Adaptation of Multivariate Concept to Multi-way Agglomerative Clustering for Hierarchical Aspect Aggregation

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INPUT: A vector representations of a set of aspects

INITIALIZATION:
Init C to a set of clusters per each $a_i \epsilon A$
Init D to a set of link distances between a_i,a_j $\epsilon A \Lambda a_i \neq a_j$

WHILE C.size >1 :
Min_dist_link = min(D)
X = min_dist_link.left_cluster
Y = min_dist_link.right_cluster
Create cluster C_n& add to C

IF (ACD(X,Y) - WACD(X,Y) > α OR X.is_leaf() AND Y.is_leaf()):
add X and Y as subclusters of C_n

ELSE IF (||Dist(X) -Dist(Y)|| /WACD(X,Y) < β) :
add subclusters of X and Y as subclusters of C_n
remove X and Y from C
Adjust Dist(C_n)
Modify_link_distances(D, C_n)

ELSE IF (Dist(X)>Dist(Y)) :
Add X as a subcluster of Y
Replace $C_n byY$& remove $C_n fromC$
Adjust Dist(Y)
Modify_link_distances(D, Y)

ELSE :
Add Y as a subcluster of X
Replace $C_n byX$& remove $C_n fromC$
Adjust Dist(X)
Modify_link_distances(D, X)
END WHILE

Table 1: Proposed agglomerative clustering algorithm