1 Introduction

2 Background

3 Algorithm

This section describes an algorithm to calculate the Weiner index of a Hamming graph. The algorithm can be separated into two components:

1. Find the elementary cuts;
2. Count the number of vertices on either side of all the cuts.

The first of these can be achieved by the following algorithm.

Algorithm 1 Elementary Cut Finding Algorithm

1: **for** all edges in G **do**
2: Create a *centre* on each adjacent face.
3: Create an edge from the centre to the current edge.
4: Increment a counter on the centre by one, to keep track of the degree of each centre.
5: **end for**
6: **for** all boundary edges **do**
7: Create a *cut* by tracing the unique path from edge to centre to the opposite edge, until another boundary edge is reached.
8: **end for**