

1128-18-202

Zbigniew Oziewicz* (oziewicz.zbigniew@gmail.com), Universidad Nacional Autonoma de Mexico, Facultad de Estudios Superiores, 54714 Cuautitlan Izcalli, Mexico, Mexico, and **William Stewart Page**. *Algebra possesses eight bilinear forms - why for?* Preliminary report.

In monoidal category each operadic morphism is a vertex that possesses exterior arity-in-lines and arity-out-lines, like Conway's (n,m) -tangle without restriction for $n=m$, and allowing intersection at vertex. Duality, two-colors, allows connect in-line with out-line by simple curve of another color, and this define a trace: (n,m) -tangle \longrightarrow $(n-1,m-1)$ -tangle. This is analogous to Conway numerator or denominator. We note that operad generated by $(2,1)$ -algebra-tangle give rise exactly eight bilinear forms each as $(2,0)$ -form-tangle. For associative algebra only four bilinear forms are independent. Our concern is a meaning and usefulness of these eight bilinear forms for each $(2,1)$ -algebra-tangle not necessarily associative. This rise new, not equivalent, interpretation of the Frobenius algebra. (Received February 26, 2017)