Computations.clusteringCoefficient

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Computes the generalized clustering coefficient on a k-uniform hypergraph.

Syntax

```
p = clusteringCoefficient(HG)
```

Input

- HG - Hypergraph object. HG must represent a k-uniform hypergraph.

Output

- p - Average clustering coefficient of HG.

Disclaimer

The formula for average distance was obtained from equation 31 of the paper below.

Amit Surana, Can Chen, and Indika Rajapakse. "Hypergraph dissimilarity measures." arXiv preprint arXiv:2106.08206 (2021).

Code

```
function p = clusteringCoefficient(HG)
import Decompositions.TensorDecomp.uniformEdgeSet
A = uniformEdgeSet(HG);
n = size(A,2);

pp = zeros(n, 1);
for i = 1:n
    [id1, ~] = find(A == i);
    N = unique(A(id1, :));
    N(N == i) = [];
    C = nchoosek(N, size(A, 2));
    C = sort(C, 2);
    A = sort(A, 2);
    [~, loc] = ismember(C, A, 'rows');
    q = length(find(loc>0));
```

```
    pp(i) = q/size(C, 1);
end

pp(isnan(pp))=0;
p = mean(pp);

end
```

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