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                                left_right_delta_3D
function symm = left_right_delta_3D(data_array)

    [x num_items] = size(data_array);
    is_taken = zeros(1,num_items);
    total = 0;
    symm = 0;

    max_distance = 1; %initial value to cause the loop to execute

    %First we normalize the data to a set of probabilities
    for i = 1 : num_items

        total = total + norm(data_array{i});

    endfor

    for i = 1 : num_items

        data_array{i} = data_array{i}/total;

    endfor
    %-----

    distance_matrix = find_most_distant_pair(data_array);

    %iterates through the distances between the data points, and measures the
    difference between the most distance pairs

    while(max_distance > 0)

        max_distance = max(distance_matrix(:));
        [i j] = find(distance_matrix == max_distance);

        distance_matrix(i,:) = 0;
        distance_matrix(:,i) = 0;
        distance_matrix(:,j) = 0;
        distance_matrix(j,:) = 0;

        symm = symm + max_distance;

    endwhile

    symm = symm*2;

endfunction

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