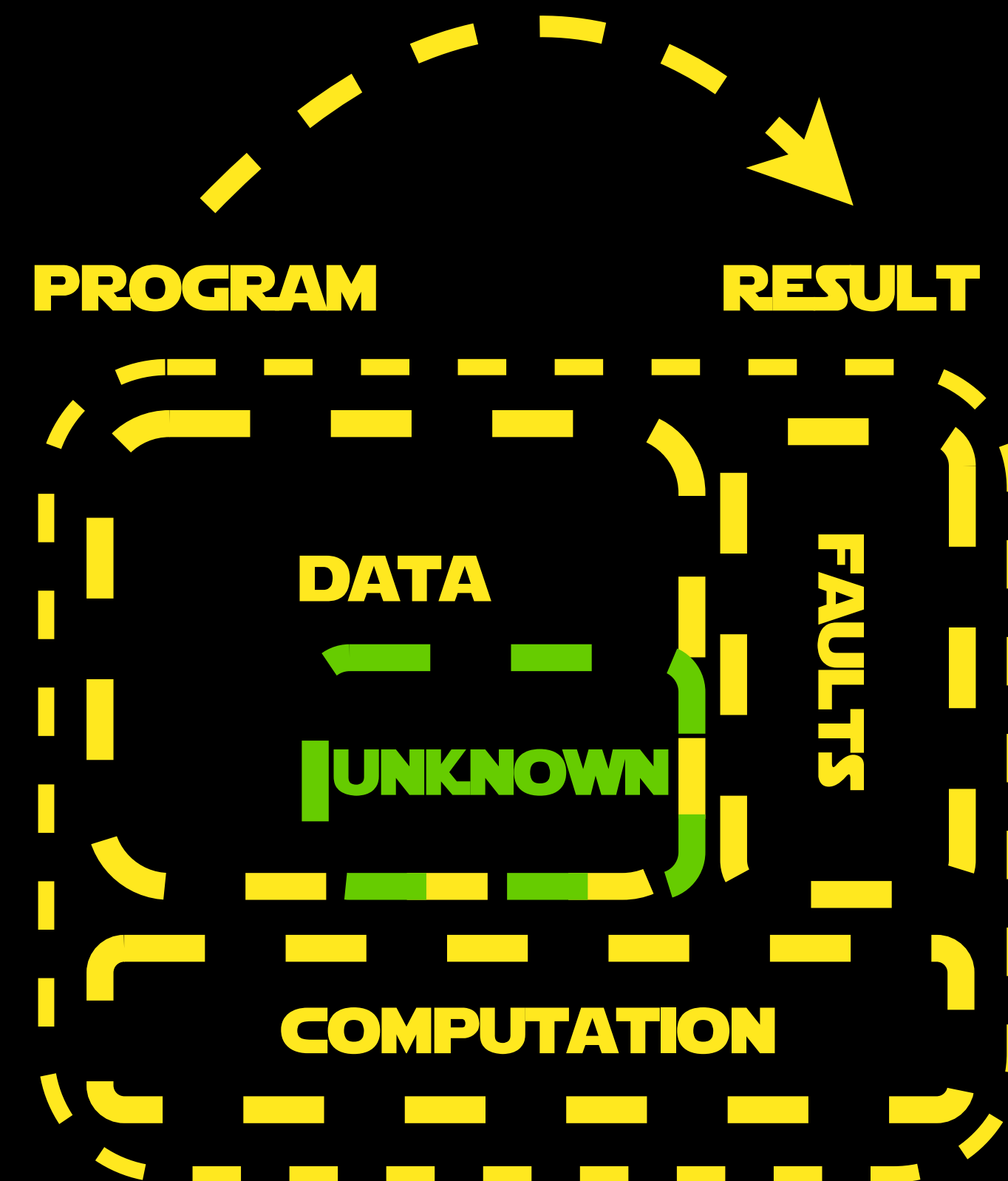
# ENDO(R)MORPHISM





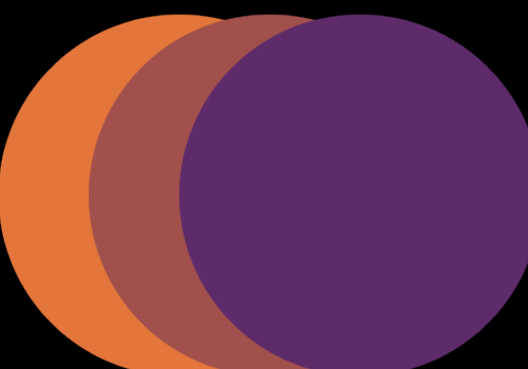
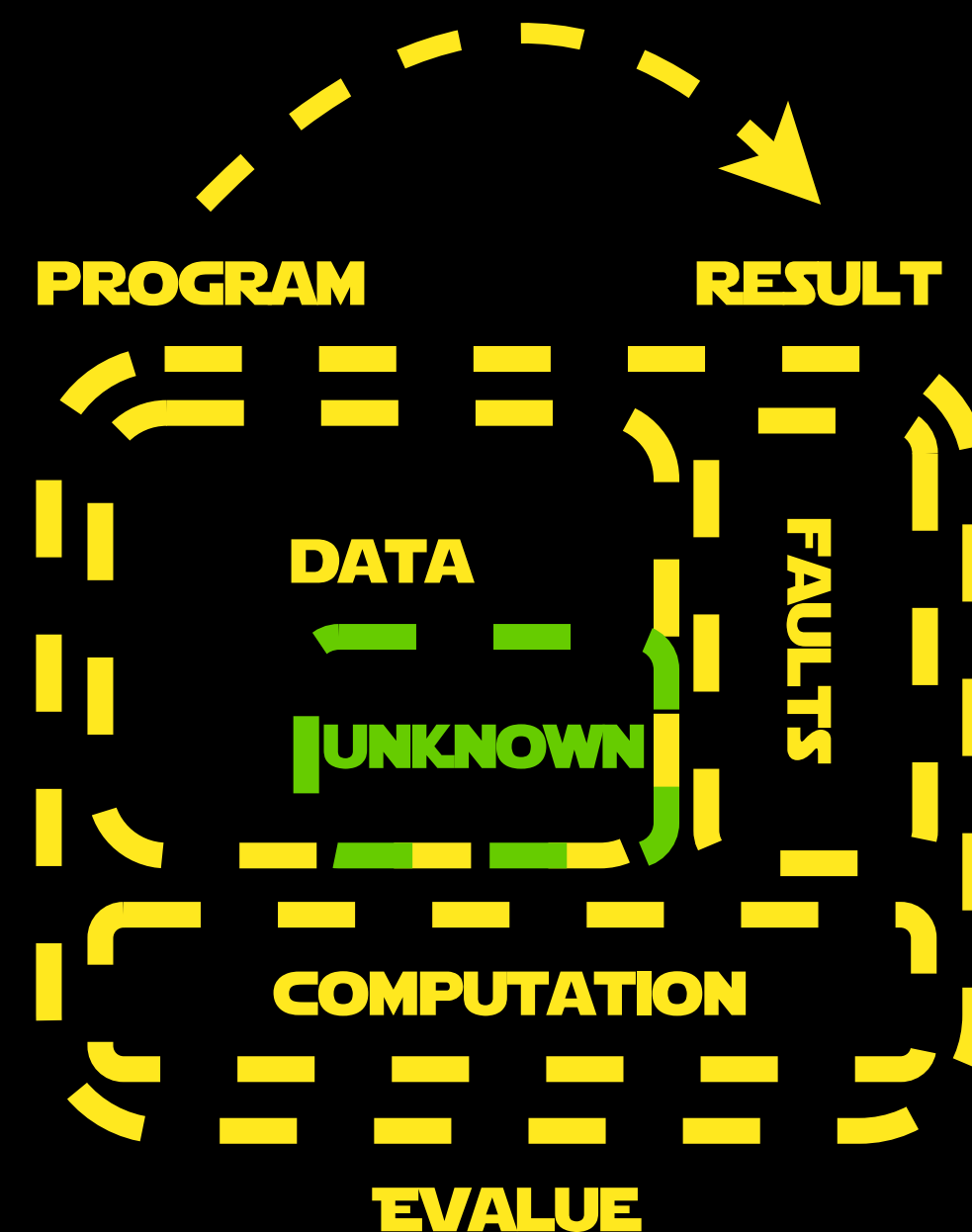


# ENDO(R)MORPHISM



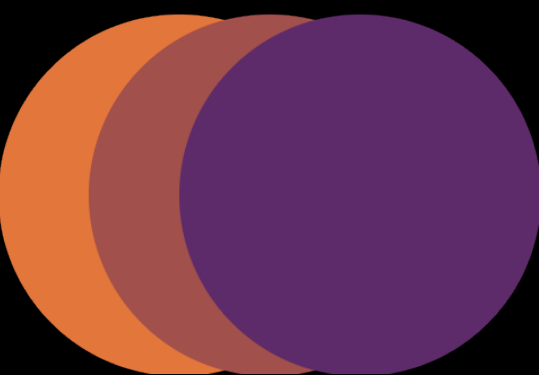
# STEPS

**4. WRAP EACH RESULT:**  
**EVALUATE: (RESULT, ORIGIN)**



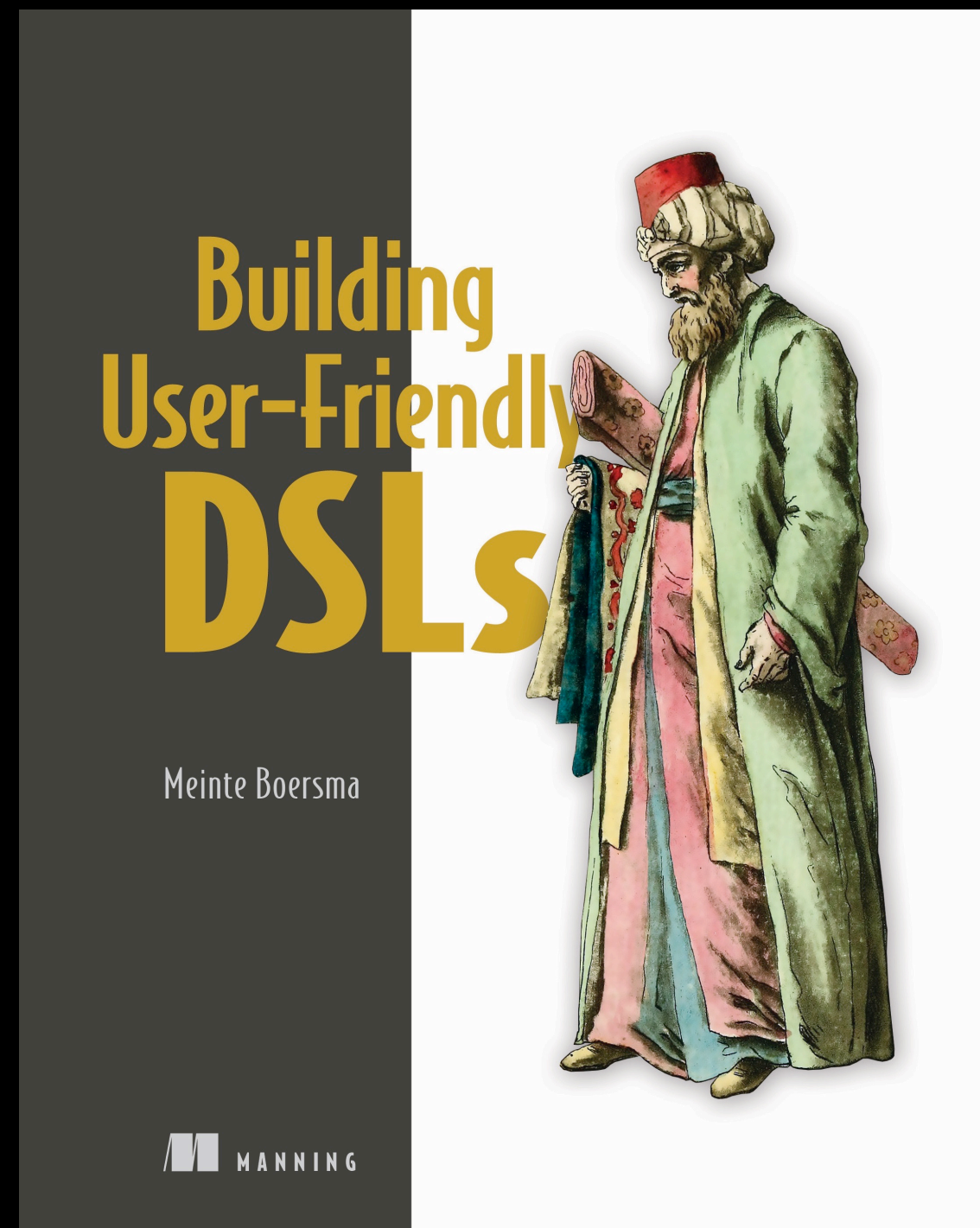
# CONCLUSION

- **PARTIAL EVALUATION IS USEFUL**
- **(RELATIVELY) EASY TO IMPLEMENT**
- **IT MAKES YOUR LANGUAGE BETTER**



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**DSL CONSULTANCY**

