Humanistic Mathematics Network Journal

Issue 24 Article 15

5-1-2001

Representation

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APPLICATION OF THE MODEL

$\lambda(PQ)$ **means**

start at vertex P and move along the edge to vertex Q and *"turn to the right"* to vertex R

so $\lambda(PQ) = QR \; ; \; \lambda^5(PQ) = (PQ)$

$\mu(PQ)$ **means**

start at vertex P and move along the edge to vertex Q and *"turn to the left"* to vertex I

so $\mu(PQ) = QI \; ; \; \mu^5(PQ) = (PQ)$

So the *circuit* may start at any vertex and be completed by following the "directions" of the last theorem:

right, right, right, left, left, left, right, left, right, left
right, right, right, left, left, left, right, left, right, left

Of course, a mirror image is obtained if "right" is interchanged with "left." Another circuit is obtained if transversed in the opposite order—it is not *different*, however.

$\iota(PQ)$ **means**

"reverse direction" $\iota(PQ) = QP \; ; \; \iota^2(PQ) = PQ$

$\kappa(PQ)$ **means**

"rotate counter clockwise about Q"

so $\kappa(PQ) = RQ \; ; \; \kappa^2(PQ) = IQ \; ; \; \kappa^3(PQ) = PQ$

To illustrate the axiom, $\lambda = \iota\kappa$ we use the symmetric property of equality and

$$\iota\kappa(PQ) = \iota(RQ)$$

$$= (QR)$$

$$= \lambda(PQ)$$

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In honor of the newest standard of the National Council of Teachers of Mathematics' Principles and Standards for School Mathematics (2000).

(may be sung to the tune of "Anticipation" by Carly Simon and Jacob Brackman)

We...can never know a phenomenon
If we...view it only one way.
What if we...supplement our formula
With words or a graph or tabular display?

Chorus:
Representations, representations
Are helping me to see...are helping my learning...

And I tell you...the more ways I model this
And the more...I translate back and forth,
Then the more...I understand conceptu'ly
And that helps me when I report!