

# Seshatic and Platonic Paths

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*In this paper I introduce two higher order functions representing Seshatic and Platonic domains. I also suggest a new Moment Witness that extends Witness duality for Avatar Extensions.*

Seshatic<sup>[1]</sup> and Platonic<sup>[2]</sup> paths are two higher order functions defined as following:

∴  $\text{seshatic}(f : T \rightarrow T) = \lambda(x : T) = \neg \exists n : \text{nat} \wedge (> 0) \{ x == f^n(x) \}$   
∴  $\text{platonic}(f : T \rightarrow T) = \lambda(x : T) = \exists n : \text{nat} \{ x == f^n(x) \}$

∴  $\text{seshatic} : (T \rightarrow T) \rightarrow (T \rightarrow \text{bool})$   
∴  $\text{platonic} : (T \rightarrow T) \rightarrow (T \rightarrow \text{bool})$

Seshatic and Platonic paths model functions of type  $T \rightarrow T$  as expressing equivalence groups. Each value might be thought of as representing a proposition and  $f(a) = b$  means  $a' \Rightarrow b''$ .

Here,  $a'$  is the propositional representation of  $a$ .

When there exists a cycle containing both  $a'$  and  $b'$ , it means that  $a' == b'$ .

The reason  $x == f(x)$  in the Seshatic path is based on the idea that Seshatism, which is  $\neg(a \sim a)$  for some proposition  $a$ , does not forbid  $a == a$ , only  $a == b$  where  $a$  and  $b$  are symbolic distinct<sup>[4]</sup>.

$\wedge$	$\neg\text{seshatic}$	<b>seshatic</b>
$\neg\text{platonic}$	$\lambda(x : T) = \text{false}$	$\neg\text{platonic}$
<b>platonic</b>	$\neg\text{seshatic}$	$\lambda(x : T) = x == f(x)$

$\vee$	$\neg\text{seshatic}$	<b>seshatic</b>
$\neg\text{platonic}$	$\lambda(x : T) = x \neg= f(x)$	<b>seshatic</b>
<b>platonic</b>	<b>platonic</b>	$\lambda(x : T) = \text{true}$

From the  $\wedge$  table, one can see that there is a natural extension to Witness Duality<sup>[5]</sup>:

Loop Witness	$\text{platonic} \wedge \text{seshatic}$	$\lambda(x : T) = x == f(x)$
Product Witness	$\text{platonic} \wedge \neg\text{seshatic}$	$\neg\text{seshatic}$
Moment Witness	$\text{seshatic} \wedge \neg\text{platonic}$	$\neg\text{platonic}$

The Loop and Product Witness are part of Witness Duality.

The new witness is called “Moment Witness”, since it leaves (or passes) and never comes back.

The Moment Witness might be useful for the theory of Avatar Extensions<sup>[6]</sup>,

in a generalised form, since Seshatic and Platonic paths are limited to functions of type  $T \rightarrow T$ .

## References:

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