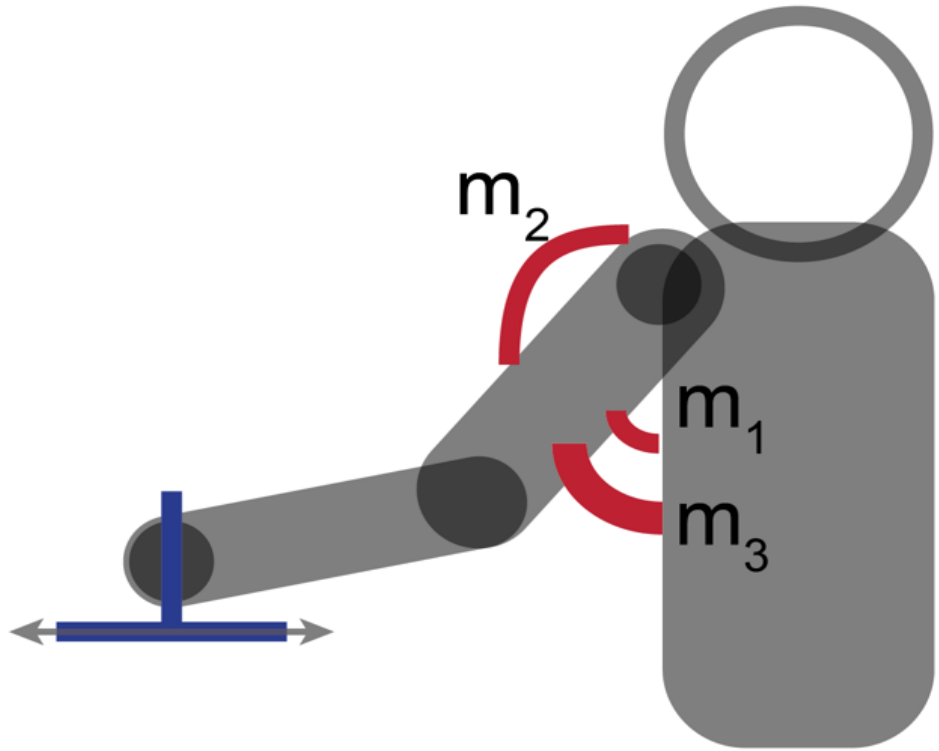
Higher Dimensional Solution Picking

Brian Cohn and May Szedlák

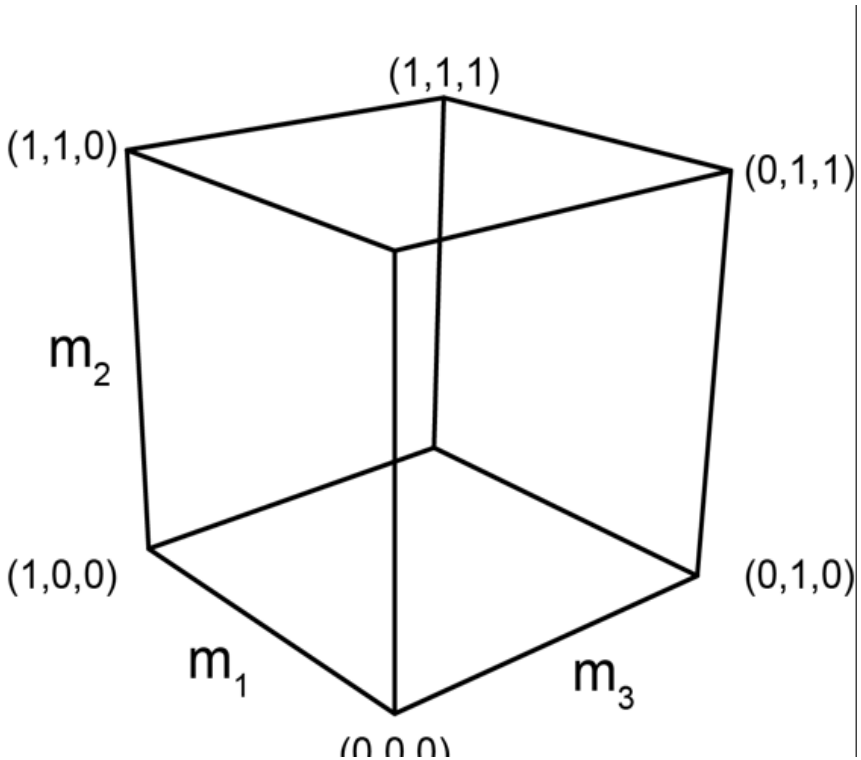
March 11, 2015

Example

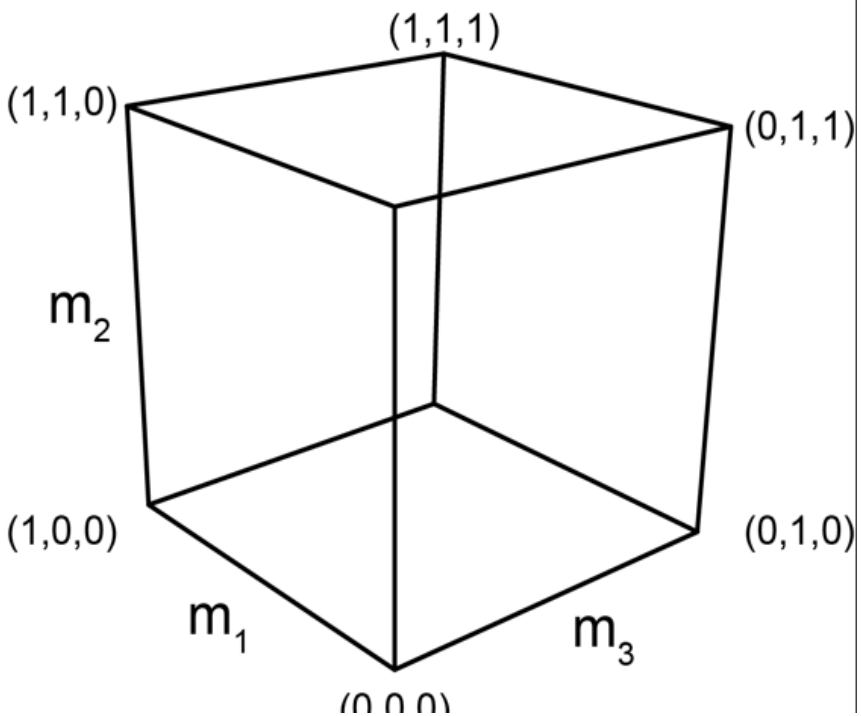


$$f = J^{-T} RFa$$
$$f = (\tfrac{10}{3}, -\tfrac{53}{3}, 2) \cdot a$$

Feasible Activation and Force Space



Feasible Activation and Force Space



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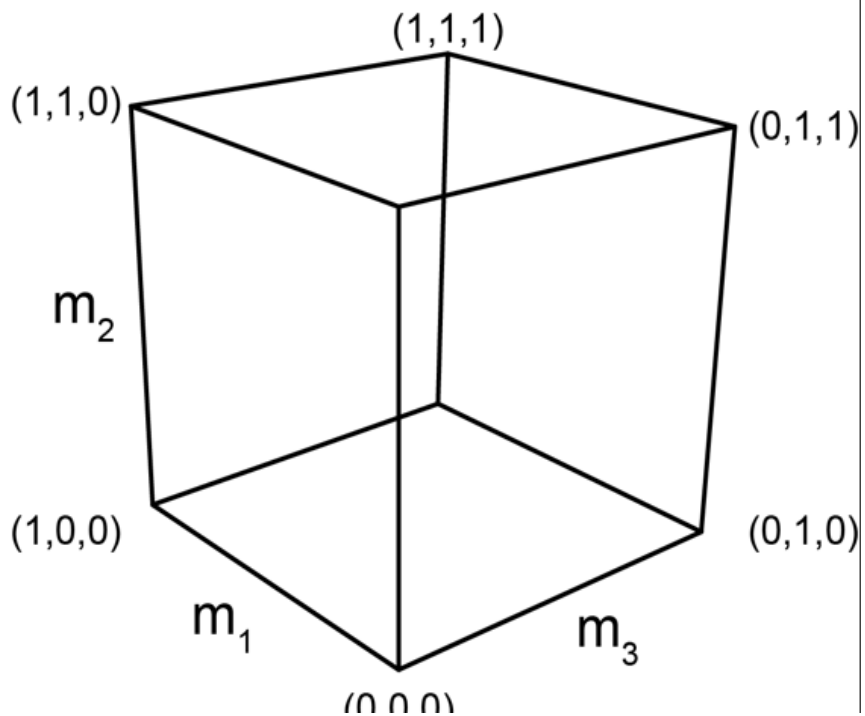

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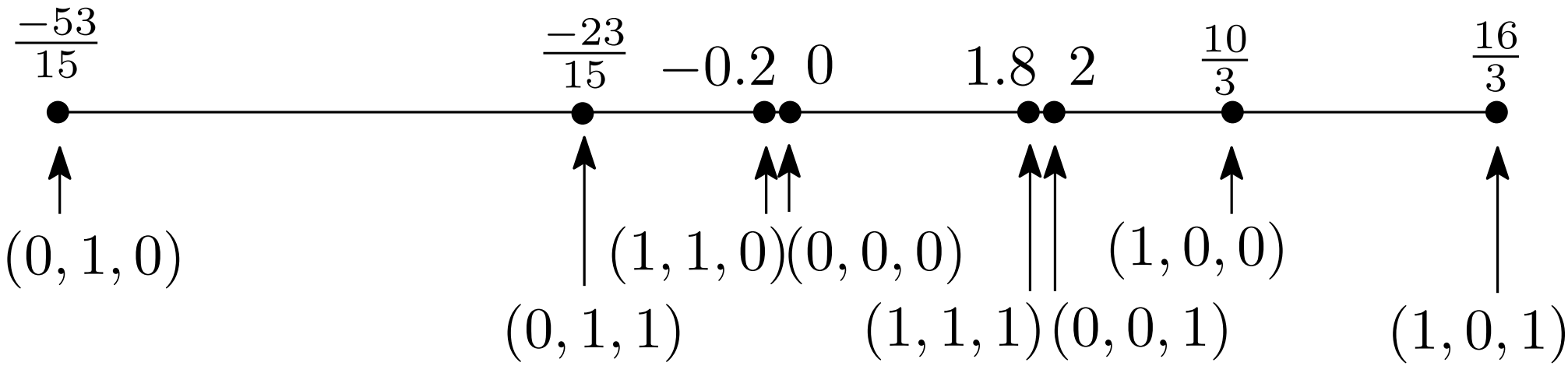

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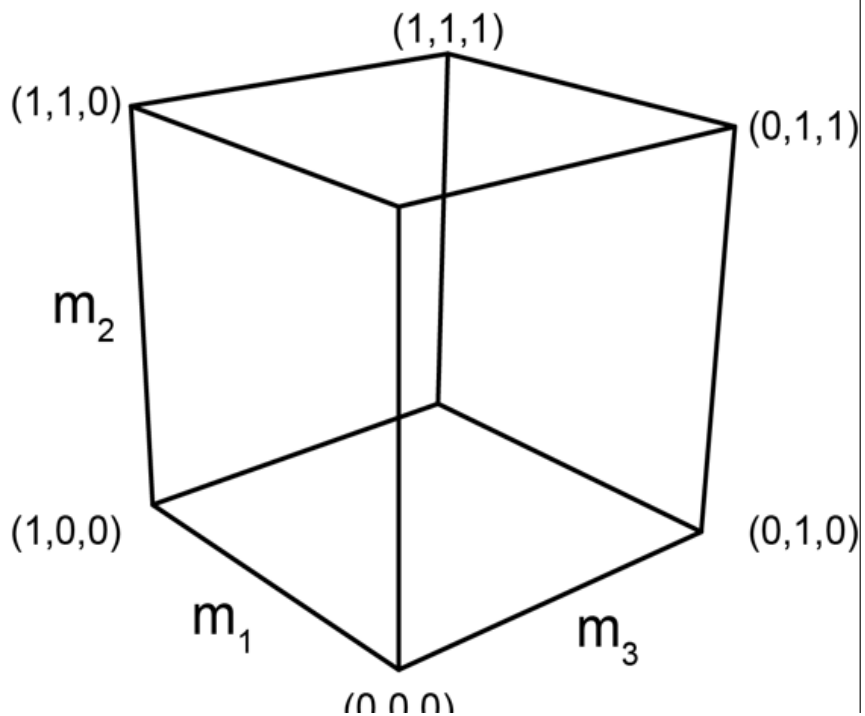

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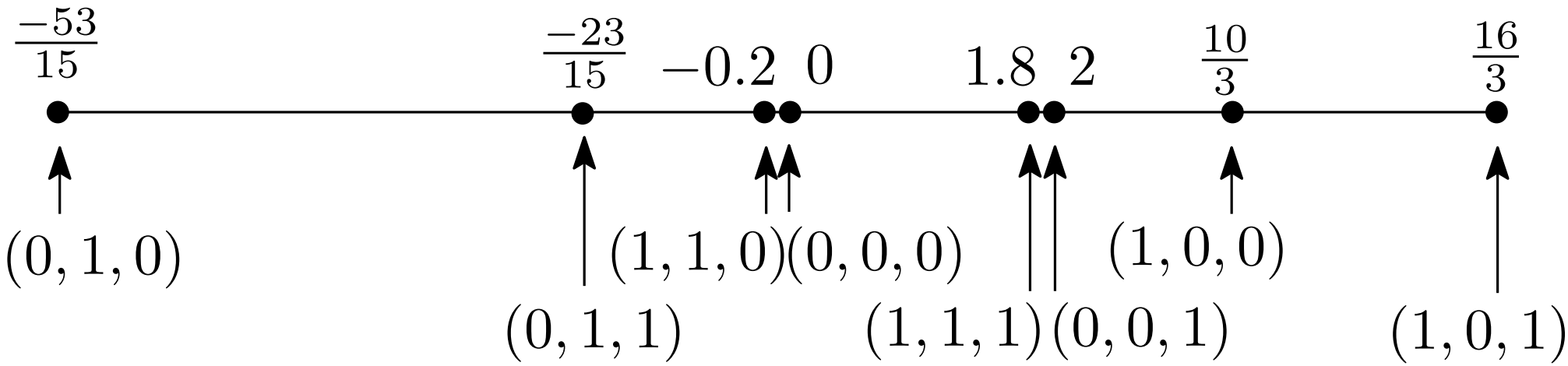
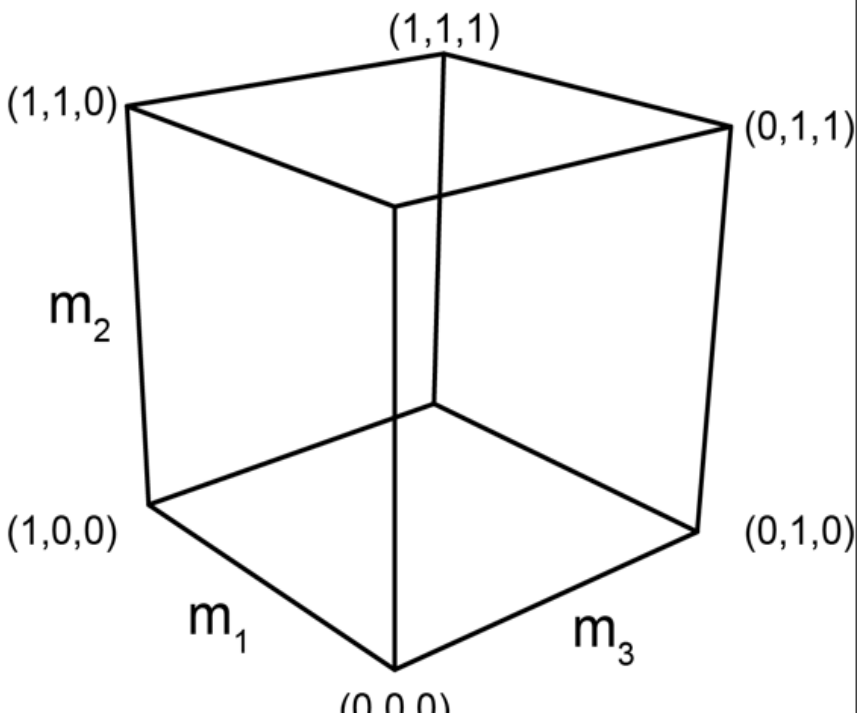
Which a's satisfy this?



Hit and Run

Fixed Force



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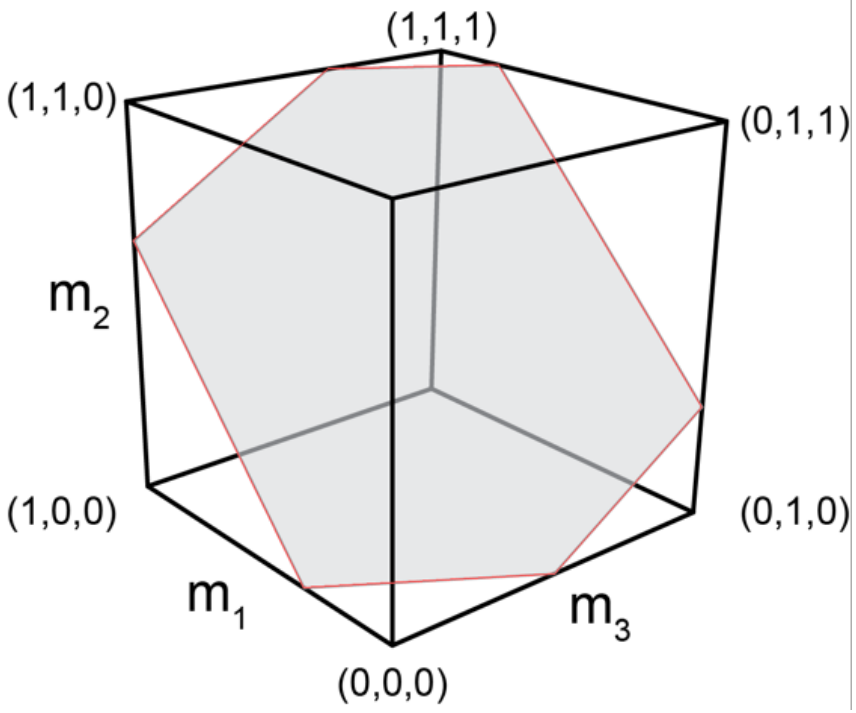

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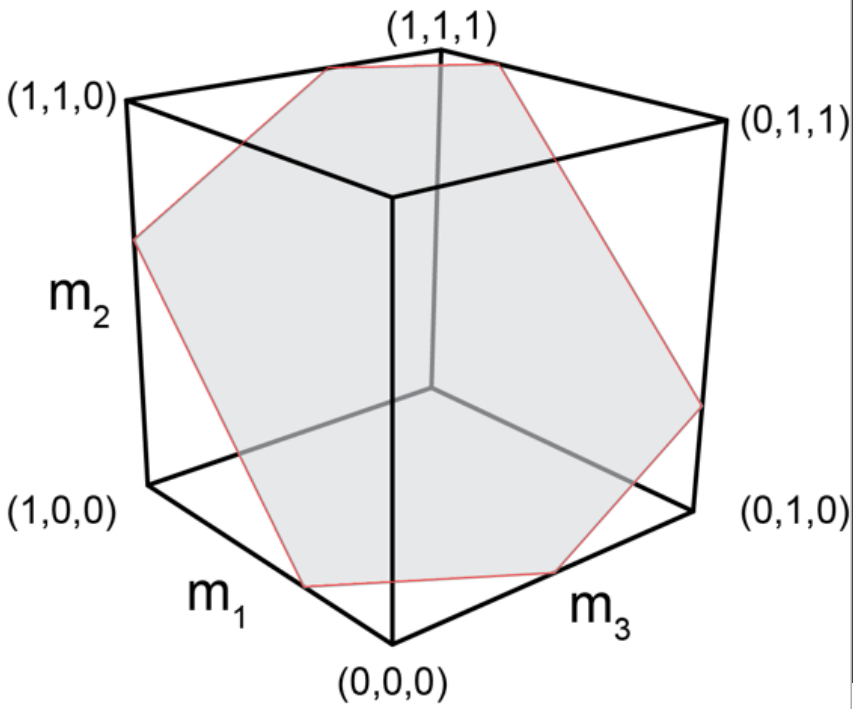

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Which a satisfy this?

Polygon in 2 dimensions

How to compute? $\rightarrow$ Problem

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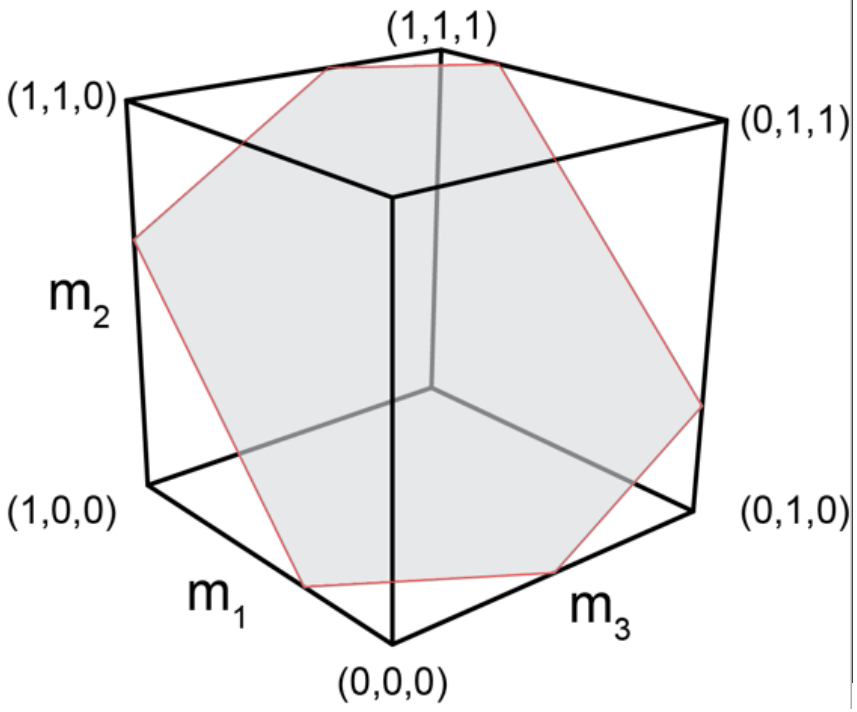

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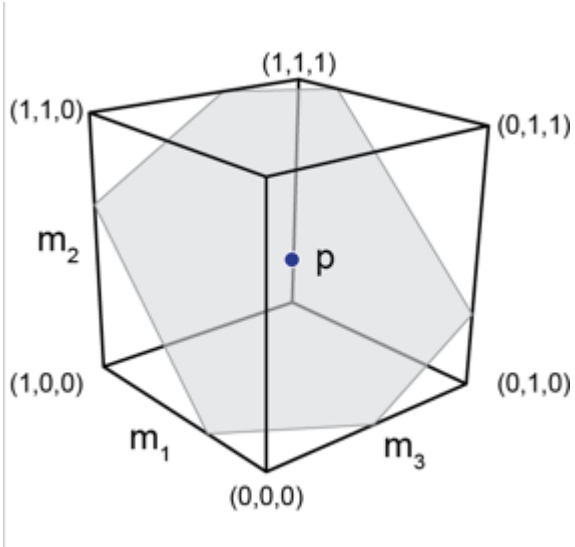
Polygon in 2 dimensions

How to compute? $\rightarrow$ Problem

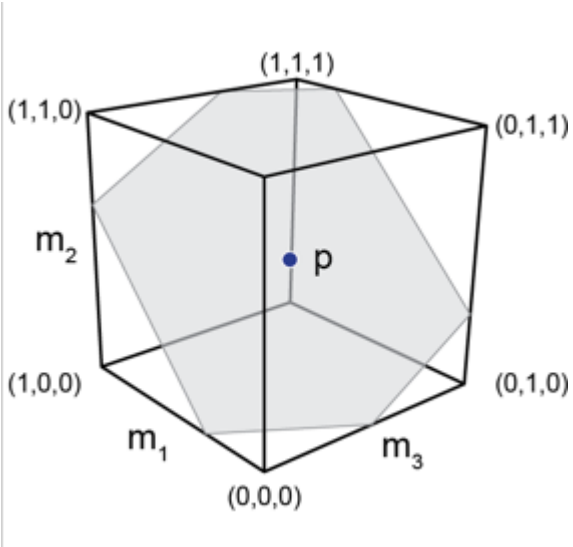
Idea: Sampling points

Hit and Run

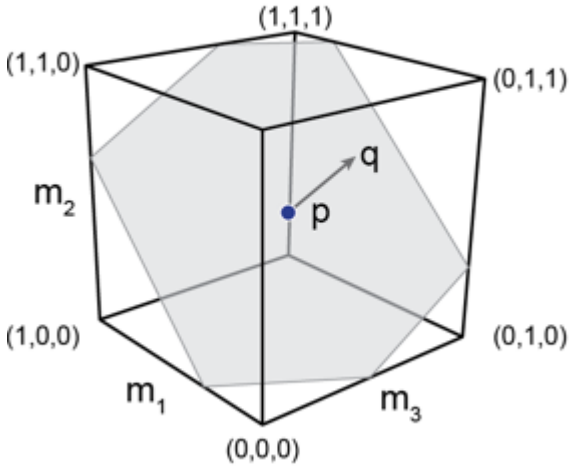


starting point

Hit and Run

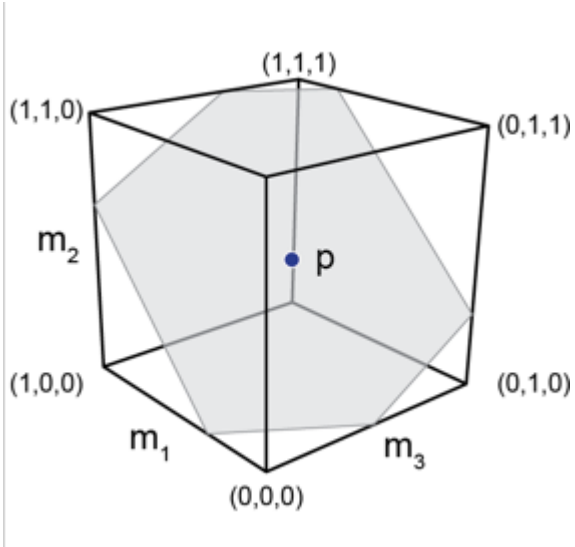


starting point

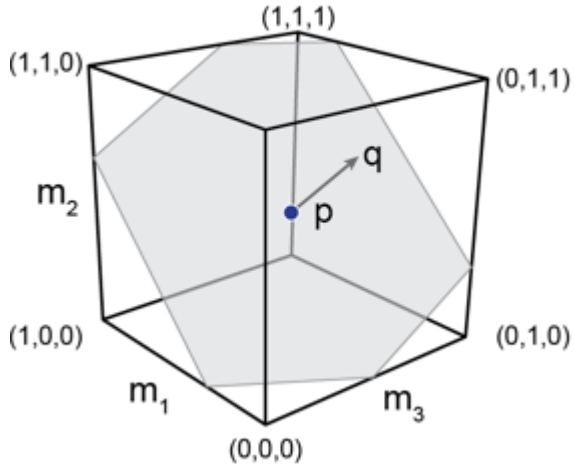


random direc.

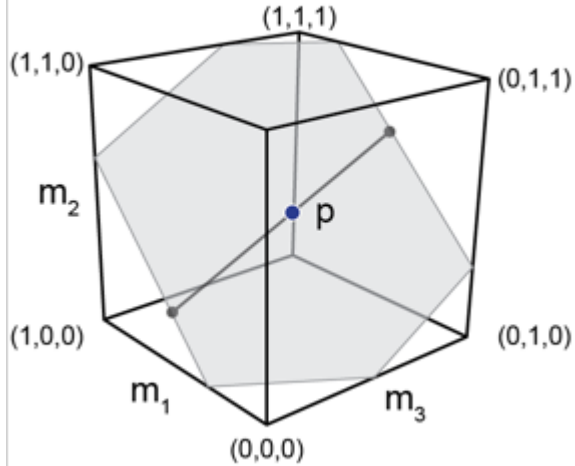
Hit and Run



starting point

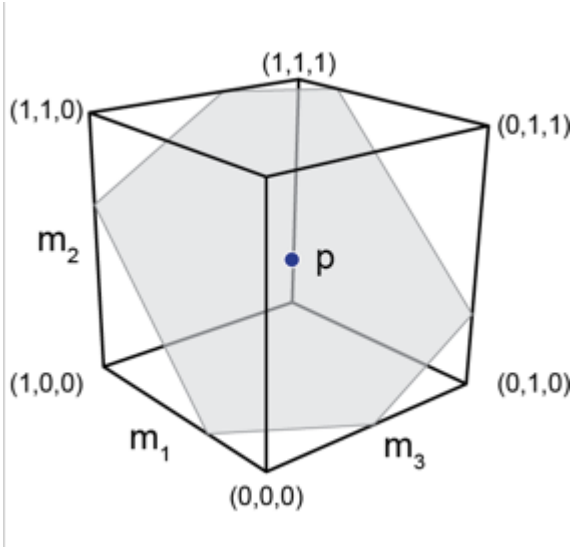


random direc.

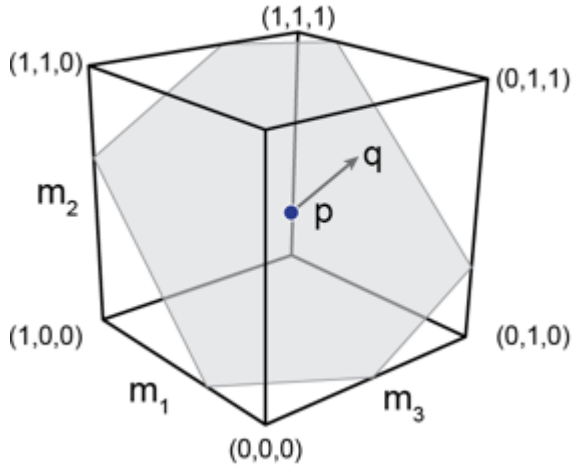


endpoints

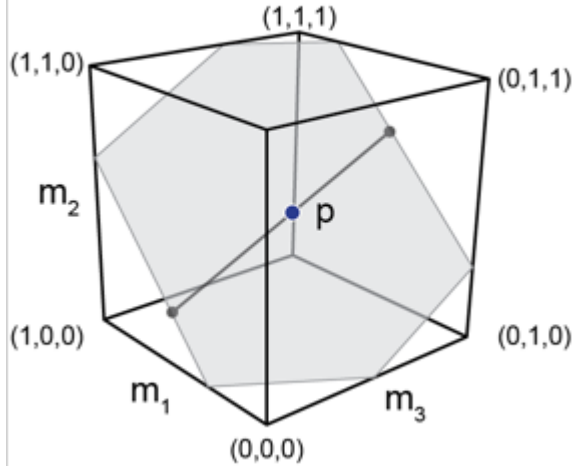
Hit and Run



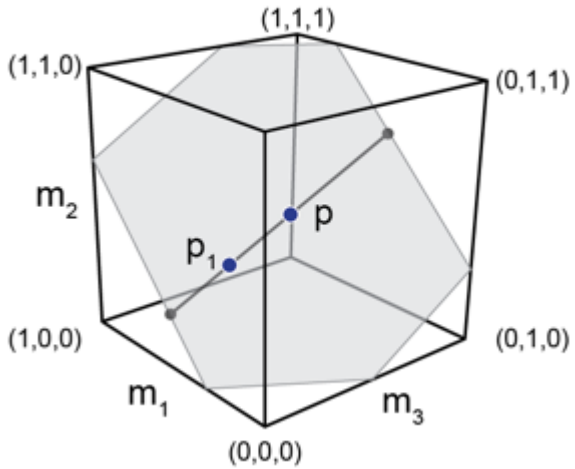
starting point



random direc.

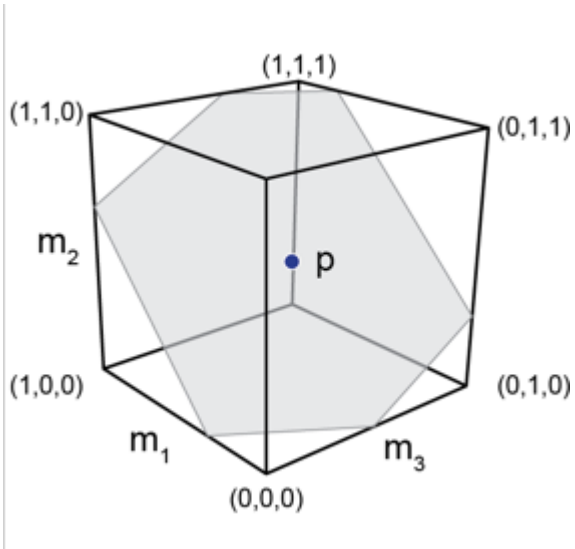


endpoints

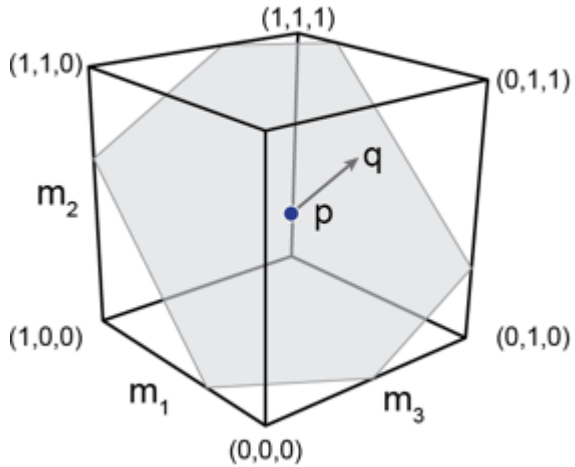


new point

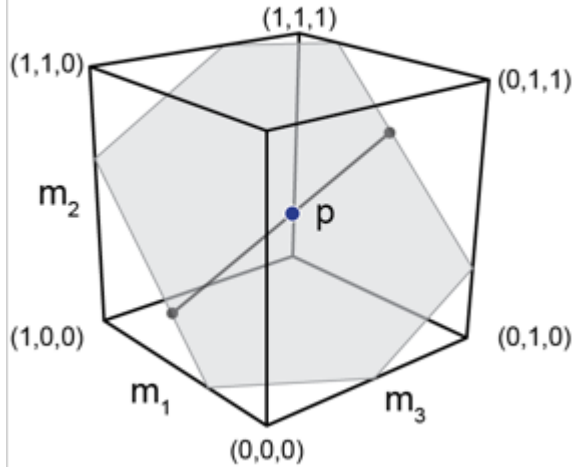
Hit and Run



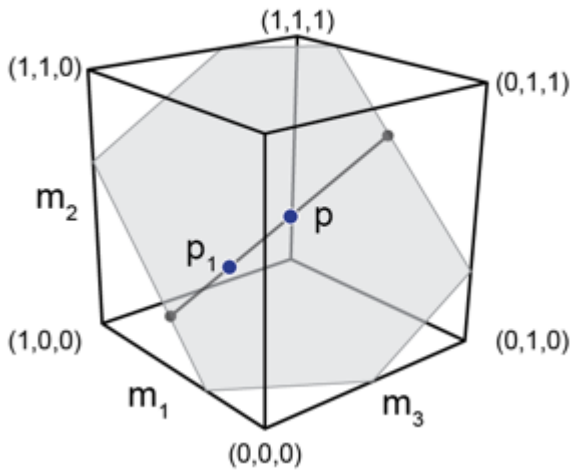
starting point



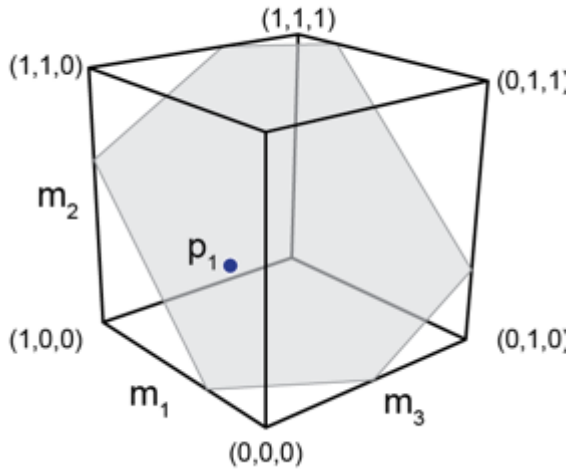
random direc.



endpoints

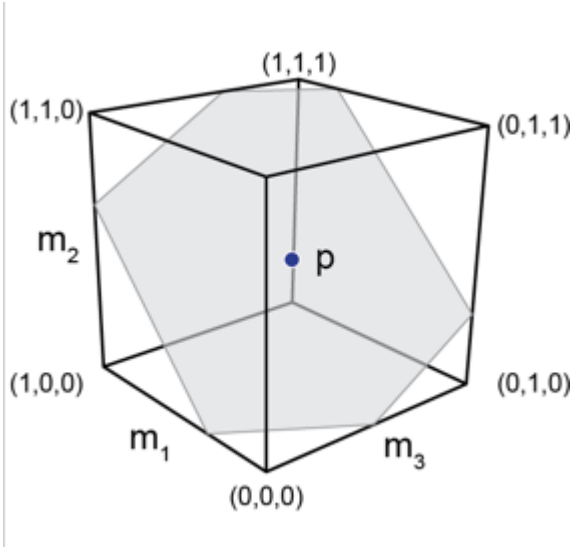


new point

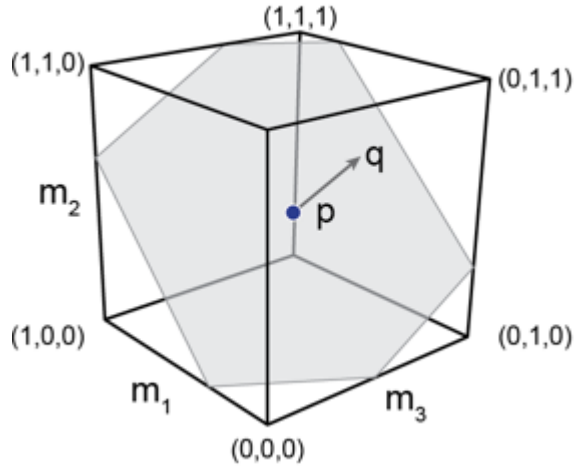


restart

Hit and Run



starting point



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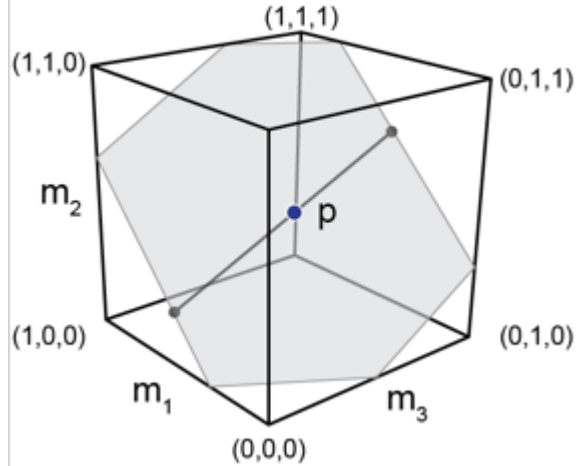
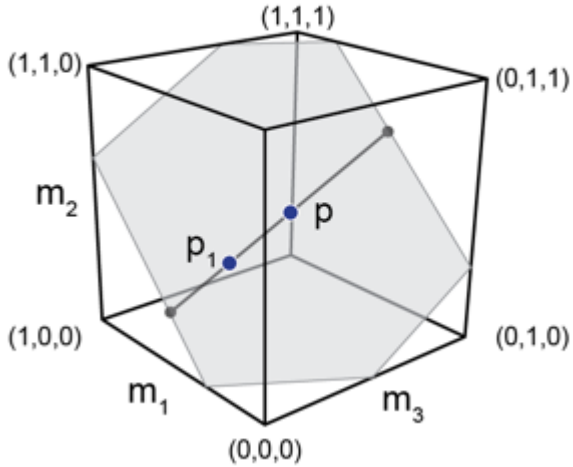


endpoints



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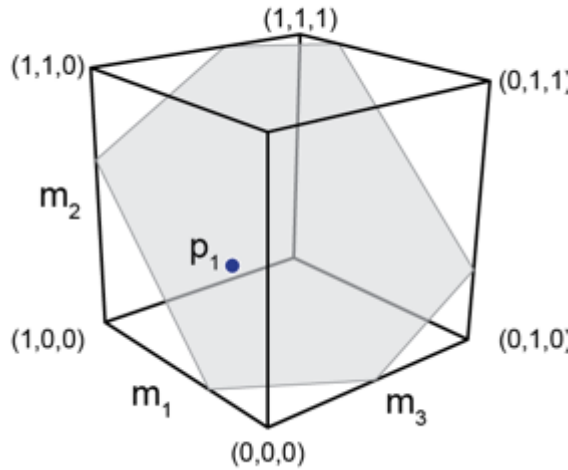
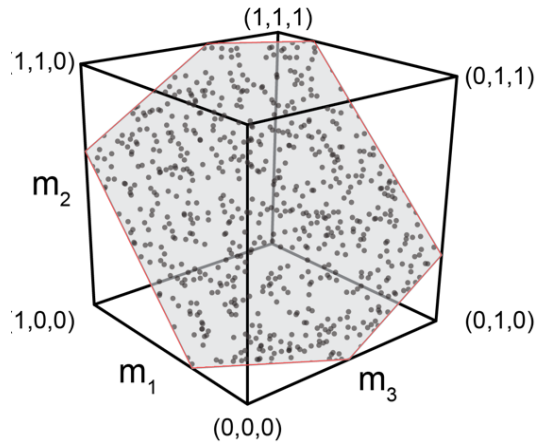
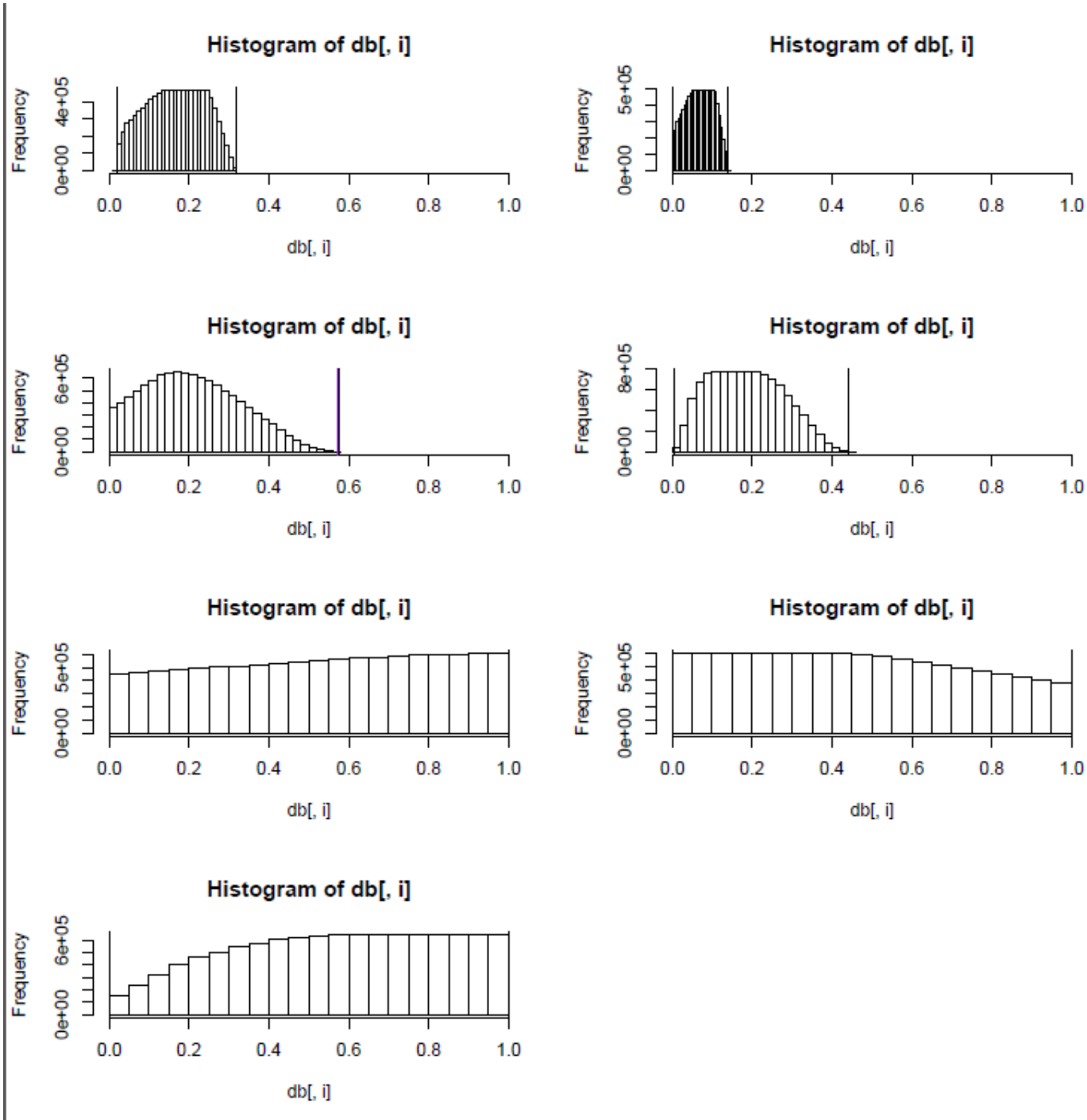


restart



unif. distrib.

Histogram


Histogram of db[, i]
Frequency
0e+00
4e+05
0.0
0.2
0.4
0.6
0.8
1.0
db[, i]
Histogram of db[, i]
Frequency
0e+00
5e+05
0.0
0.2
0.4
0.6
0.8
1.0
db[, i]
Histogram of db[, i]
Frequency
0e+00
6e+05
0.0
0.2
0.4
0.6
0.8
1.0
db[, i]
Histogram of db[, i]
Frequency
0e+00
8e+05
0.0
0.2
0.4
0.6
0.8
1.0
db[, i]
Histogram of db[, i]
Frequency
0e+00
5e+05
0.0
0.2
0.4
0.6
0.8
1.0
db[, i]
Histogram of db[, i]
Frequency
0e+00
5e+05
0.0
0.2
0.4
0.6
0.8
1.0
db[, i]
Histogram of db[, i]
Frequency
0e+00
6e+05
0.0
0.2
0.4
0.6
0.8
1.0
db[, i]

Barplots