Accumarray Examples

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Accumarry Basic Example

There are three unique values in ar_a, sum up the probabilities for each of the unique states. This is equivalent to sorting a matrix with a and prob, and computing sum for each.

```
ar_a = [3,2,1,3]';
ar_prob = [0.1,0.2,0.31,0.39]';
ar_sumprob = accumarray(ar_a, ar_prob);
tb_summed_prob = table(sort(unique(ar_a)), ar_sumprob);
disp(tb_summed_prob);
```

Var1	ar_sumprob
1	0.31
2	0.2
3	0.49

Accumarry For Discrete Random Variable

Upon solving a model, if we look for the mass at certain choices or states, accumarray could help aggregate up probabilities

```
a1 = [1,1,2,2]
```

```
a1 = 1×4
     1     1     2     2
```

```
a2 = [3,2,1,3]
```

```
a2 = 1×4
     3     2     1     3
```

```
a3 = [1,2,3,3]
```

```
a3 = 1×4
     1     2     3     3
```

```
a = [a1;a2;a3]'/2
```

```
a = 4×3
    0.5000    1.5000    0.5000
    0.5000    1.0000    1.0000
    1.0000    0.5000    1.5000
    1.0000    1.5000    1.5000
```

```
prob_a = zeros(size(a)) + 1/12
```

```
prob_a = 4×3
    0.0833    0.0833    0.0833
    0.0833    0.0833    0.0833
```

```
    0.0833    0.0833    0.0833
    0.0833    0.0833    0.0833
```

```
[ar_idx_full, ~, ar_idx_of_unique] = unique(a)
```

```
ar_idx_full = 3×1
    0.5000
    1.0000
    1.5000
ar_idx_of_unique = 12×1
     1
     1
     2
     2
     3
     2
     1
     3
     1
     2
     ⋮
```

```
mt_idx_of_unique = reshape(ar_idx_of_unique, size(a))
```

```
mt_idx_of_unique = 4×3
     1     3     1
     1     2     2
     2     1     3
     2     3     3
```

```
accumarray(mt_idx_of_unique(:,1), prob_a(:,1))
```

```
ans = 2×1
    0.1667
    0.1667
```

```
accumarray(mt_idx_of_unique(:,2), prob_a(:,2))
```

```
ans = 3×1
    0.0833
    0.0833
    0.1667
```

```
accumarray(mt_idx_of_unique(:,3), prob_a(:,3))
```

```
ans = 3×1
    0.0833
    0.0833
    0.1667
```