



`optAugmentLHS {lhs}`

R Documentation

## Optimal Augmented Latin Hypercube Sample

### Description

Augments an existing Latin Hypercube Sample, adding points to the design, while maintaining the *latin* properties of the design. This function attempts to add the points to the design in an optimal way.

### Usage

```
optAugmentLHS(lhs, m=1, mult=2)
```

### Arguments

`lhs` The Latin Hypercube Design to which points are to be added

`m` The number of additional points to add to matrix `lhs`

`mult` `m*mult` random candidate points will be created.

### Details

Augments an existing Latin Hypercube Sample, adding points to the design, while maintaining the *latin* properties of the design. This function attempts to add the points to the design in a way that maximizes S optimality.

S-optimality seeks to maximize the mean distance from each design point to all the other points in the design, so the points are as spread out as possible.

## Value

An  $n$  by  $k$  Latin Hypercube Sample matrix with values uniformly distributed on  $[0,1]$

## Author(s)

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## References

Stein, M. (1987) Large Sample Properties of Simulations Using Latin Hypercube Sampling. *Technometrics*. **29**, 143–151.

## See Also

[randomLHS](#), [geneticLHS](#), [improvedLHS](#), [maximinLHS](#), and [optimumLHS](#) to generate Latin Hypercube Samples. [optSeededLHS](#) and [augmentLHS](#) to modify and augment existing designs.

## Examples

```
a <- randomLHS(4,3)
a
```

optAugmentLHS(a, 2, 3)

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