Package 'urn'

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Description Functions for sampling without replacement. (Simulated Urns).

Title Urn : Sampling Without Replacement

URL http://www.hmdc.harvard.edu/micah_altman/software.shtml

Depends R (>= 2.3.0)

Dialect R, S-plus

License GPL

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R topics documented:

urn *Repeated Sampling Without Replacement*

Description

Generate repeated samples of the same list of objects without replacement.

Usage

```
u<-urn(items,prob=NULL)
s<-sampleu(u,n)
size<-refill.urn(u)
```

Arguments

items	Items – A set of items to be sampled. If 'items' is a list, calls to urn.sample are treated identically to 'sample' except that (1) repeated calls to urn.sample sample without replacement from items (2) the probability distribution is defined at urn creation time. If 'items' is a vector, however, each item in the vector is interpreted as the frequency of occurence of that type of item in the urn.
prob	Vector of probability weights corresponding to items. For use with items lists only.
u	urn to be sampled
n	number of items in sample
size	number of items remaining
s	sample drawn from urn

Details

sample() allows a single sample to be taken without replacement. Call urn.sample when repeated samples without replacement are needed. Use sum() to determine population left in urn, and refill.urn to restore population to originial levels.

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References

There are many references explaining sampling without replacement, this is one example:

Mathematical Statistics and Data Analysis, John A. Rice. Wadsworth, 1988, 1995.

See Also

sample

Examples

```
library(urn)

# Create urn with 3 items
u<-urn(list("red","green","blue"))

# custom print and summary methods
print(u )
summary(u)

# draw 2 samples from the urn
sampleu(u,2)
# can't sample more items than in the urn, without refilling:
# sampleu(u,2)
sum(u)
sampleu(u,1)
# refill
refill.urn(u)
# Create an urn with 100010 items of two types in ~51:49 proportions
ub<-urn(c(51006,49004))
summary(ub)

# take ten draws each of 10001 items
if (is.R()) {
        reps<-replicate(10, table(sampleu(ub,10001)), simplify=TRUE)
} else {
        reps<-sapply(intger(10), function(x)table(sampleu(ub,10001)), simplify=TRUE)
}
print(reps)

# should equal 51006
sum(reps[1,])
```

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