



NODEWORLD

ADVENTURES FROM A WORLD OF TURTLES ALL THE WAY DOWN

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All-Turtle-Systems in History

Unix Shell

All Text Files, Processes and Pipes

Smalltalk

Everything is objects, including code

Lisp

Everything is values, lists, functions

MPS

Everything is nodes

**BECAUSE EVERYTHING IS
THE SAME, YOU NEED ONLY
FEW GENERIC TOOLS TO
DO "EVERYTHING"**



Where does TATWD come from?

≡ WIKIPEDIA
The Free Encyclopedia

≡ Turtles all the way down

"**Turtles all the way down**" is an expression of the problem of [infinite regress](#). The saying alludes to the mythological idea of a [World Turtle](#) that supports a [flat Earth](#) on its back. It suggests that this turtle rests on the back of an even larger turtle, which itself is part of a column of increasingly larger turtles that continues indefinitely.

The exact origin of the phrase is uncertain. In the form "rocks all the way down," the saying appears as early as 1838.^[1] References to the saying's mythological antecedents, the [World Turtle](#) and its counterpart the [World Elephant](#), were made by a number of authors in the 17th and 18th centuries.^{[2][3]}

The expression has been used to illustrate problems such as the [regress argument](#) in [epistemology](#).

Domain Structures

Domain-Specific Expr

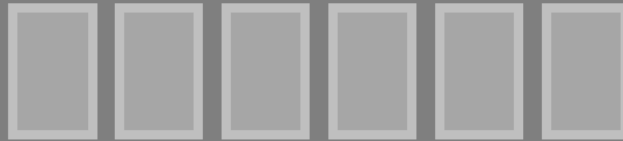


Domain Structures

Domain-Specific Expr

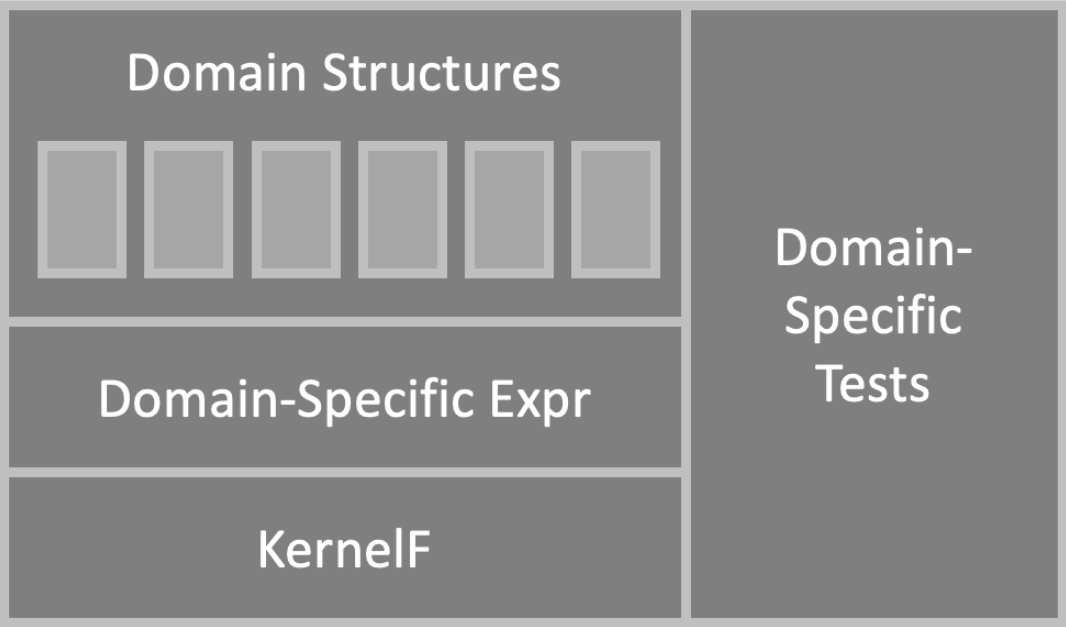
KernelF

Domain Structures



Domain-Specific Expr

KernelF



“Funclarative” DSL

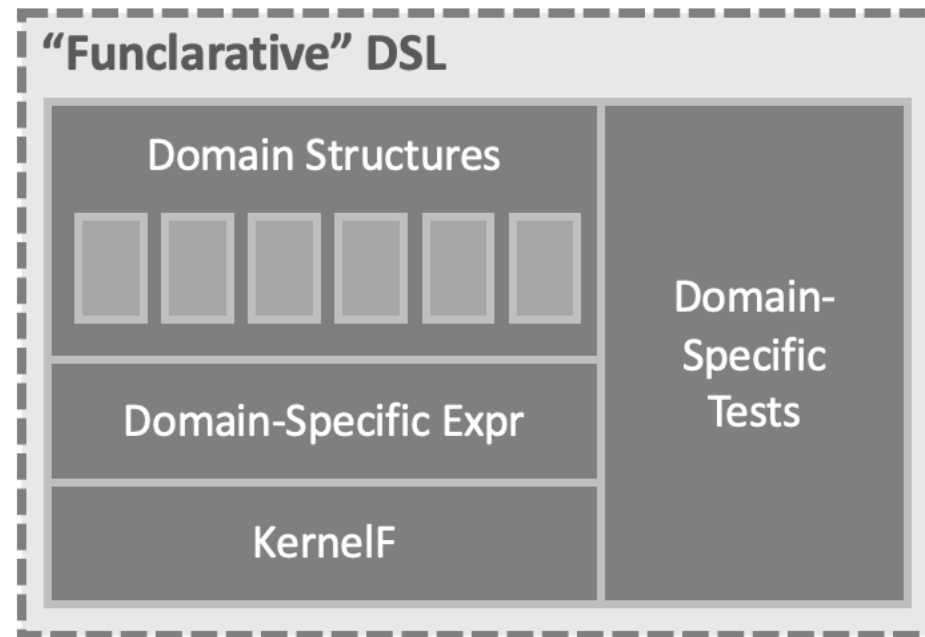
Domain Structures

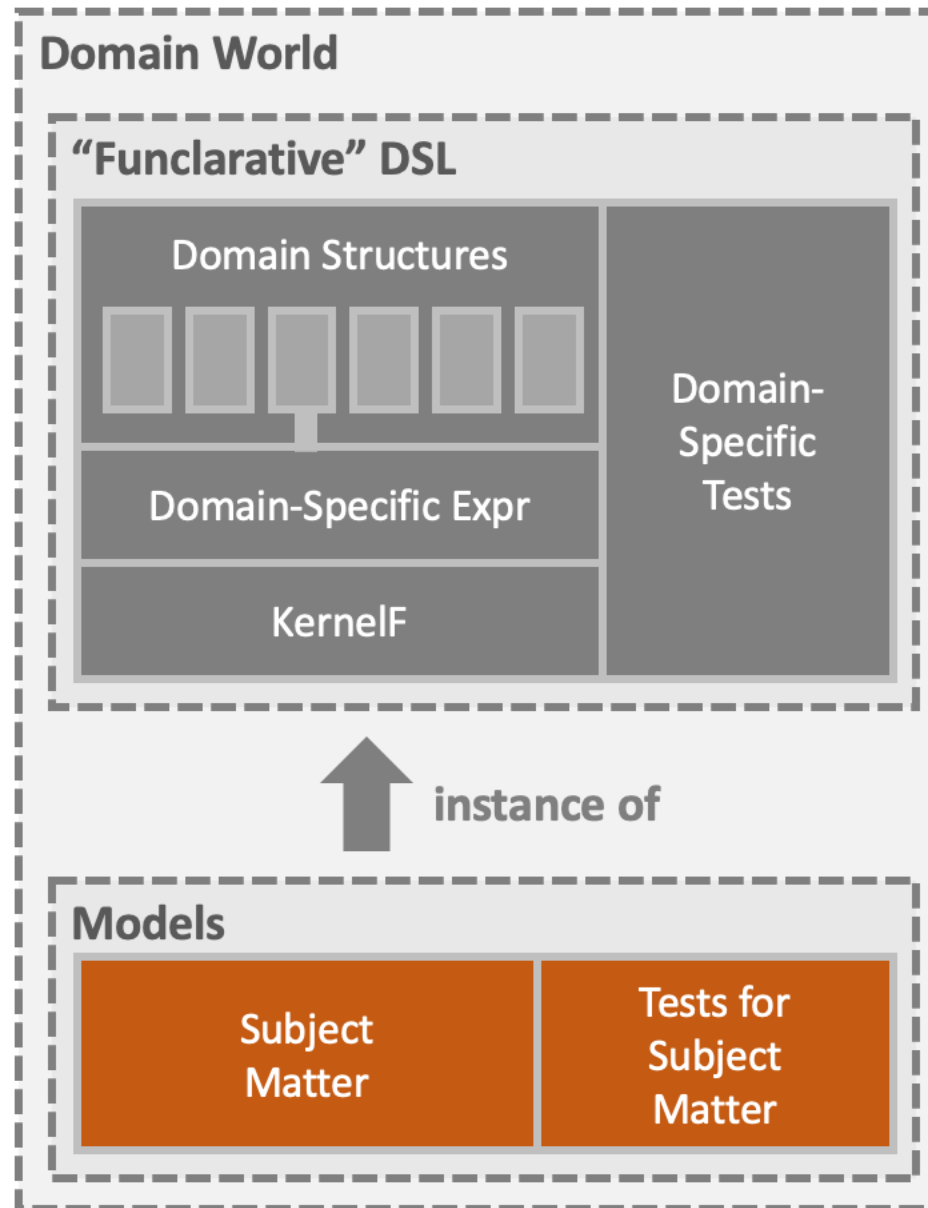


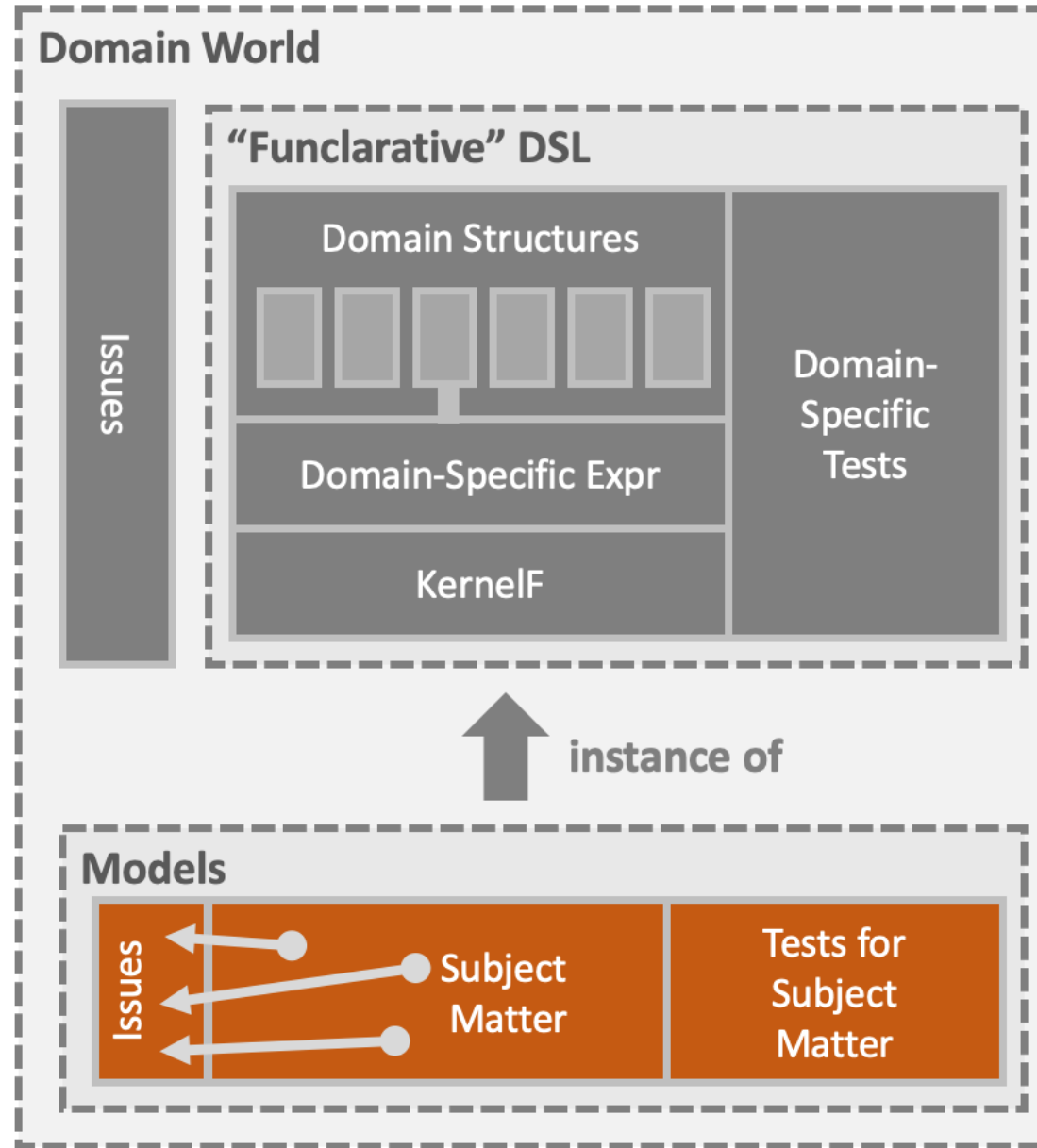
Domain-Specific Expr

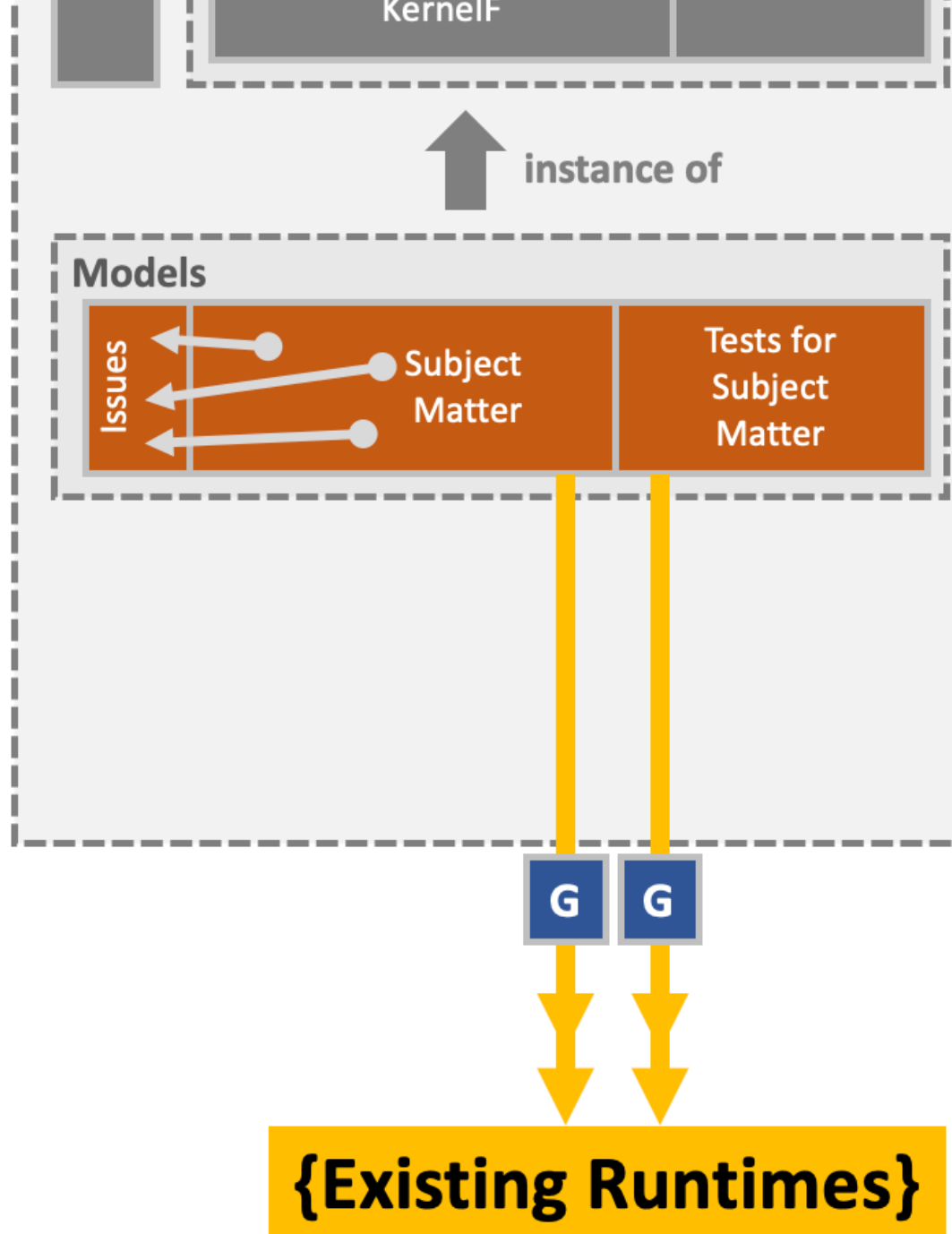
KernelF

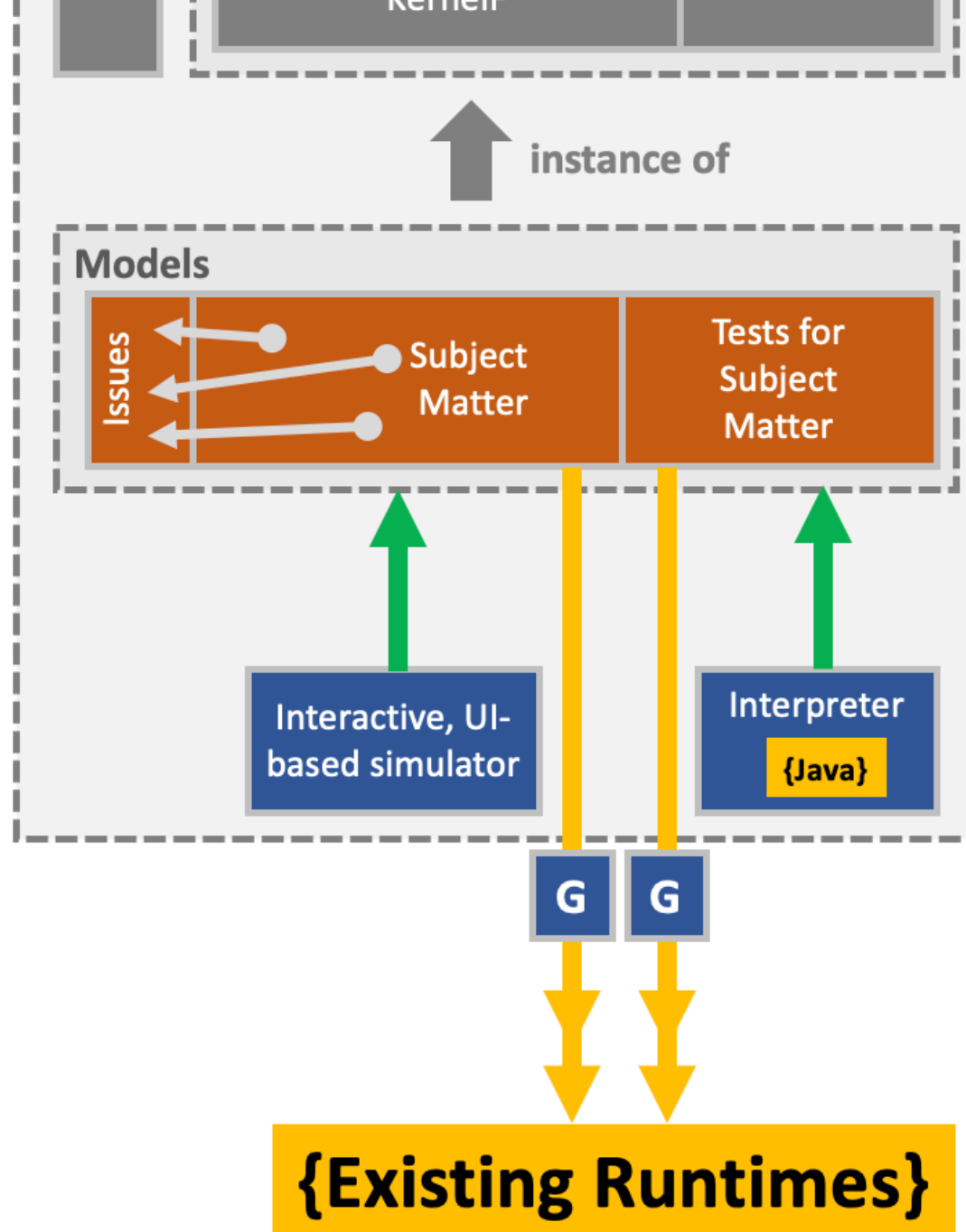
Domain-
Specific
Tests

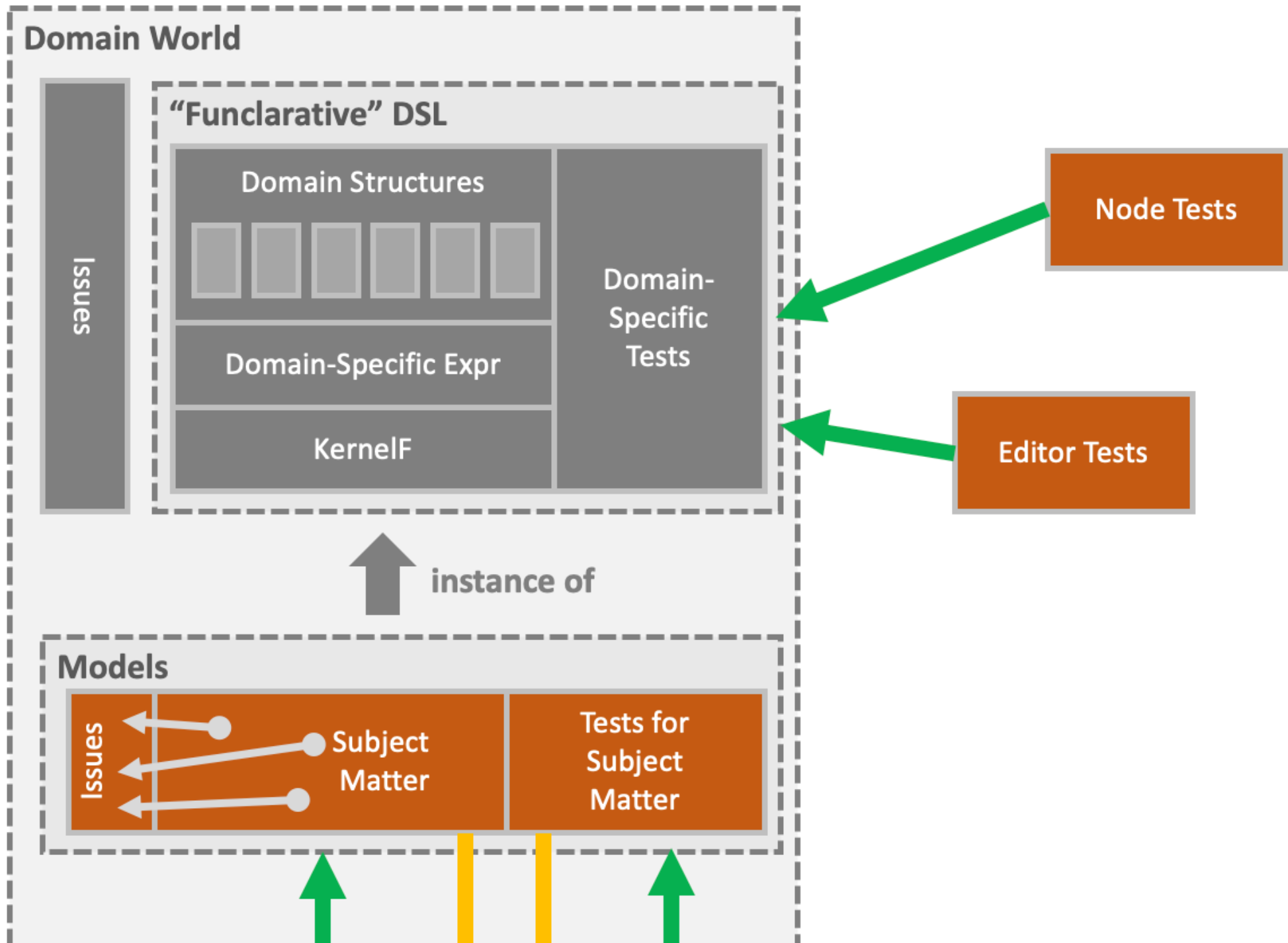


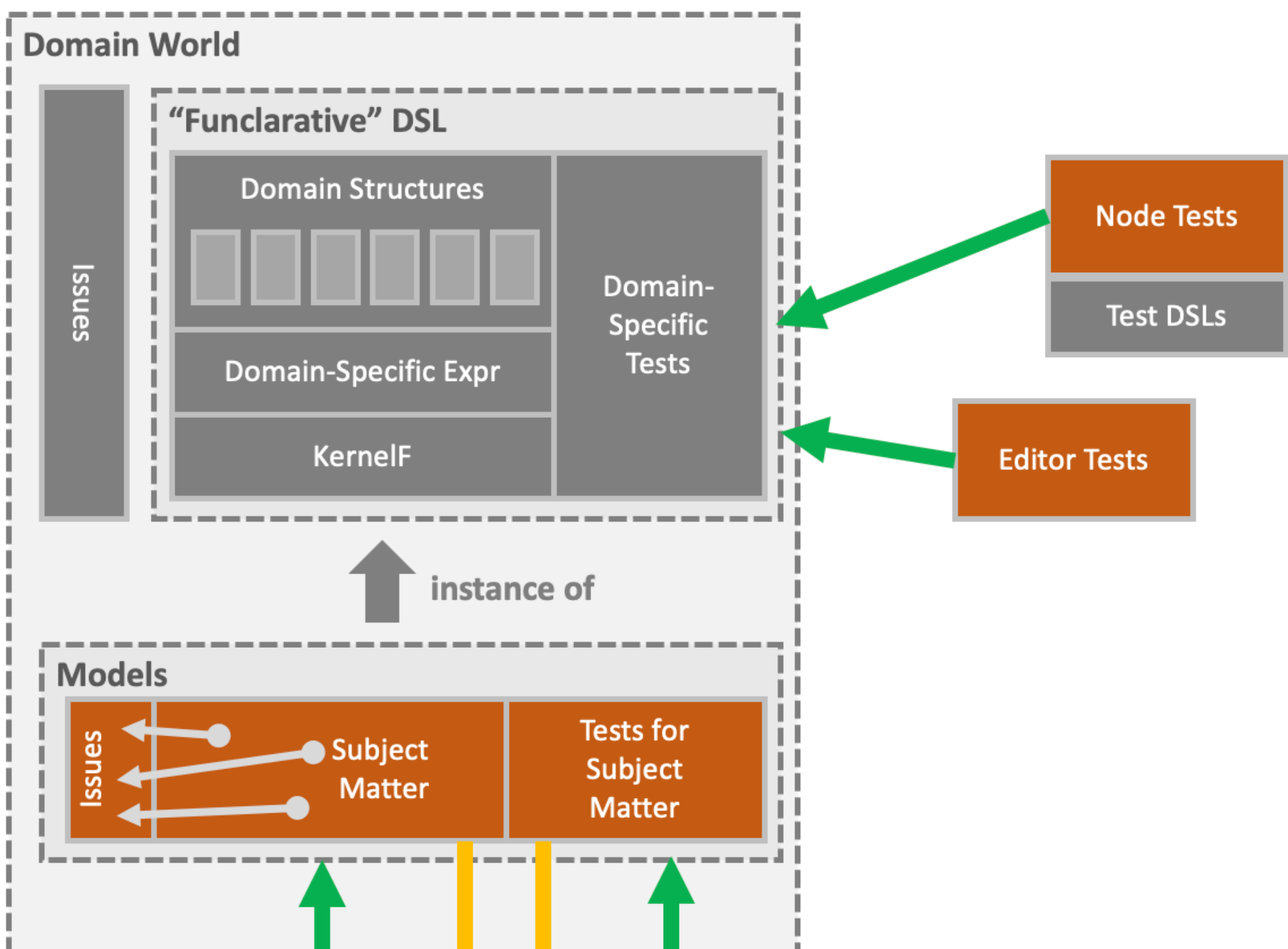


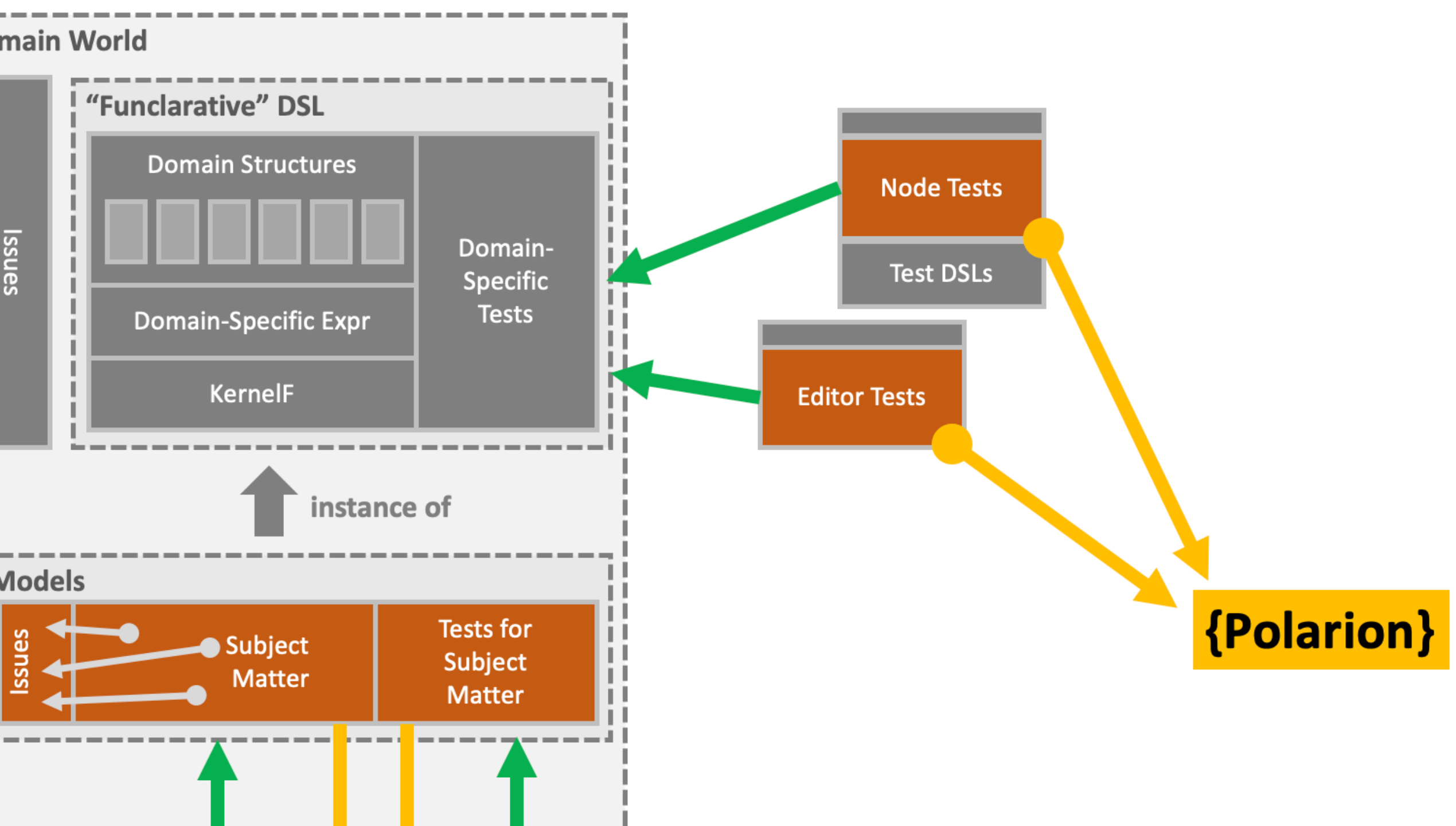


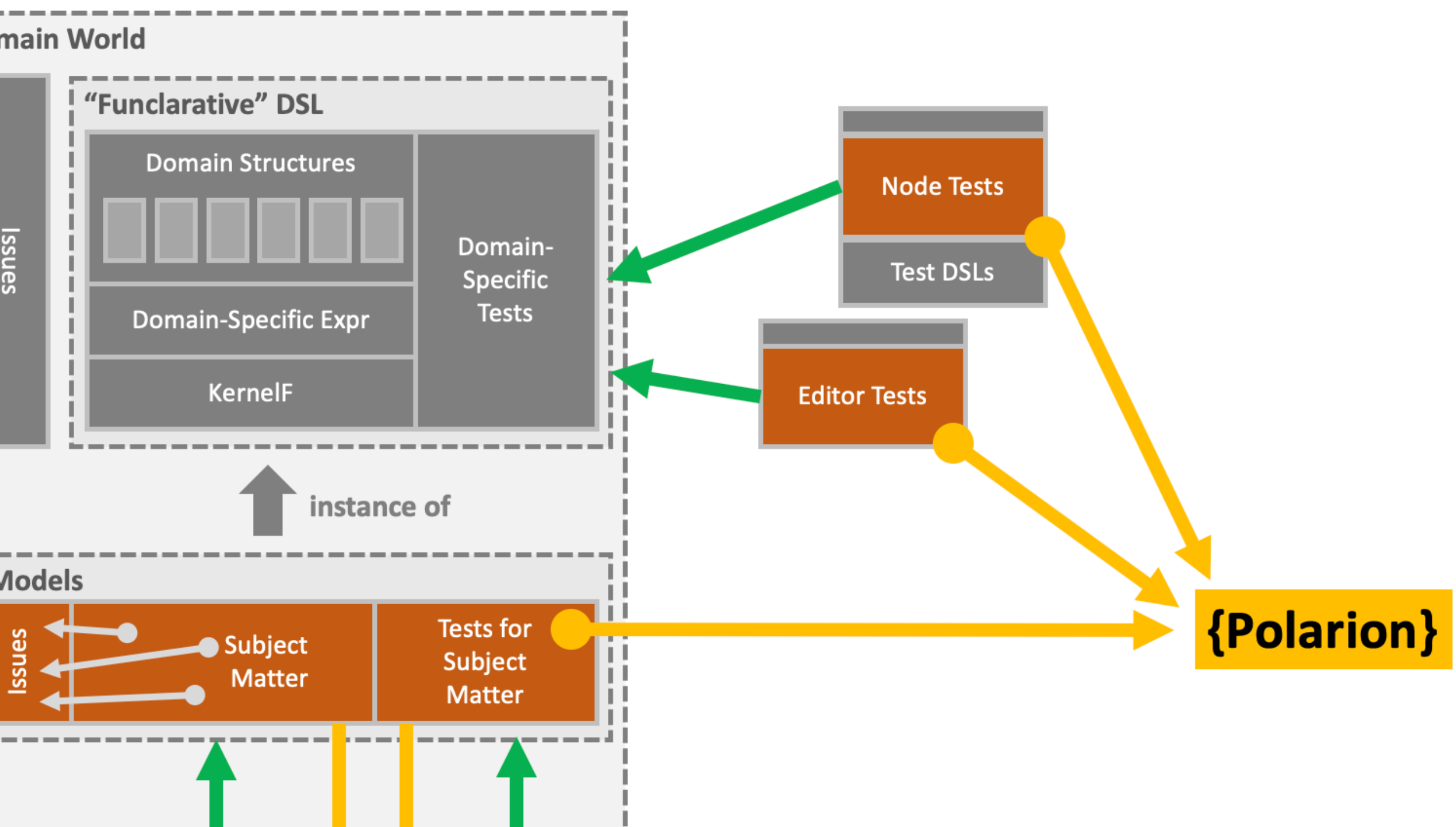


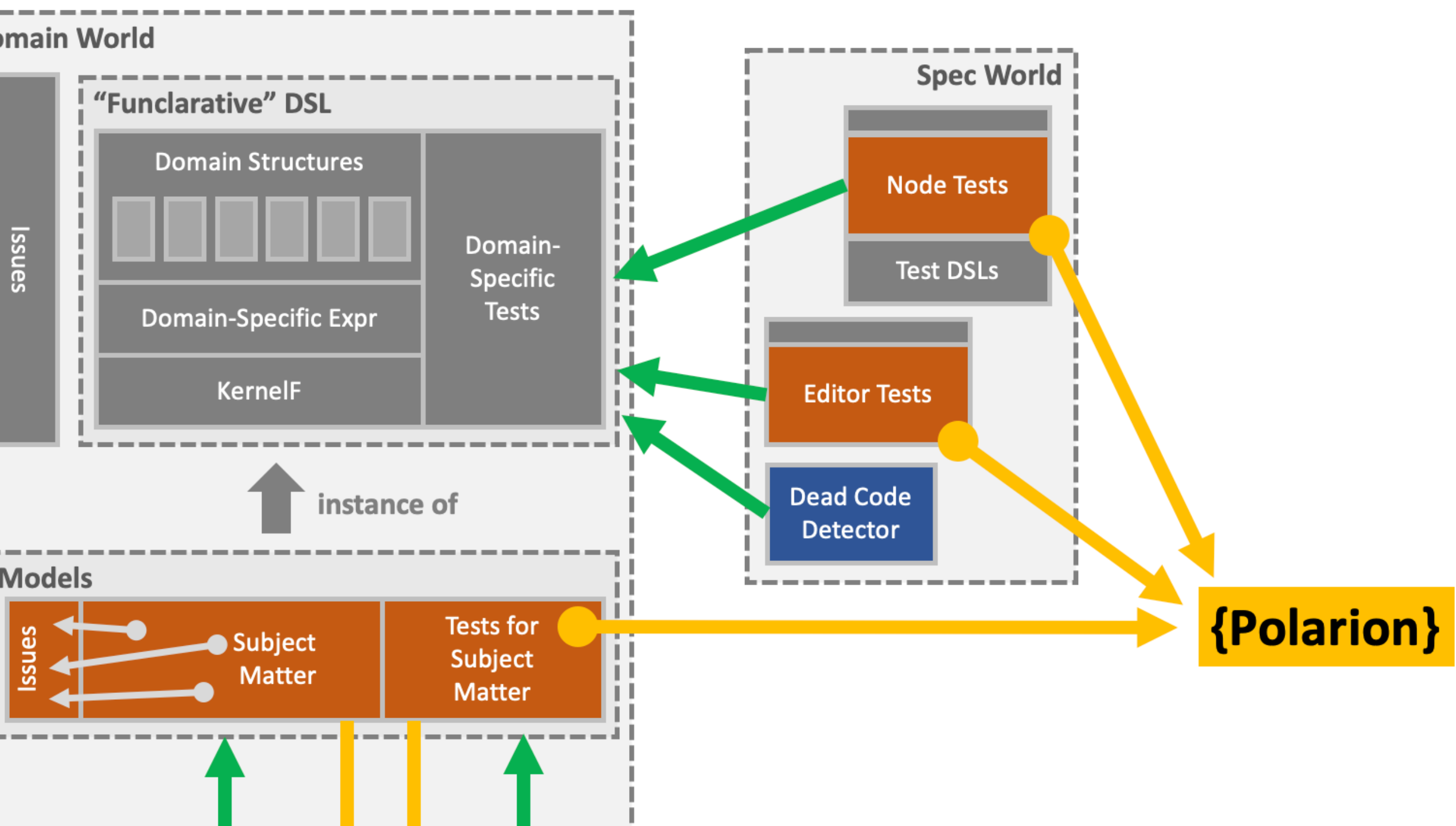


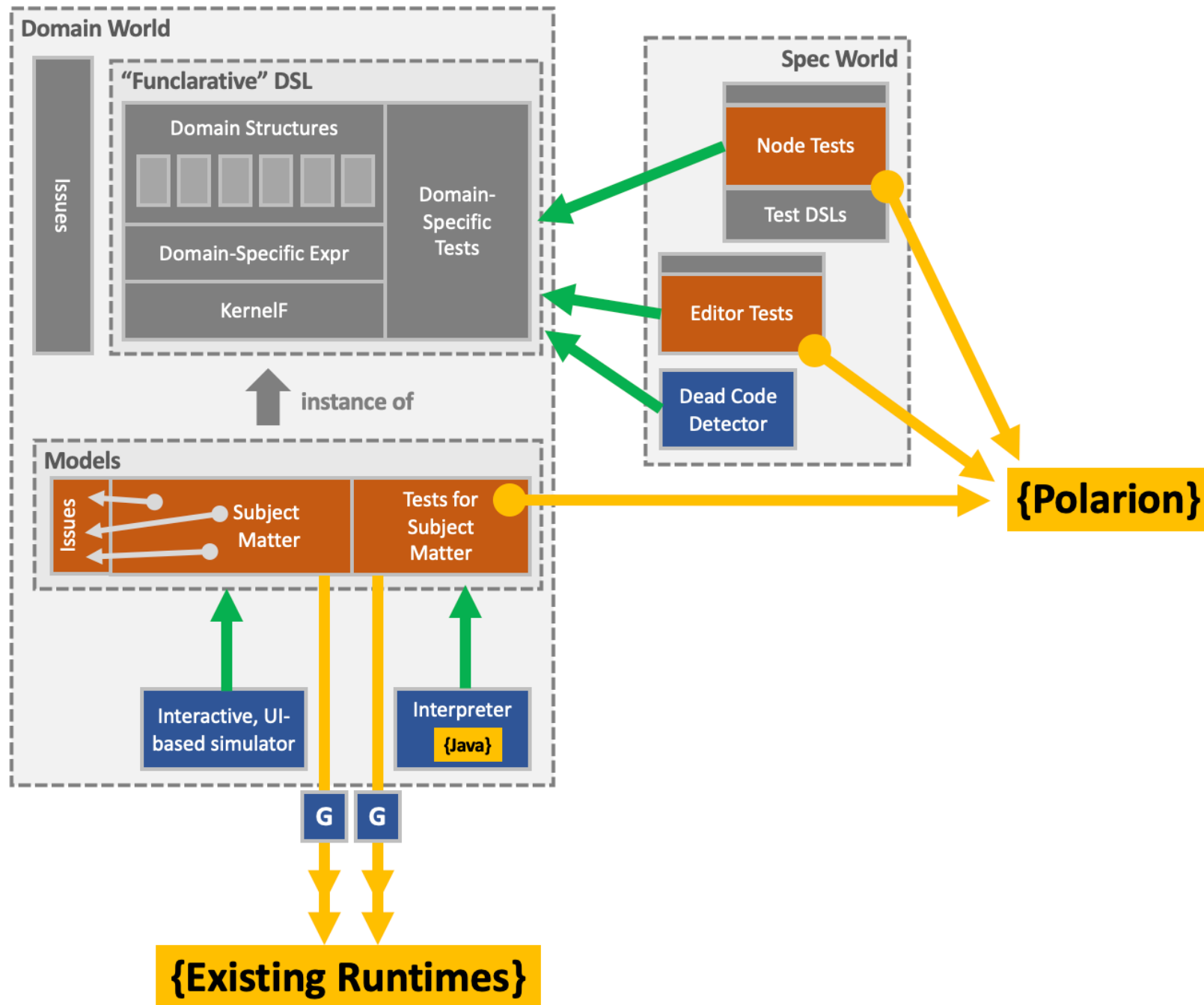




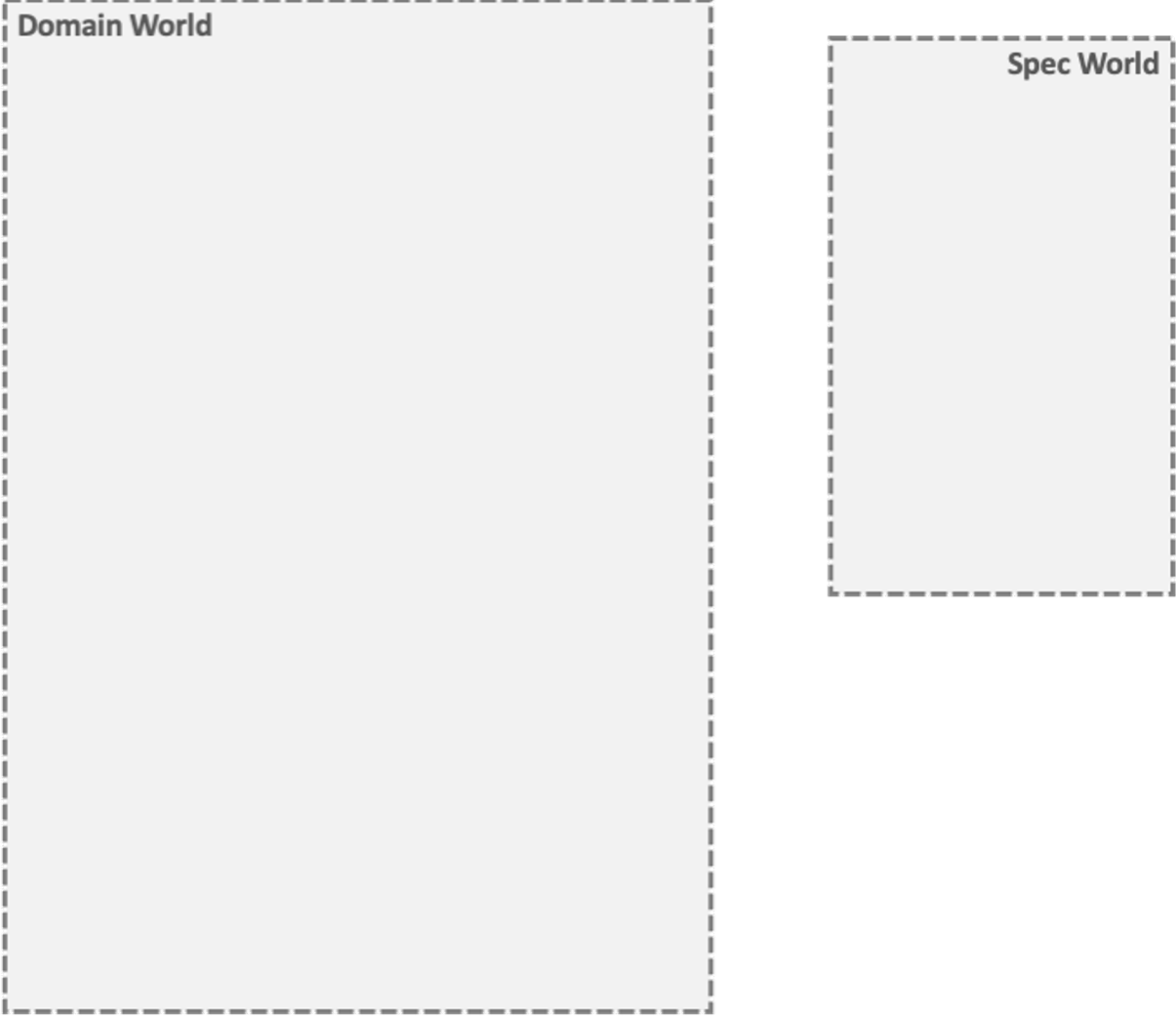








Domain World



The diagram consists of two light gray rectangular boxes with dashed black borders. The box on the left is significantly larger than the box on the right. The text 'Domain World' is located in the top-left corner of the larger box, and the text 'Spec World' is located in the top-right corner of the smaller box.

Spec World



WE INTERRUPT THIS PROGRAM FOR A

COMMERCIAL BREAK

MARKUS VOELTER

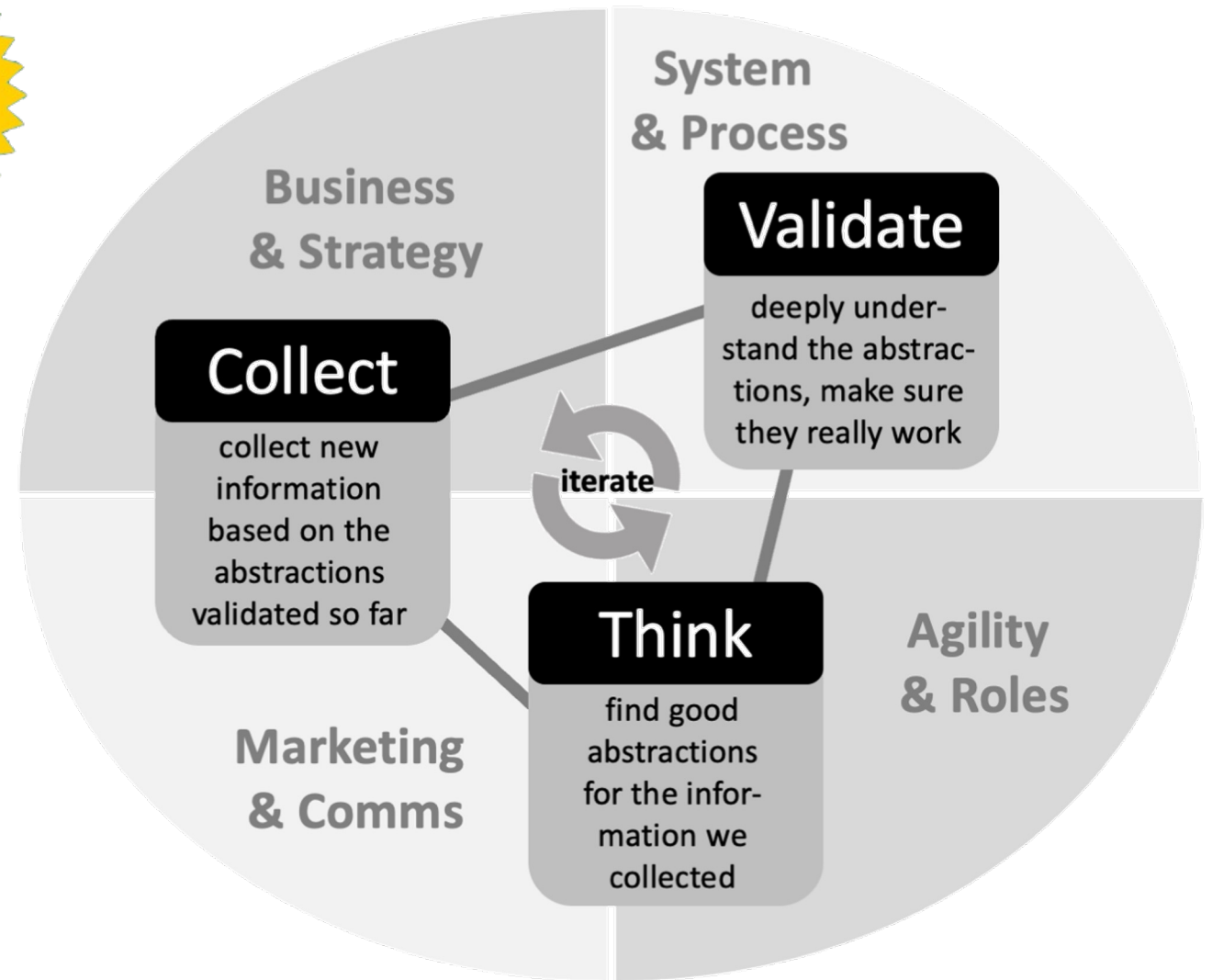
OUT
NOW!

HOW TO UNDERSTAND ALMOST ANYTHING

A PRACTITIONER'S GUIDE TO
DOMAIN ANALYSIS

V1.0

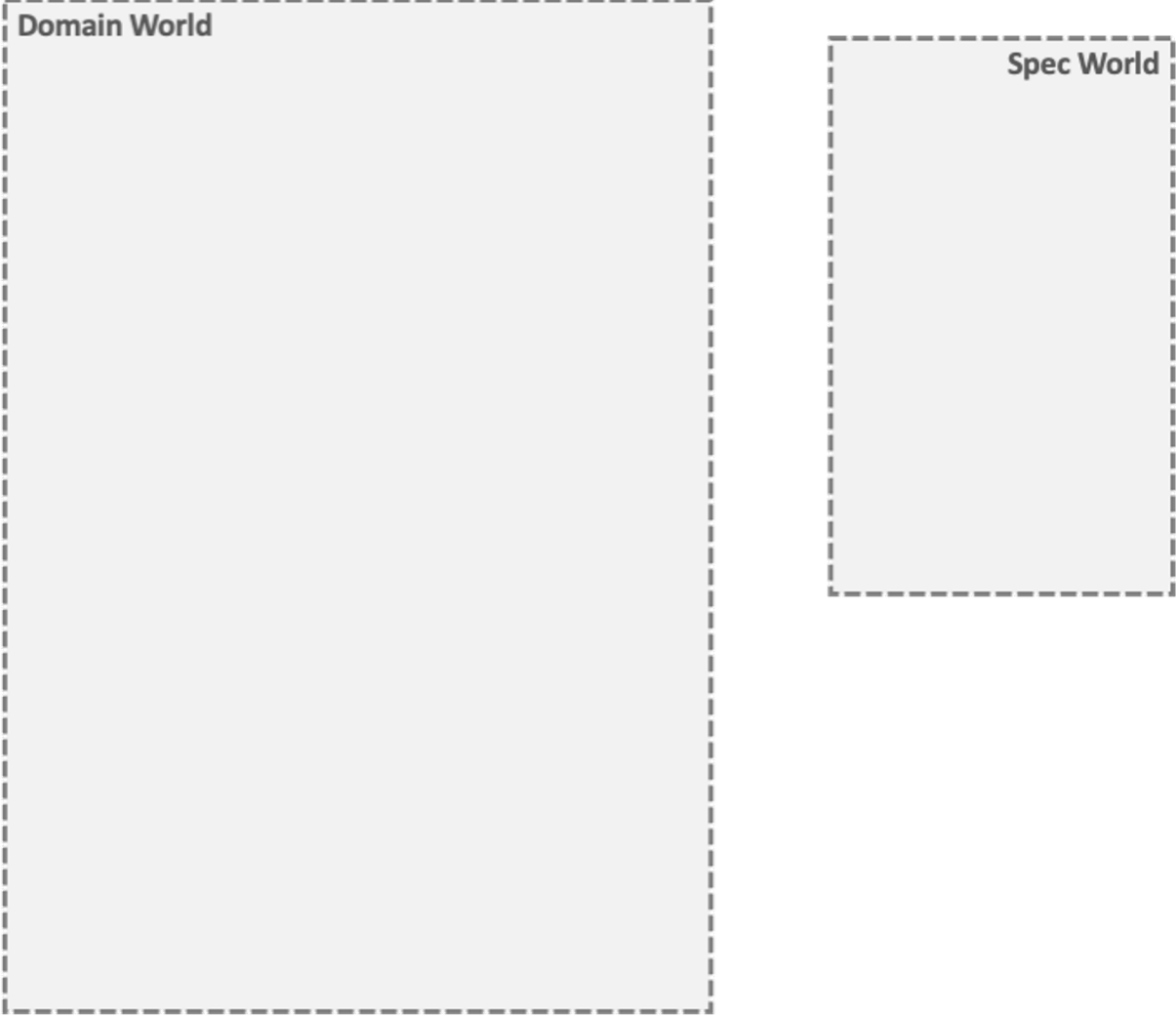
VOELTER.DE/HTUAA



voelter.de/htuaa

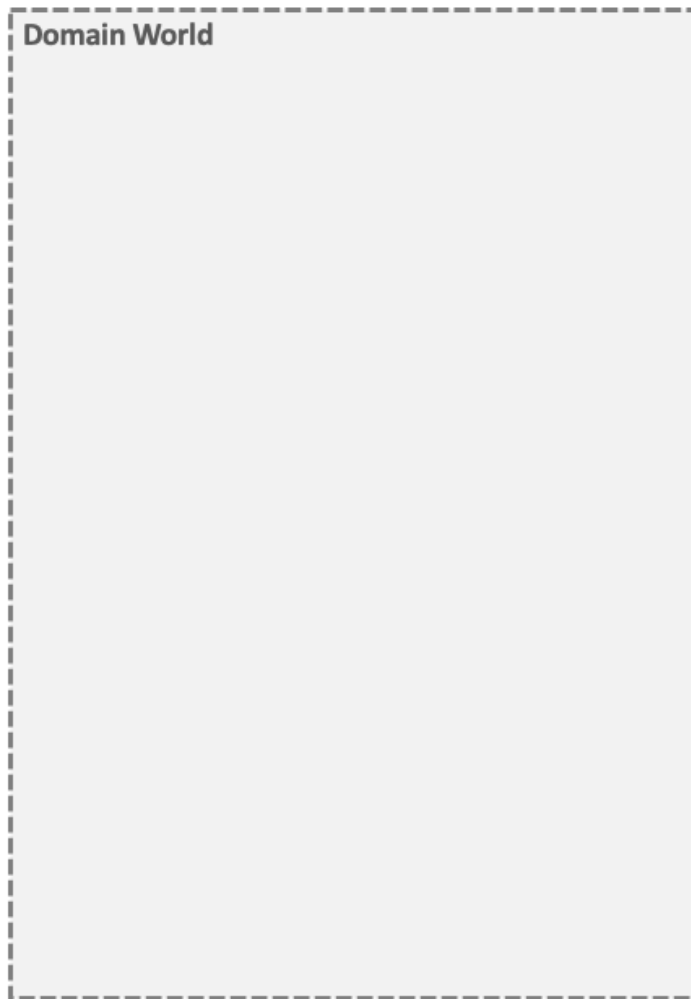
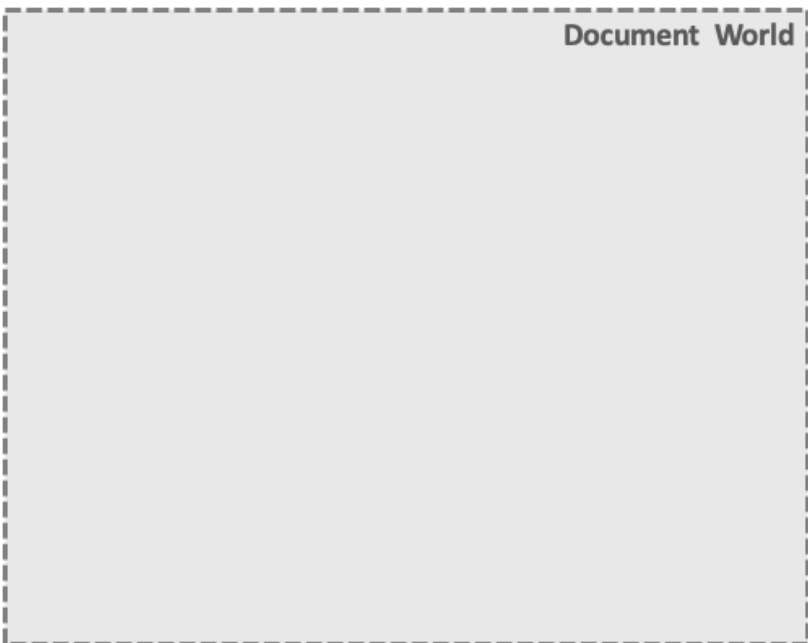
AND NOW BACK TO
OUR REGULARLY
SCHEDULED
PROGRAMMING

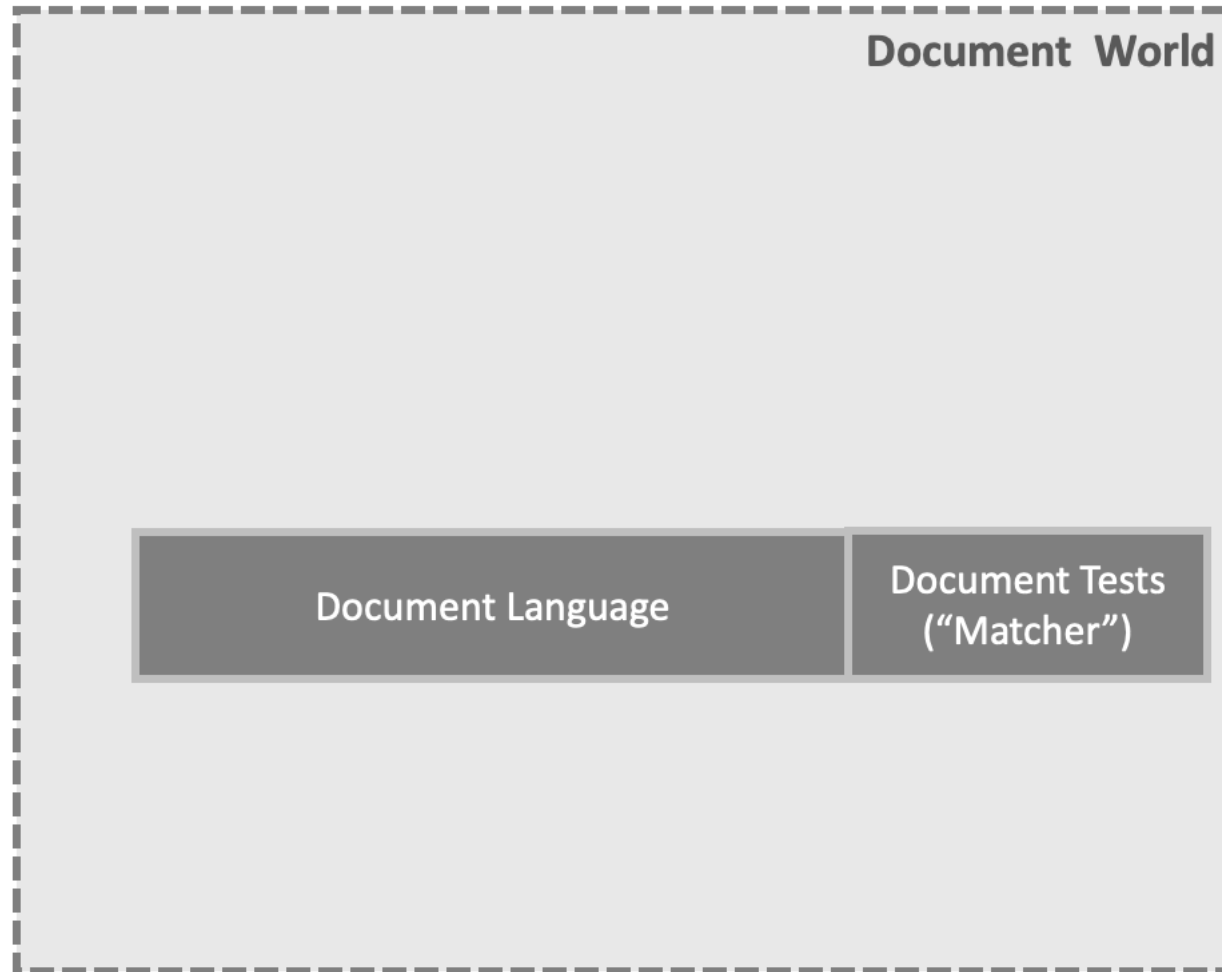
Domain World

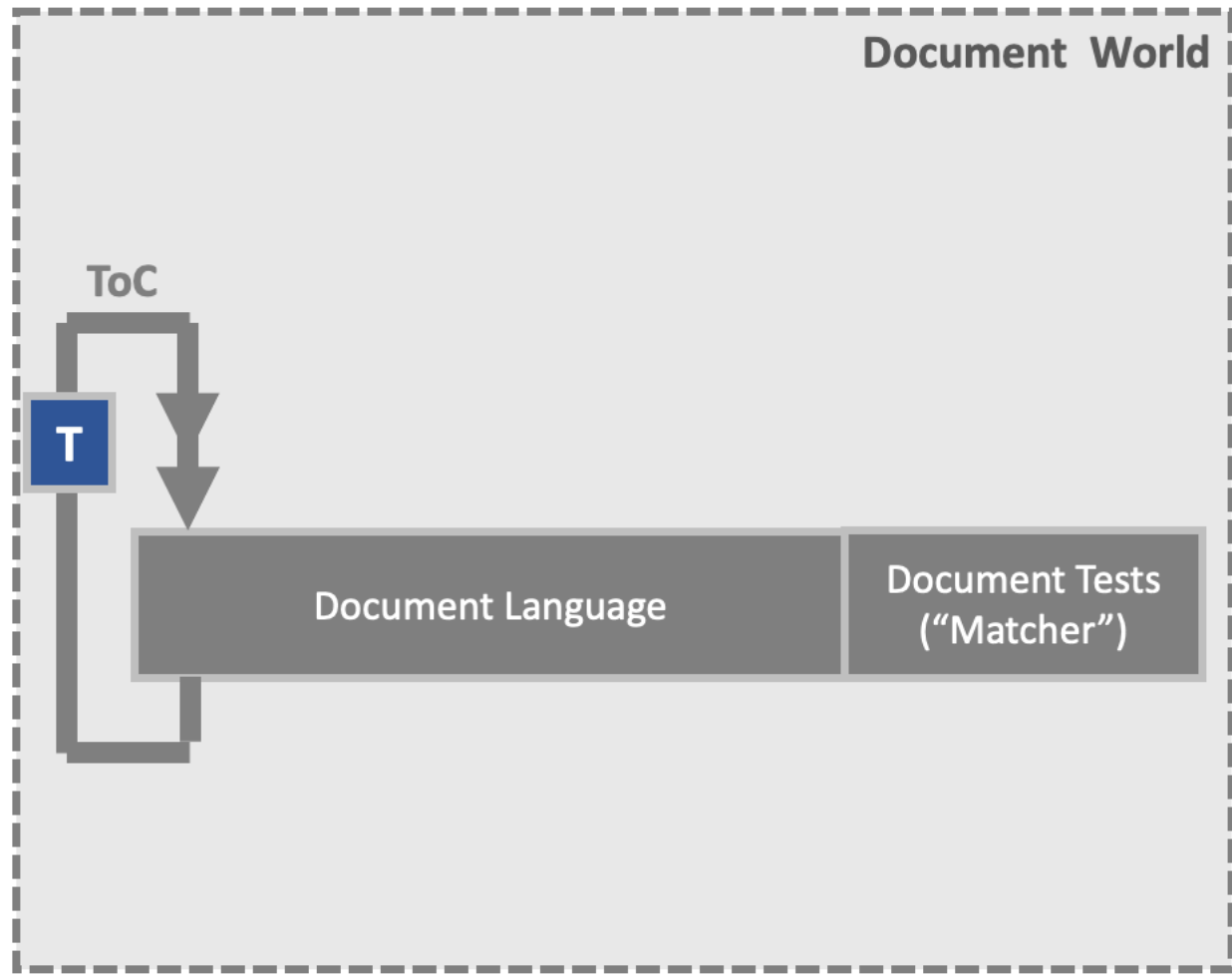


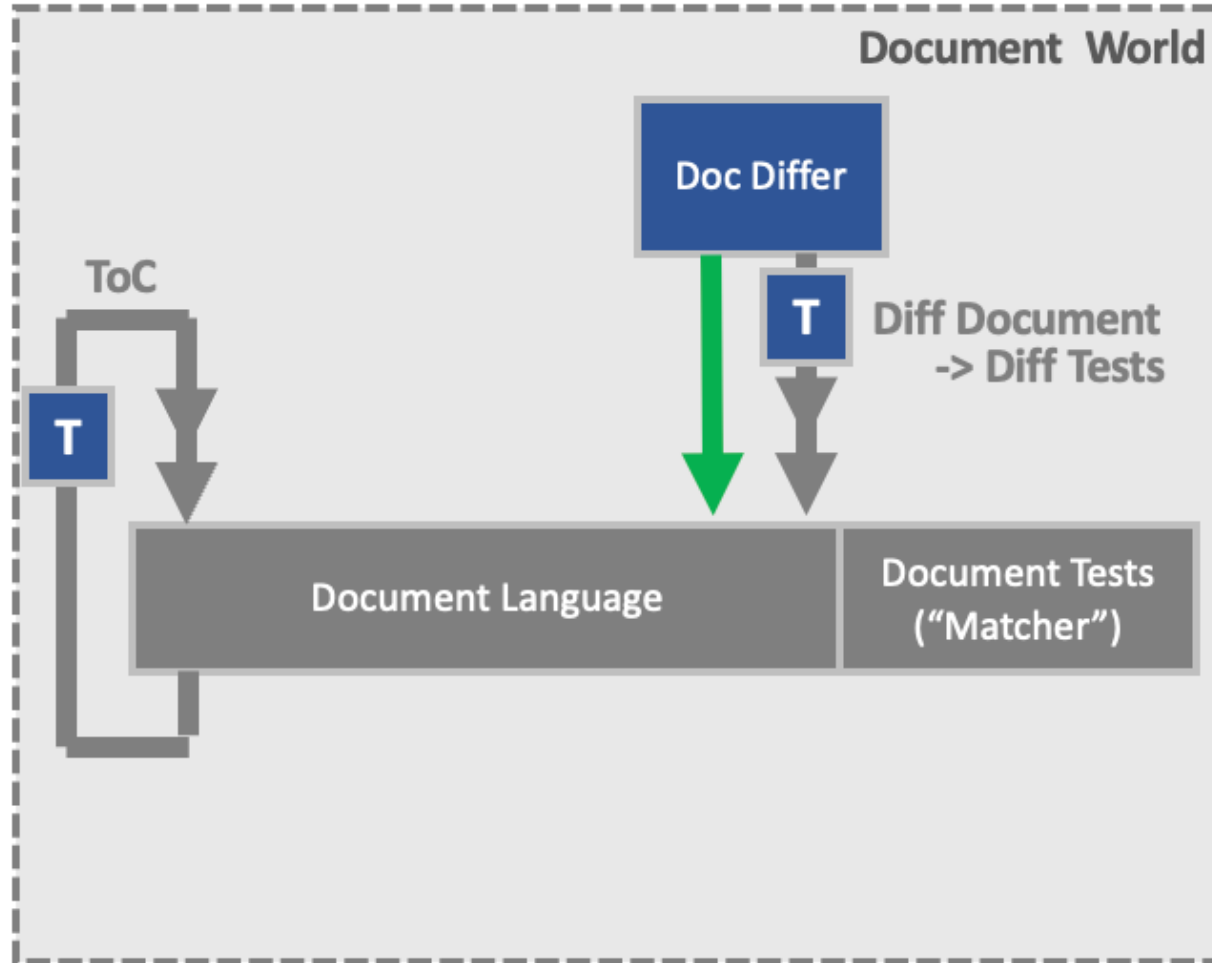
The diagram consists of two light gray rectangular boxes with dashed black borders. The box on the left is labeled 'Domain World' in the top-left corner. The box on the right is labeled 'Spec World' in the top-right corner. The 'Domain World' box is significantly larger than the 'Spec World' box.

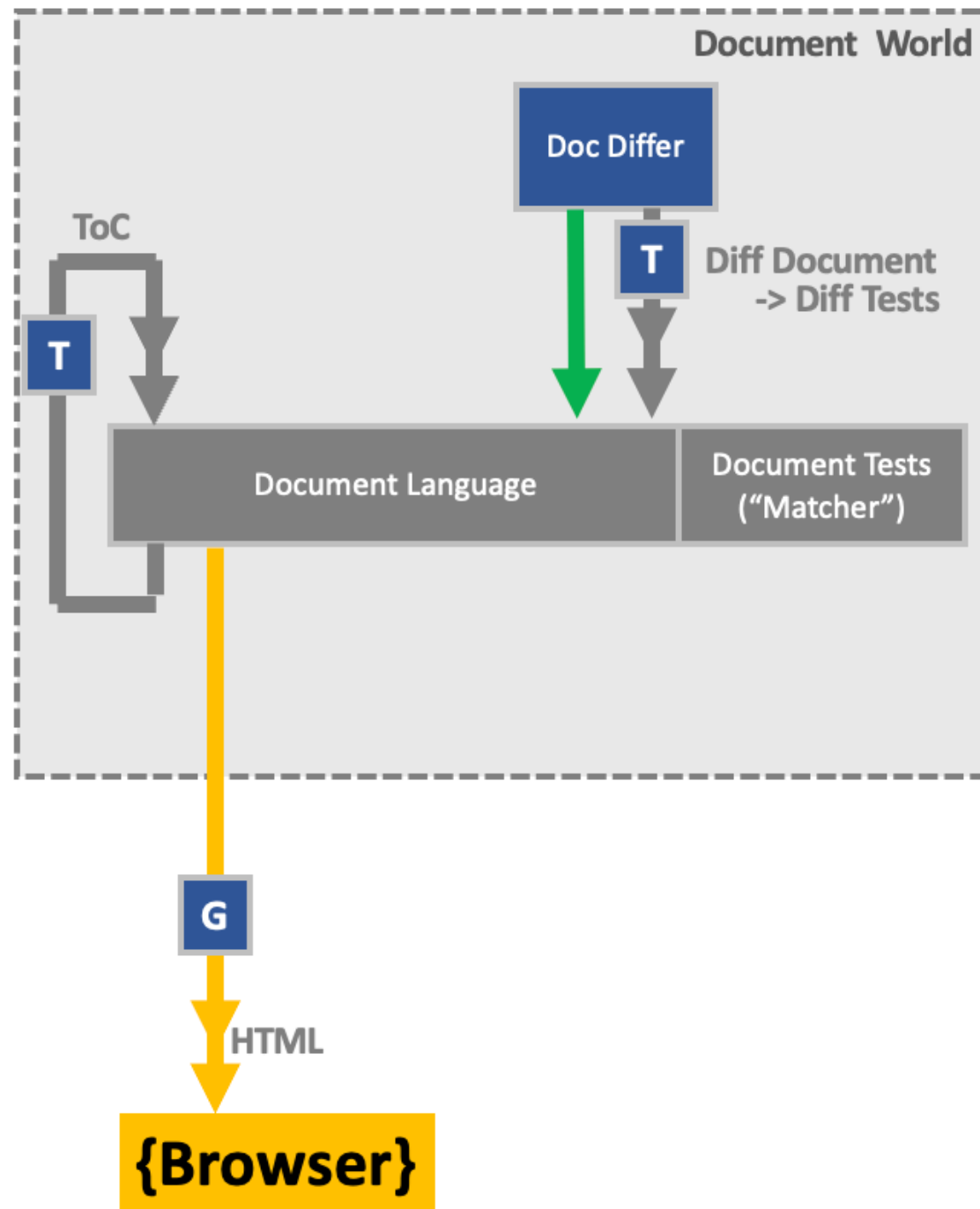
Spec World

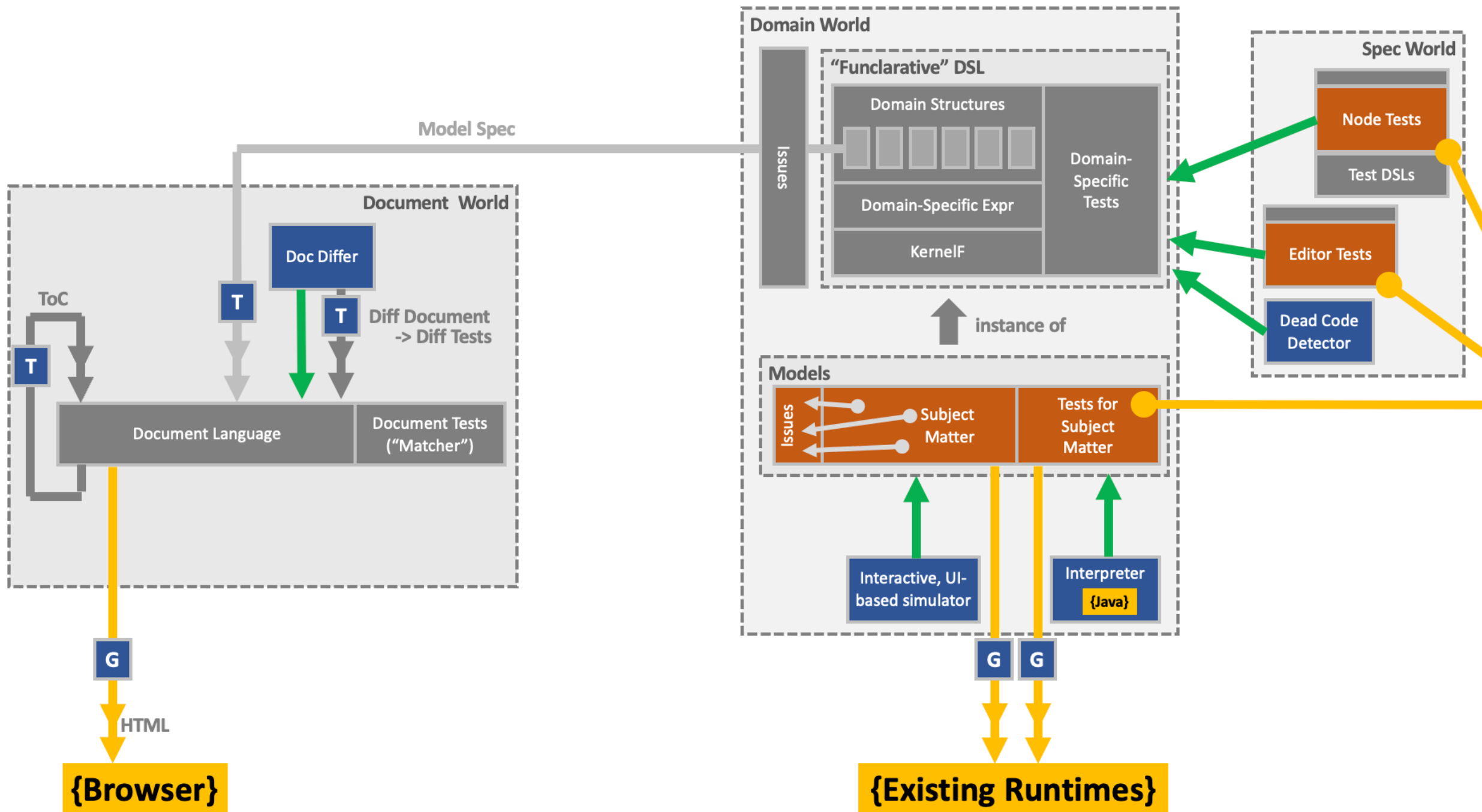


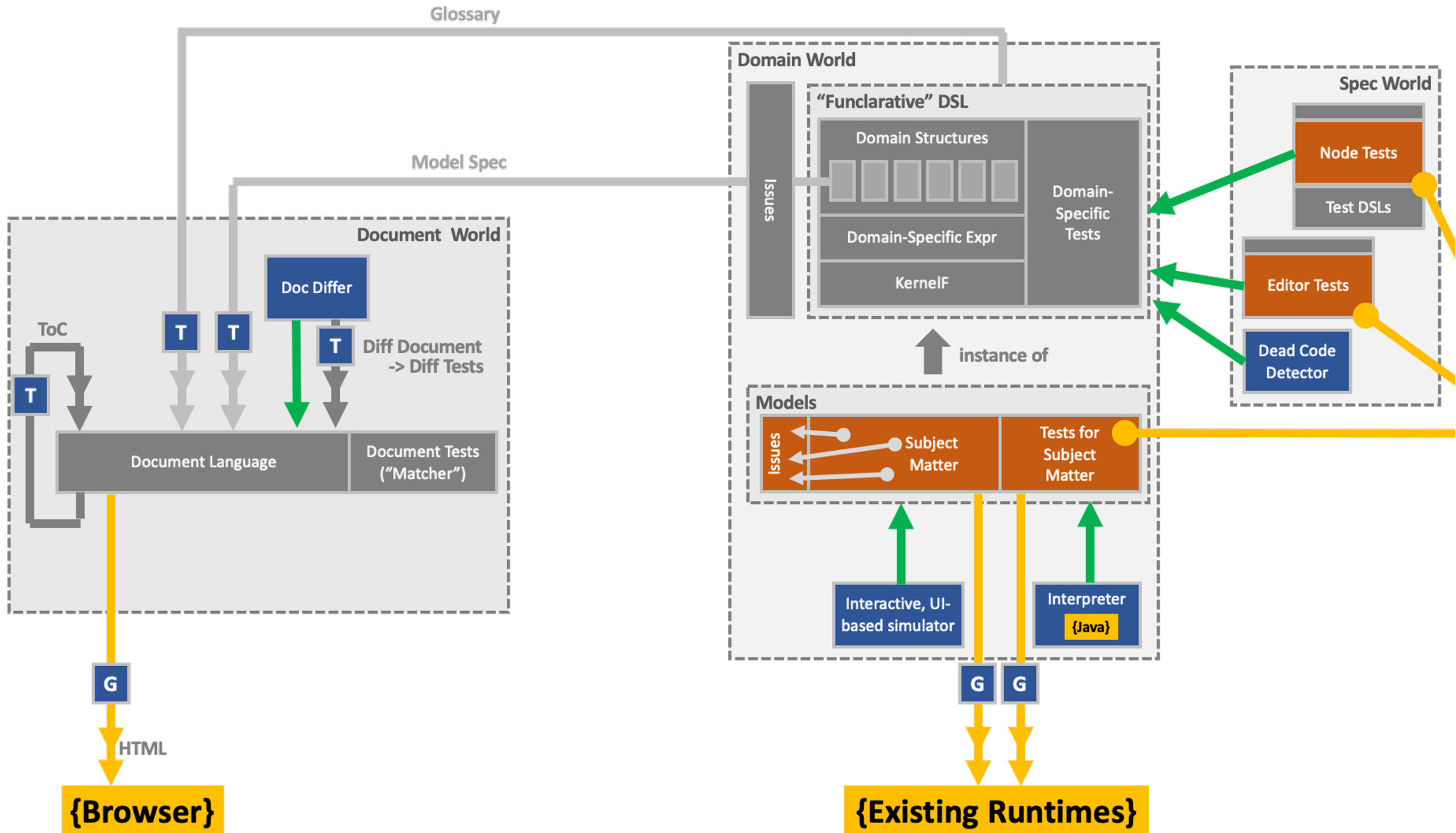


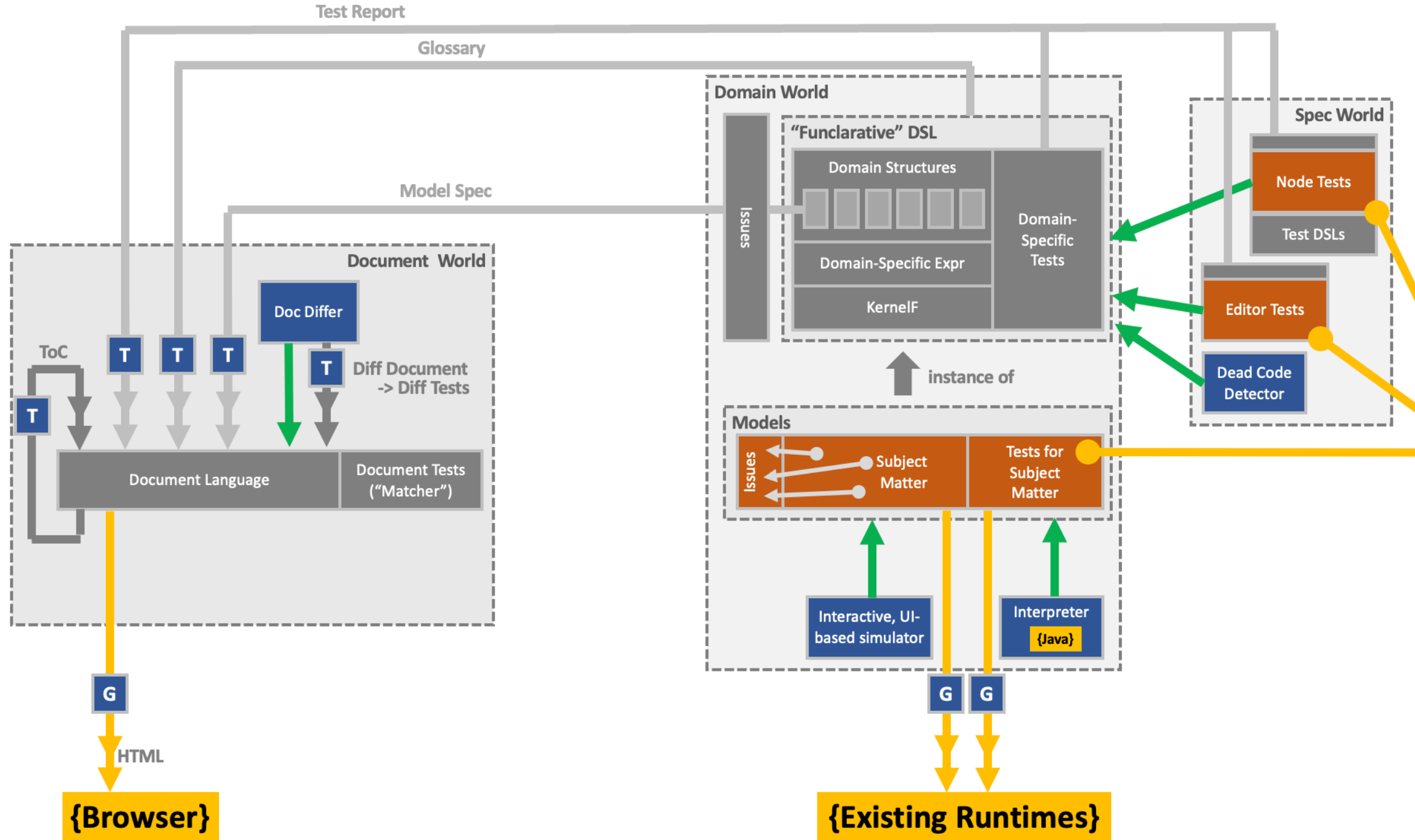


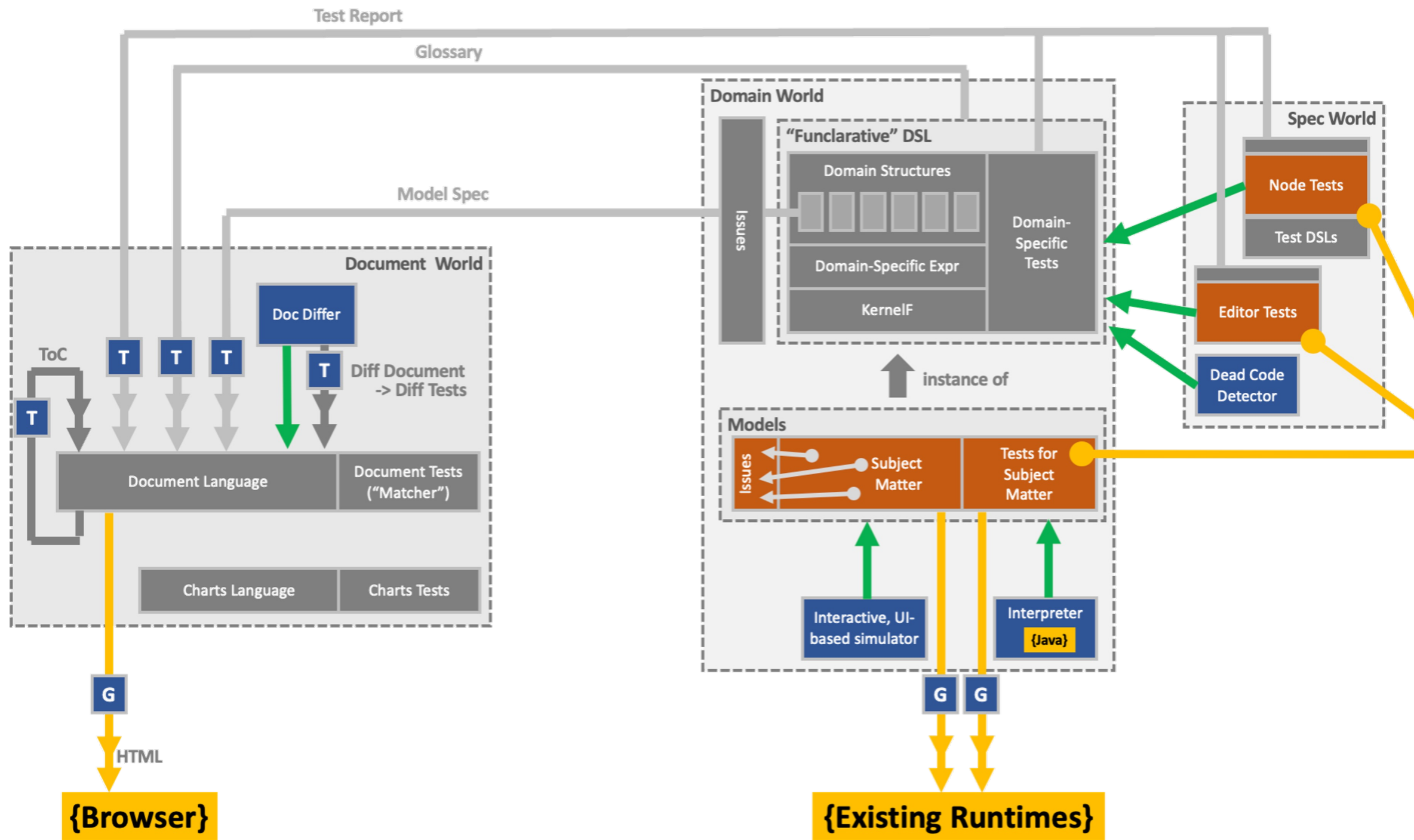


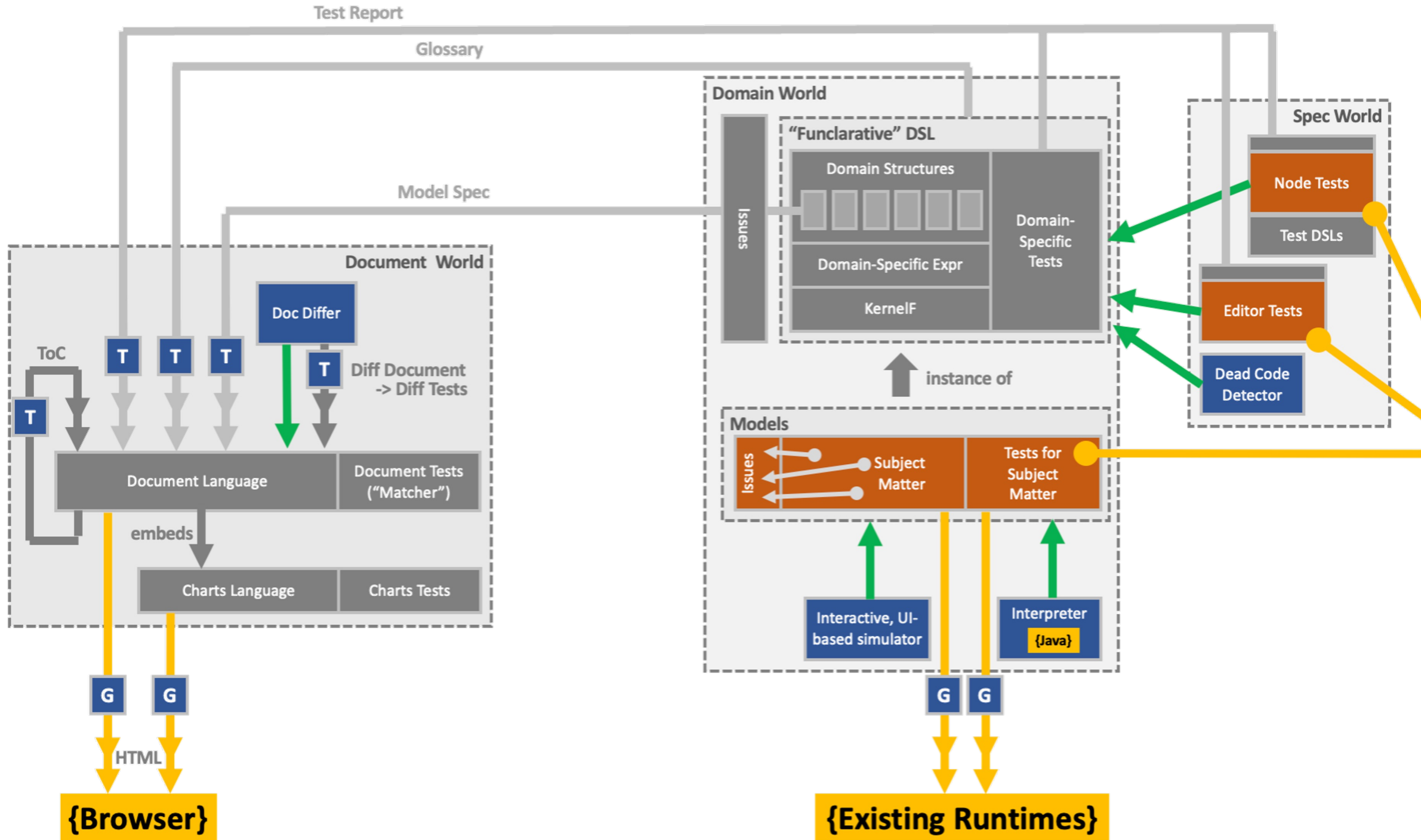


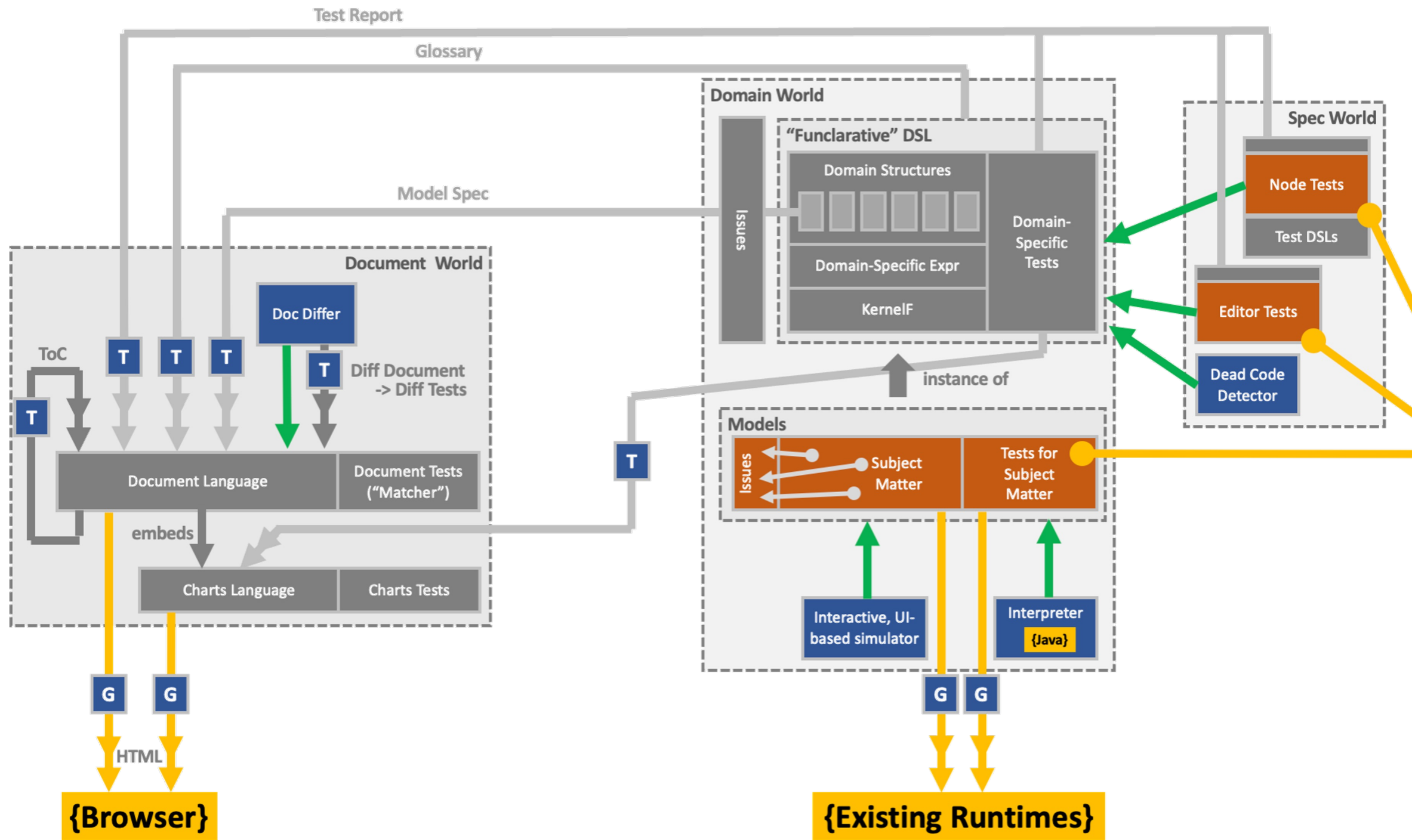


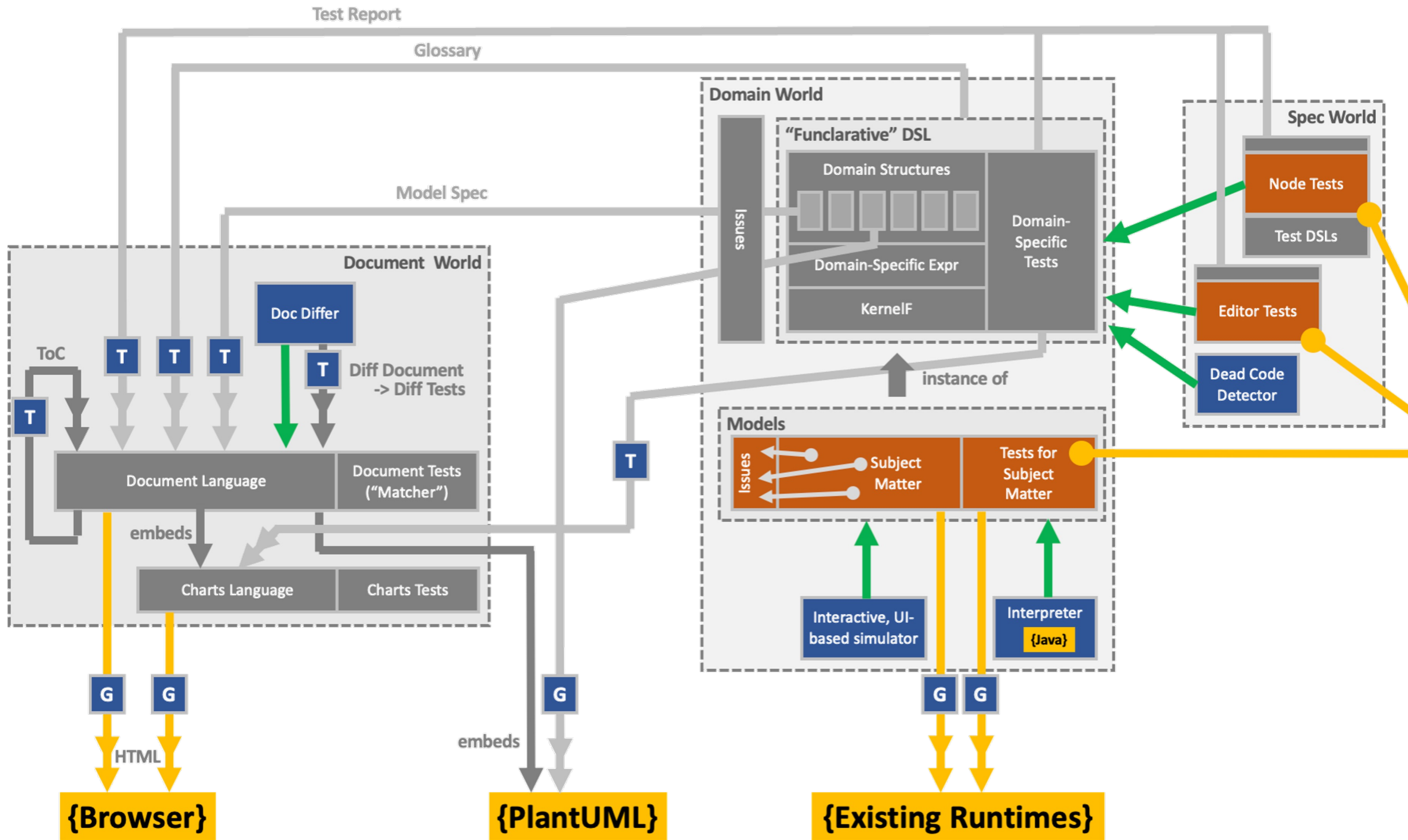


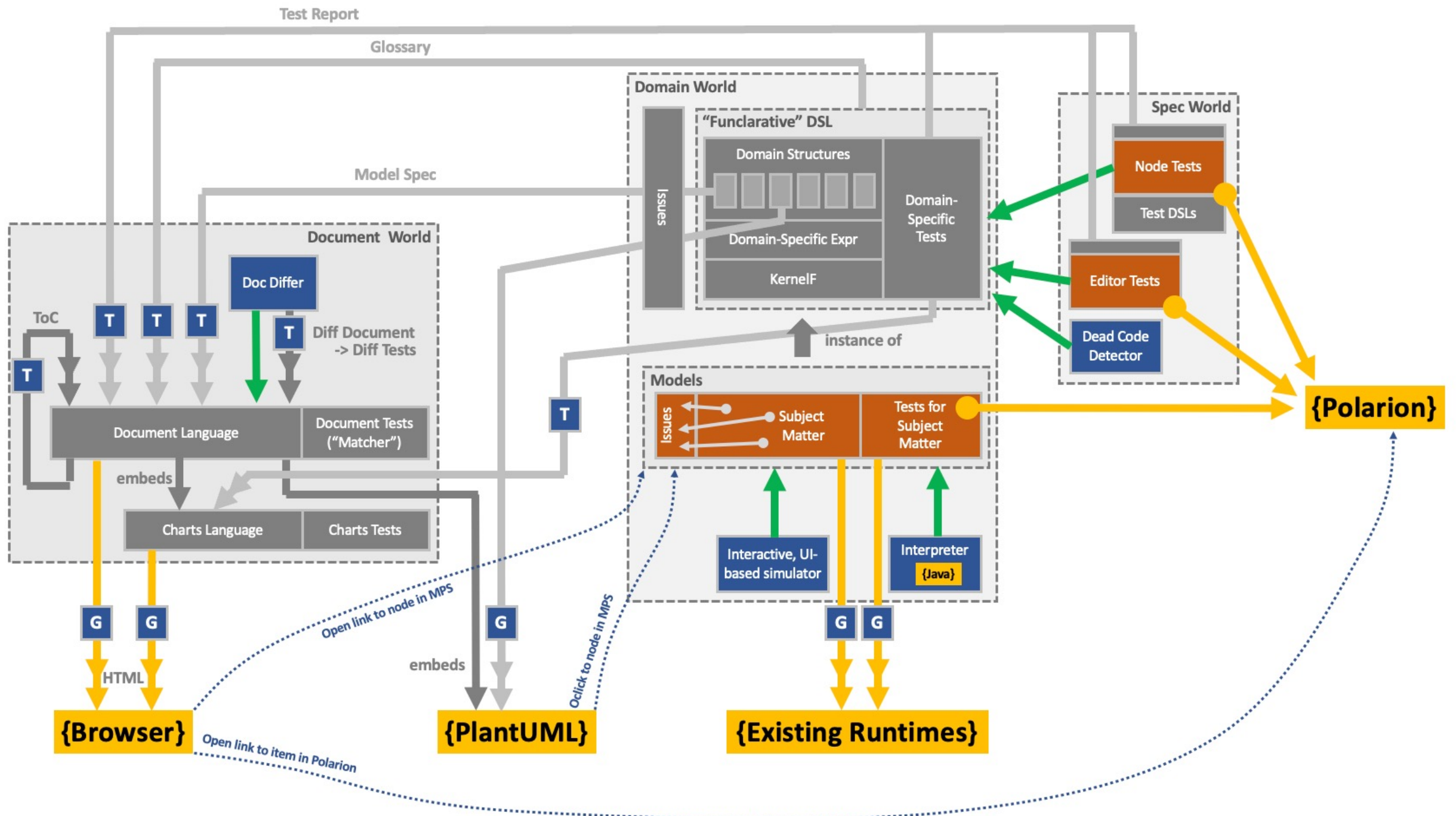








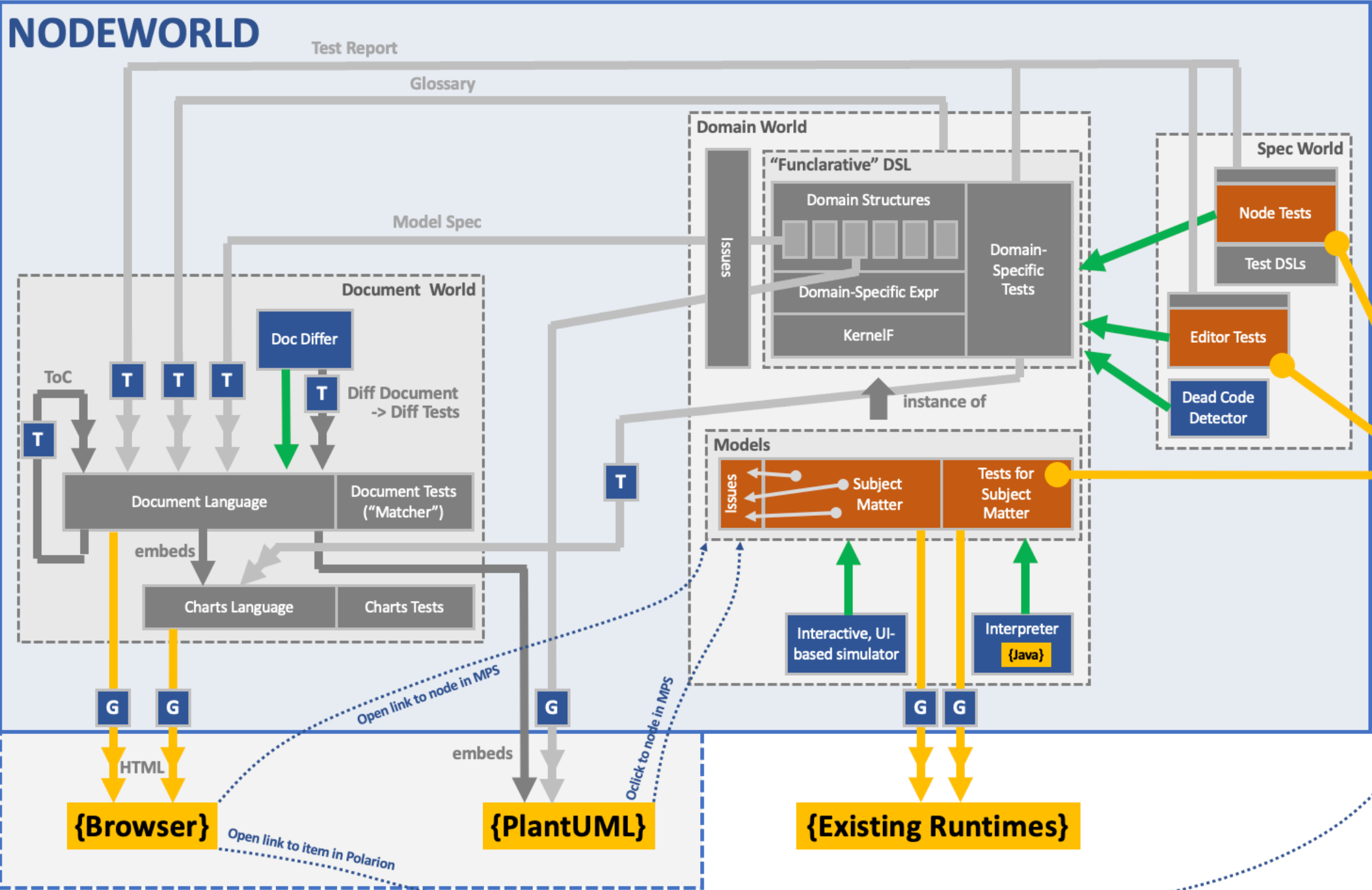




The diagram illustrates the NodeWorld architecture, organized into several interconnected components and worlds:

- Document World:**
 - Document Language:** Receives input from the **Model Spec** and **Doc Differ**. It outputs **HTML** (via **G**) to the **{Browser}** and **Charts Language** (via **embeds**).
 - Document Tests ("Matcher"):** Receives input from the **Model Spec** and **Doc Differ**. It outputs **Charts Tests** (via **embeds**) to the **{PlantUML}** component.
 - Doc Differ:** A component that takes input from the **Model Spec** and outputs to the **Document Language** and **Document Tests ("Matcher")**.
 - ToC:** A component that takes input from the **Model Spec** and outputs to the **Document Language**.
- Domain World:**
 - "Funclarative" DSL:** Contains **Domain Structures**, **Domain-Specific Expr**, and **KernelF**. It receives input from the **Model Spec** and outputs to the **Domain-Specific Tests**.
 - Domain-Specific Tests:** Receives input from the **"Funclarative" DSL** and outputs to the **Spec World**.
 - Issues:** A component that receives input from the **Model Spec** and outputs to the **Domain-Specific Tests**.
- Models:**
 - Issues:** Receives input from the **Domain-Specific Tests** and outputs to the **Subject Matter**.
 - Subject Matter:** Receives input from the **Issues** and outputs to the **Tests for Subject Matter**.
 - Tests for Subject Matter:** Receives input from the **Subject Matter** and outputs to the **Existing Runtimes** (via **G**).
- Spec World:**
 - Node Tests:** Receives input from the **Domain-Specific Tests** and outputs to the **Test DSLs**.
 - Test DSLs:** Receives input from the **Node Tests** and outputs to the **Editor Tests**.
 - Editor Tests:** Receives input from the **Test DSLs** and outputs to the **Dead Code Detector**.
 - Dead Code Detector:** Receives input from the **Editor Tests** and outputs to the **Existing Runtimes** (via **G**).
- Existing Runtimes:**
 - {Browser}**: Receives **HTML** from the **Document Language** and **Charts Tests** from the **{PlantUML}**.
 - {PlantUML}**: Receives **Charts Tests** from the **Document Tests ("Matcher")** and **Charts Language** from the **Document Language**.
 - {Existing Runtimes}**: Receives input from the **Tests for Subject Matter** and the **Dead Code Detector**.

The diagram also shows various data flows and dependencies, including **Test Report**, **Glossary**, and **Model Spec** inputs, and **HTML**, **Charts Tests**, and **Existing Runtimes** outputs.



SO!

WHY DOES MPS HAVE
THE BEST TURTLES?



BECAUSE THEY
HAVE LOTS OF
TOOLS UNDER
THEIR SHELL



BECAUSE THEY
HAVE LOTS OF
TOOLS UNDER
THEIR SHELL





Some things aren't turtles

External systems for requirements

Mandated by Process

PlantUML generation is direct text generation

PlantUML is so big, it's not feasible to build lang

Interpreter does not "reshuffle" nodes

Performance – the Java impl is already slow

A vertical image on the left side of the slide shows two sea turtles swimming in a sky with dramatic, orange and yellow clouds and a single lightning bolt. The turtles are positioned one above the other, both facing towards the right.

Wrap Up

If everything's the same, it's easy to build {meta*}-stuff

The “things” should also be accessible to the IDE to support static analysis and processing

Having editors and other IDE aspects as part of the the „thingness“ makes tool-building accessible.

Maybe we shouldn't „sell“ MPS (and similar systems) by using the term DSL , but terminology that emphasises the sameness and its consequences.

TATWD.