Avatar Tables

by Sven Nilsen, 2021

In this paper I introduce an avatar table based on the axioms of Avatar Logic.

Using an Avatar Table, the axioms of Avatar Logic[1] are the following:

p(a, b)	b : p	p(a) = b
p(a, q'(b))	q'(b) : p	p(a) = {q'(_)} ∈ q'(b)

The columns depends on previous columns using material implication[2] (`=>`):

p(a, b) => (b : p => p(a) = b)

This is equivalent to:

((p(a, b) ∧ b : p) => p(a) = b

So, the last column can be used as a logical consequence[3] where previous columns are statements[4].

The rows quantify independently over free variables:

∀ p, a, b { … } First row
∀ p, a, b, q { … } Second row

However, the names of the variables in the first row are repeated in the second row.
The idea is that each new row extends the previous row.

For example, `p` has a similar relationship to the other variables in both rows.

Each cell “inherits” the expression from the cell above in the previous row.

p(a, q'(b)) “inherits” p(a, b)

In general, an Avatar Table can have any number of columns and rows:

A0 B0 C0 …
A1 B1 C1 …
A2 B2 C2 …
… … … …

References:

[1] "Avatar Logic"
AdvancedResearch – Summary page on Avatar Extensions
https://advancedresearch.github.io/avatar-extensions/summary.html#avatar-logic

[2] "Material implication (rule of inference)"
Wikipedia
https://en.wikipedia.org/wiki/Material_implication_(rule_of_inference)

[3] "Logical consequence"
Wikipedia
https://en.wikipedia.org/wiki/Logical_consequence

[4] "Statement (logic)"
Wikipedia
https://en.wikipedia.org/wiki/Statement_(logic)