

This document contains some of the supplementary material for

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Included in the materials are a toy example of how the IEL simulations proceed, a copy of the python program used to generate an IEL simulation, and a copy of the python program used for the Monte Carlo simulations.

There is also an excel file with the experiment data.

A toy example of an IEL simulation.

The IEL parameters we use are: $J = 3$, $K = 2$, $\mu_v = 0.8$, $\mu_l = 0.8$,

The number of rounds = 3

This is round 0

The current strategy for player 0 is:

$A = \{ [0.46 \ 0.58] [0.79] [0.24] \}$

$\pi = [0.33 \ 0.33 \ 0.33]$

The current plan = $[0.24]$ and the current action = 0.24

The current strategy for player 1 is:

$A = \{ [0. \ 0.36] [0.09 \ 0.8] [0.09 \ 0.06] \}$

$\pi = [0.33 \ 0.33 \ 0.33]$

The current plan = $[0. \ 0.36]$ and the current action = 0.0

IEL for player 0 :

After update $A = \{ [0.58 \ 0.46] [0.79] [0.24] \}$

First is length experimentation.

Mutate the length of $j=1$

The new plan is $[0.79 \ 1.]$

Mutate the length of $j=2$

The new plan is $[0.24 \ 1.]$

After Length experimentation $A = \{ [0.58 \ 0.46] [0.79 \ 1.] [0.24 \ 1.] \}$

Next is value experimentation.

Mutate the value of $j=0$

After value experimentation $A = \{ [0.44 \ 0.4] [0.79 \ 1.] [0.24 \ 1.] \}$

Next, update $W = [3.64 \ 8.99 \ 8.99]$

Next is replication.

For plan 0 $j_1=2 \ j_2=2$: $A_0 = [0.24 \ 1.]$, $W_0 = 8.99$

For plan 1 $j_1=0 \ j_2=2$: $A_1 = [0.24 \ 1.]$, $W_1 = 8.99$

For plan 2 $j_1=0 \ j_2=0$: $A_2 = [0.44 \ 0.4]$, $W_2 = 3.64$

After replication $A = \{ [0.24 \ 1.] [0.24 \ 1.] [0.44 \ 0.4] \}$

and $W = [8.99 \ 8.99 \ 3.64]$

IEL for player 1 :

After update $A = \{ [0.36 \ 0.] [0.8 \ 0.09] [0.06 \ 0.09] \}$

1 is continuing a plan. Further updating is unnecessary.

This is round 1

The current strategy for player 0 is:

$A = \{ [0.24 \ 1.] [0.24 \ 1.] [0.44 \ 0.4] \}$

$\pi_i = [0.42 \ 0.42 \ 0.17]$

The current plan = $[0.24 \ 1.]$ and the current action = 0.24

The current strategy for player 1 is:

$A = \{ [0.36 \ 0.] [0.8 \ 0.09] [0.06 \ 0.09] \}$

$\pi_i = [0.42 \ 0.42 \ 0.17]$

The current plan = $[0.36]$ and the current action = 0.36

IEL for player 0 :

After update $A = \{ [1. \ 0.24] [1. \ 0.24] [0.4 \ 0.44] \}$

0 is continuing a plan. Further updating is unnecessary.

IEL for player 1 :

After update $A = \{ [0. \ 0.36] [0.09 \ 0.8] [0.09 \ 0.06] \}$

First is length experimentation.

Mutate the length of $j=0$

0 len=K The new plan is $[0.36]$

Mutate the length of $j=1$

1 len=K The new plan is $[0.8]$

Mutate the length of $j=2$

2 len=K The new plan is $[0.06]$

After Length experimentation $A = \{ [0.36] [0.8] [0.06] \}$

Next is value experimentation.

Mutate the value of $j=0$

Mutate the value of $j=1$

Mutate the value of $j=2$

After value experimentation $A = \{ [0.36] [0.71] [0.12] \}$

Next, update $W = [4.8 \ 5.91 \ 4.01]$

Next is replication.

For plan 0 $j_1=1 \ j_2=2$: $A_0 = [0.71]$, $W_0 = 5.91$

For plan 1 $j_1=0 \ j_2=2$: $A_1 = [0.36]$, $W_1 = 4.8$

For plan 2 $j_1=0 \ j_2=1$: $A_2 = [0.71]$, $W_2 = 5.91$

After replication $A = \{ [0.71] [0.36] [0.71] \}$

and $W = [5.91 \ 4.8 \ 5.91]$

This is round 2

The current strategy for player 0 is:

$A = \{ [1. \ 0.24] [1. \ 0.24] [0.4 \ 0.44] \}$

$\pi_i = [0.42 \ 0.42 \ 0.17]$

The current plan = $[1]$ and the current action = 1.0

The current strategy for player 1 is:

$A = \{ [0.71] [0.36] [0.71] \}$

$\pi_i = [0.36 \ 0.29 \ 0.36]$

The current plan = $[0.36]$ and the current action = 0.36

IEL for player 0 :

After update $A = \{ [0.24 \ 1.] [0.24 \ 1.] [0.44 \ 0.4] \}$

First is length experimentation.

Mutate the length of $j=0$

0 len=K The new plan is $[1]$

Mutate the length of $j=1$

1 len=K The new plan is $[1]$

After Length experimentation $A = \{ [1] [1] [0.44 \ 0.4] \}$

Next is value experimentation.

Mutate the value of $j=0$

Mutate the value of $j=1$

Mutate the value of $j=2$

After value experimentation $A = \{ [0.97] [0.99] [0.43 \ 0.37] \}$

Next, update $W = [5.72 \ 5.72 \ 5.56]$

Next is replication.

For plan 0 $j_1=0 \ j_2=1 : A_0 = [0.99], W_0 = 5.72$

For plan 1 $j_1=2 \ j_2=0 : A_1 = [0.97], W_1 = 5.72$

For plan 2 $j_1=0 \ j_2=0 : A_2 = [0.97], W_2 = 5.72$

After replication $A = \{ [0.99] [0.97] [0.97] \}$

and $W = [5.72 \ 5.72 \ 5.72]$

IEL for player 1 :

After update $A = \{ [0.71] [0.36] [0.71] \}$

First is length experimentation.

Mutate the length of $j=0$

The new plan is $[0.71 \ 0.]$

Mutate the length of $j=2$

The new plan is $[0.71 \ 0.]$

After Length experimentation $A = \{ [0.71 \ 0.] [0.36] [0.71 \ 0.] \}$

Next is value experimentation.

Mutate the value of $j=0$

Mutate the value of $j=1$

After value experimentation $A = \{ [0.74 \ 0.] [0.41] [0.71 \ 0.] \}$

Next, update $W = [10.47 \ 6.89 \ 10.45]$

Next is replication.

For plan 0 $j_1=0 \ j_2=0 : A_0 = [0.74 \ 0.], W_0 = 10.47$

For plan 1 $j_1=0 \ j_2=1 : A_1 = [0.74 \ 0.], W_1 = 10.47$

For plan 2 $j_1=1 \ j_2=2 : A_2 = [0.71 \ 0.], W_2 = 10.45$

After replication $A = \{ [0.74 \ 0.] [0.74 \ 0.] [0.71 \ 0.] \}$

and $W = [10.47 \ 10.47 \ 10.45]$

This game is over.

$$m_1 + m_2 = 1.28 \quad m_3 = 0.88$$

The python program for an IEL simulation

```
import random
from scipy.stats import truncnorm
import numpy as np
from sys import exit

# this section contains the basic IEL parameters and routines

J=180 #number of items in "considered set" S
muv = .033 # rate of mutation of value
sigmav=.05 # variance on the mutation of value # sigmav = float((su-sl))/10
mul = .0033 # rate of mutation of length
K =4 # max length of a "considered strategy"
L = K # how far back to consider in computing foregone utility

#Types of inspiration:

type =[0,0] #type 1 is all "smart", type 2 is half "smart" half random.
#Any other produces both random.
smart = [0,1] # What smart wants to play

#This initialization takes the types as given
def generalinitialization(I,J,K,sl,su,smart):
    W=[]
    St=[]

    for i in range(I):
        Sit=[]
        temp=[1]*len(range(J))
        W.append(temp)
        if type[i]==1:
            Sit=[]
            for j in range(J):
                Sit.append(smart[:j])
        elif type[i]==2:
            if 2*(J/2)!=J:
                exit("error J is not even")

            else:
                for j in range(J/2):
                    Sittemp=[]
                    k= random.randrange(K)
                    for n in range(k+1):
```

```

        Sittemp.append(random.uniform(sl,su))
        Sit.append(Sittemp)
        Sit.append(smart[:])

    else:
        for j in range(J):
            Sittemp=[]
            k= random.randrange(K)
            for n in range(k+1):
                Sittemp.append(random.uniform(sl,su))
            Sit.append(Sittemp)

        St.append(Sit)

    return St,W

def choiceprobabilitiesfori(utilities):
    choicepiti=[]
    e=min(utilities)
    if e <= 0:
        for j in range(J):
            utilities[j] -= e-1
    sumw=sum(utilities)
    if sumw == 0:
        exit("error - sumw=0")
    for j in range(J):
        choicepiti.append(utilities[j]/float(sumw))
    return choicepiti

def selectionfori(some_list, probabilities):
    x = random.uniform(0, 1)
    cumulative_probability = 0.0
    for item, item_probability in zip(some_list, probabilities):
        cumulative_probability += item_probability
        if x < cumulative_probability: break
    return item
# item is the selected strategy

def foregoneutility(strategy,past_actions,player_name):
    #know L,t
    LL=min(L,t+1)
    v=0
    lenk = len(strategy)
    for d in range(LL):
        v+=utility(strategy[lenk-(d%lenk)-1],past_actions[t-d],player_name)

```

```

return v/float(LL)

def Vexperimentationfori(strategyset):
    #value experimentation - know sigmav,sl,su,muv, mul
    for j in range(J):
        if onstrat[i]==0:
            if random.uniform(0,1) < muv:
                for k in range (len(strategyset[j])):
                    centers = strategyset[j][k]
                    r = (truncnorm.rvs((sl-centers)/float(sigmav),
                                        (su-centers)/float(sigmav),
                                        loc=centers, scale = sigmav, size
=1))
                    strategyset[j][k] = np.array(r).tolist()[0]
    return strategyset

def Lexperimentationfori(strategyset,past_actions,player_name):
    #lengthexperimentation
    if K >1:
        for j in range(J):
            if random.uniform(0,1) < mul:
                if len(strategyset[j])==1:
                    alt=strategyset[j][:]
                    alt.append(1)
                    strategyset[j].append(0)

W0=foregoneutility(strategyset[j],past_actions,player_name)

W1=foregoneutility(alt,past_actions,player_name)
    if W1>W0:
        strategyset[j]=alt
    elif len(strategyset[j])==K:
        strategyset[j].pop(0)
        strategyset[j]
    else:
        if random.uniform(0,1) < .5:
            strategyset[j].pop(0)
        else:
            alt=strategyset[j][:]
            alt.append(1)
            strategyset[j].append(0)

W0=foregoneutility(strategyset[j],past_actions,player_name)

W1=foregoneutility(alt,past_actions,player_name)
    if W1>W0:

```



```
strategysset[j]=alt
```

```
return strategysset
```

```
def replicatefori(strategysset,utilities):
```

```
    newS = [0]*J
```

```
    newW = [0]*J
```

```
    for j in range(J):
```

```
        j1=random.randrange(J)
```

```
        j2=random.randrange(J)
```

```
        newS[j]=strategysset[j2][:]
```

```
        newW[j]=utilities[j2]
```

```
        if utilities[j1]> utilities[j2]:
```

```
            newS[j]=strategysset[j1][:]
```

```
            newW[j]=utilities[j1]
```

```
    return newS,newW
```

```
    #(newS,newW) = (replicated strategies, corresponding  
    #foregone utilities)
```

```
def updateWfori(Set,past_actions,player_name):
```

```
    W=[]
```

```
    for j in range(J):
```

```
        W.append(foregoneutility(Set[j],past_actions,player_name))
```

```
    return W
```

```
def updateStfori(Set):
```

```
    for strats in Set:
```

```
        item = strats.pop(0)
```

```
        strats.append(item)
```

```
    return Set
```

```
    #moves all strats in Set up by 1 (last played goes to the back)
```

```
#These are the parameters etc. for BoS
```

```
I=2 #number of subjects in a game
```

```
su = 1 #upper bound on the strategy set [sl,su]
```

```
sl = 0 #lower bound on strategy set [sl,su]
```

```
    #For BoS there is a basic 2x2 game matrix [ 0payoffij, 1payoffij ] with 2  
    players
```

```
#pm = [ [0, 9,15,0],[0,15,9,0]] #the symmetric payoff matrix
```

```

pm=[[3,9,20,3],[3,17,10,3]] #the asymmetric payoff matrix

# a check for BoS
if len(pm) != I:
    exit("need utility parameters for all I")

alpha= ([[pm[0][3],pm[0][1]-pm[0][0],pm[0][2]-pm[0][0],pm[0][0]-pm[0][1]-
pm[0][2]+pm[0][3]], [pm[1][3],pm[1][1]-pm[1][0],pm[1][2]-pm[1][0],
pm[1][0]-pm[1][1]- pm[1][2]+pm[1][3]]]) # utility parameters

def utility(contemplated_action,actionvector, player_name):
    pactionvector=list(actionvector)
    pactionvector[player_name] = contemplated_action
    computed_utility =
(alpha[player_name][0]+alpha[player_name][1]*pactionvector[0]+
    alpha[player_name][2]*pactionvector[1] +
    alpha[player_name][3]*pactionvector[0]*pactionvector[1] )
    return computed_utility

# this is where the simulations start

# this section is for the simulation parameters

rounds=40 # number of rounds per run
runs = 1000 # number of runs in a simulation

nash = 0 #initialize counts
alt = 0 #initialize counts

for sims in range(runs):

    random.seed()
    S=[] #stores strategy sets for each run
    a=[] #stores all actions for a run

#initialize for a run (i.e. one play of repeated game)
onstrat=[0]*I
currentstrat=[0]*I

[St,W]= generalinitialization(I,J,K,sl,su,smart)

    for t in range(rounds):
        at=[] #initializes actions for round t

```

```

#this is the game play

    for i in range(I):
        if onstrat[i] == 0:
            p=choiceprobabilitiesfori(W[i])
            currentstrat[i]=selectionfori(St[i],p)[: ]
            at.append(currentstrat[i][0])

    S.append(St)
    a.append(at)

#this updates a player's "considered set"

    for i in range(I):
        St[i]=updateStfori(St[i])
        if len(currentstrat[i])>1:
            del currentstrat[i][0]
            onstrat[i] = 1
        else:
            onstrat[i]=0
            St[i]=Lexperimentationfori(St[i],a,i)
            St[i]=Vexperimentationfori(St[i])
            W[i]=updateWfori(St[i],a,i)
            (St[i],W[i])=replicatefori(St[i],W[i])

    #at this point we have S(t+1), W(t+1), onstrat(t+1), x(t+1).
    # we go to next t

#record keeping before next simulation run
temp = rounds -1
m1 =(a[temp][0]-a[temp-1][0])**2 +(a[temp-2][0]-a[temp-3][0])**2
m2 =(a[temp][1]-a[temp-1][1])**2 +(a[temp-2][1]-a[temp-3][1])**2
m3=0
for d in range(4):
    m3 += (a[temp - d][1]-a[temp-d][0])**2
if (m1+m2 <1) and (m3> 3.5):
    nash +=1
    print a[temp][0],a[temp][1]
if (m1+m2 >3) and (m3 >3.5):
    alt +=1

#reporting summary results of sims
print "nash = ", nash/float(sims+1),
print "alternate = ", alt/float(sims+1)

```

The python program for the Monte Carlo simulations

```
# Given a probability distribution on types, a number of pairs are matched
#and each plays a game. That constitutes one observation (a block). Multiple
#blocks are run to generate a distribution.

import random
from scipy.stats import truncnorm
import numpy as np
from sys import exit

#IEL parameters

J=180 #number of items in "considered set" S
muv = .033 # rate of mutation of value
sigmav=.05 # variance on the mutation of value # sigmav = float((su-sl))/10
mul = .0033 # rate of mutation of length
K =2 # max length of a "considered strategy"
L = K # how far back to consider in computing foregone utility

# IEL pieces

def generalinitialization(I,J,K,sl,su,smart):
    W=[]
    St=[]

    for i in range(I):
        Sit=[]
        temp=[1]*len(range(J))
        W.append(temp)
        if type[i]==1:
            Sit=[]
            for j in range(J):
                Sit.append(smart[:])
        elif type[i]==2:
            if 2*(J/2)!=J:
                exit("error J is not even")

            else:
                for j in range(J/2):
                    Sittemp=[]
                    k= random.randrange(K)
                    for n in range(k+1):
                        Sittemp.append(random.uniform(sl,su))
                    Sit.append(Sittemp)
```

```

        Sit.append(smart[:])

    else:
        for j in range(J):
            Sittemp=[]
            k= random.randrange(K)
            for n in range(k+1):
                Sittemp.append(random.uniform(sl,su))
            Sit.append(Sittemp)

    St.append(Sit)

return St,W

def choiceprobabilitiesfori(utilities):
    choicepiti=[]
    e=min(utilities)
    if e <= 0:
        for j in range(J):
            utilities[j] -= e-1
    sumw=sum(utilities)
    if sumw == 0:
        exit("error - sumw=0")
    for j in range(J):
        choicepiti.append(utilities[j]/float(sumw))
    return choicepiti

def selectionfori(some_list, probabilities):
    x = random.uniform(0, 1)
    cumulative_probability = 0.0
    for item, item_probability in zip(some_list, probabilities):
        cumulative_probability += item_probability
        if x < cumulative_probability: break
    return item

def foregoneutility(strategy,past_actions,player_name):
    #know L,t
    LL=min(L,t+1)
    v=0
    lenk = len(strategy)
    for d in range(LL):
        v+=utility(strategy[lenk-(d%lenk)-1],past_actions[t-d],player_name)
    return v/float(LL)

def Vexperimentationfori(strategyset):
    #value experimentation - know sigmav,sl,su,muv, mul

```

```

for j in range(J):
    if onstrat[i]==0:
        if random.uniform(0,1) < muv:
            for k in range (len(strategysset[j])):
                centers = strategysset[j][k]
                r = (truncnorm.rvs((sl-centers)/float(sigmav),
                                (su-centers)/float(sigmav),
                                loc=centers, scale = sigmav, size
                                =1))
                strategysset[j][k] = np.array(r).tolist()[0]

return strategysset

def Lexperimentationfori(strategysset,past_actions,player_name):
    #lengthexperimentation
    if K > 1:
        for j in range(J):
            if random.uniform(0,1) < mul:
                if len(strategysset[j])==1:
                    alt=strategysset[j][:]
                    alt.append(1)
                    strategysset[j].append(0)

W0=foregoneutility(strategysset[j],past_actions,player_name)
W1=foregoneutility(alt,past_actions,player_name)
    if W1>W0:
        strategysset[j]=alt
    elif len(strategysset[j])==K:
        strategysset[j].pop(0)
        strategysset[j]
    else:
        if random.uniform(0,1) < .5:
            strategysset[j].pop(0)
        else:
            alt=strategysset[j][:]
            alt.append(1)
            strategysset[j].append(0)

W0=foregoneutility(strategysset[j],past_actions,player_name)
W1=foregoneutility(alt,past_actions,player_name)
    if W1>W0:
        strategysset[j]=alt

return strategysset

def replicatefori(strategysset,utilities):
    newS = [0]*J

```

```

        newW = [0]*J
        for j in range(J):
            j1=random.randrange(J)
            j2=random.randrange(J)
            newS[j]=strategysset[j2][:]
            newW[j]=utilities[j2]
            if utilities[j1]> utilities[j2]:
                newS[j]=strategysset[j1][:]
                newW[j]=utilities[j1]
        return newS,newW

def updateWfori(Set,past_actions,player_name):
    W=[]
    for j in range(J):
        W.append(foregoneutility(Set[j],past_actions,player_name))
    return W

def updateStfori(Set):
    for strats in Set:
        item = strats.pop(0)
        strats.append(item)
    return Set

# this section is the basic game parameters used in these simulations (for BoS)
# first the strategy set then the utility parameters and functions

I=2 #number of subjects in a game

su = 1 #upper bound on the strategy set [sl,su]
sl = 0 #lower bound on strategy set [sl,su]

#For BoS there is a basic 2x2 game matrix [ 0payoffij, 1payoffij ] with 2 players

pm = [ [0, 9,15,0],[0,15,9,3]] # pm is the payoff matrix

alpha= ([[pm[0][3],pm[0][1]-pm[0][0],pm[0][2]-pm[0][0],pm[0][0]-pm[0][1]-
pm[0][2]+pm[0][3]], [pm[1][3],pm[1][1]-pm[1][0],pm[1][2]-pm[1][0],
pm[1][0]-pm[1][1]- pm[1][2]+pm[1][3]]) # utility parameters

def utility(contemplated_action,actionvector, player_name):
    pactionvector=list(actionvector)
    pactionvector[player_name] = contemplated_action
    computed_utility =
(alpha[player_name][0]+alpha[player_name][1]*pactionvector[0]+

    alpha[player_name][2]*pactionvector[1] +

```

```

        alpha[player_name][3]*pactionvector[0]*pactionvector[1] )
        return computed_utility

# this section is the basic IEL parameters used in these BoS simulations

#type =[0,0] #type 1 is all "smart", type 2 is half "smart" half random.
            # type 0 is random. Any other produces both random

smart = [0,1]

#probability any agent is type (0,1,2)
typeprobability= [.85,.15,0]

# this is where the simulations start

rounds=40 # number of rounds per run
runs = 200 # number of pairs in a simulation
numblocks = 1

print "a block =", runs, "simulations"
print "there are", numblocks, "blocks"
print "probability type of (random, smart, half) =",
np.round(typeprobability,decimals=2)
print

print "block #, %Nash, %Alternate"
for block in range(numblocks):
    nash = 0 #initialize counts
    alt = 0 #initialize counts

    for sims in range(runs):

        random.seed()
        S=[] #stores strategy sets for each run
        a=[] #stores all actions for a run

        #Initialize for the type of each player in this pair
        z1=selectionfori([0,1,2], typeprobability)
        z2=selectionfori([0,1,2], typeprobability)
        type = [z1,z2]

#initialize for a run (i.e. one play of repeated game)
onstrat=[0]*I
currentstrat=[0]*I
[St,W]= generalinitialization(I,J,K,sl,su,smart)

```



```

for t in range(rounds):
    #print "round =", t
    at=[] #initializes actions for round t

    #this is the round play

    for i in range(I):
        if onstrat[i] == 0:
            p=choiceprobabilitiesfori(W[i])
            currentstrat[i]=selectionfori(St[i],p)[: ]
            at.append(currentstrat[i][0])

    S.append(St)
    a.append(at)

    for i in range(I):
        St[i]=updateStfori(St[i])

        if len(currentstrat[i])>1:
            del currentstrat[i][0]
            onstrat[i] = 1

        else:
            onstrat[i]=0
            St[i]=Lexperimentationfori(St[i],a,i)
            St[i]=Vexperimentationfori(St[i])
            W[i]=updateWfori(St[i],a,i)
            (St[i],W[i])=replicatefori(St[i],W[i])

    #at this point we have S(t+1), W(t+1), onstrat(t+1), x(t+1).
    # we go to next t

#record keeping before next simulation run
temp = rounds -1
m1 =(a[temp][0]-a[temp-1][0])**2 +(a[temp-2][0]-a[temp-3][0])**2
m2 =(a[temp][1]-a[temp-1][1])**2 +(a[temp-2][1]-a[temp-3][1])**2
m3=0
for d in range(4):
    m3 += (a[temp - d][1]-a[temp-d][0])**2
if (m1+m2 <1) and (m3> 3.5):
    nash +=1
if (m1+m2 >3) and (m3 >3.5):
    alt +=1
print block, nash/float(sims+1),alt/float(sims+1)

```

Experiment Data

Symmetric Payoff, Full Information

Symmetric BoS with Public Information 5/12/2013 (With Chart)																							
Player ID	Group 1		Group 2		Group 3		Group 4		Group 5		Group 6		Group 7		Group 8		Group 9		Group 10		Group 11		
	14	20	16	19	5	18	9	12	10	11	4	8	1	13	7	17	2	15	3	22	6	21	
1	1	0	1	0.1	0	1	1	0	1	1	0	0.6	0	0.4	0	0	0.3	0.45	1	0	0.6	0.5	
2	1	1	0	0	0	0	1	0	0	0.9	1	1	1	1	0	1	0.25	0.55	0	0.01	0.5	0.5	
3	1	0	1	0	0	1	0	0	1	1	0	1	0	1	0	0	0	0.5	1	0	0.5	0.5	
4	1	1	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1	1	0	0	0.5	0.5	
5	1	0	1	0	0	1	0	0	1	1	0	1	0	0	0	0	0	0	1	1	1	0.5	0.5
6	1	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0.5	0.5
7	1	0	1	0	0	1	0	0	0	0	0	1	0	0.9	0	0	0	0	1	1	0	0.5	0.5
8	1	0	0	1	1	0	0	0	1	1	1	0	0	0.9	0	0	0	1	0	0	1	0.5	0.5
9	1	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0.5	0.5
10	1	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	0.5
11	1	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0.5
12	1	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	1
13	1	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0.13	0	1	1	0	0	1
14	1	0	0	1	1	0	0	0	0	1	1	0	1	0	0	0.04	1	0	0	0	0	0	1
15	1	0	1	0	0	1	0	0	1	0	0	1	1	0	0	0.8	0	1	1	0	0	0	1
16	1	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0.07	1	0	0	1	0	0	1
17	1	0	1	0	0	1	0	0	1	0	0	1	0.2	1	0	0.08	0	1	1	0	0	0	1
18	1	0	0	1	1	0	0	0	0	1	1	0	0	1	0	0.01	1	0	0	1	0	0	1
19	1	0	1	0	0	1	0	0	1	0	0	1	0	1	0	0.03	0	1	1	0	0	0	1
20	1	0	0	1	1	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	1	0	1
21	0	0	1	0	0	1	0	0	1	1	0	0	1	0	0	0.09	0	1	1	0	0	0	1
22	0	0	0	1	1	0	0	0	1	0	1	0	1	0.1	0	0.01	1	0	0	1	0	0	1
23	0	0	1	0	0	1	0	0	1	0	0	1	1	0	0	0.06	0	1	1	0	0	0	1
24	0	1	0	1	1	0	0	0	0	1	1	1	0	0	0	0.11	1	0	0	1	0	0	1
25	0	1	1	0	0	1	0	1	1	0	0	1	0	1	0	0.02	0	1	1	0	0	0	1
26	0	1	0	1	1	0	0	1	0	1	1	0	0	1	0	0	1	0	0	1	0	0	1
27	0	1	1	0	0	1	0	0	1	0	0	1	1	1	0	0	0	0	1	1	0	0	0
28	0	1	0	1	1	0	0	0	0	1	1	0	0	0	0	0	1	0	0	1	0	0	0
29	0	1	1	0	0	1	0	1	1	0	0	1	1	0	0	0	0	1	1	0	0	0	0
30	0	1	0	1	1	0	0	1	0	1	1	0	0	0	0	0	1	0	0	1	0	0	0
31	0	1	1	0	0	1	0	0	1	0	0	1	1	0.1	0	0	0	1	1	0	0	0	0
32	0	1	0	1	1	0	0	0	1	1	0	0	0.1	0	0	0	1	0	0	1	1	0	0
33	0	1	1	0	0	1	0	1	1	0	0	1	1	0.9	0	0	0	1	1	0	0	1	0
34	0	1	0	1	1	0	0	1	0	1	1	0	0	0.1	0	0	1	0	0	1	1	0	0
35	0	1	1	0	0	1	0	0	1	0	0	1	0	0.1	0	0	0	1	1	0	0	1	0
36	0	1	0	1	1	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	1	1	0
37	0	1	1	0	0	1	0	0	1	0	0	1	0	1	0	0	0	1	1	0	0	1	0
38	0	1	0	1	1	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	1	1	0
39	0	1	1	0	0	1	0	0	1	0	0	1	0	1	0	0	0	1	1	0	0	1	0
40	0	1	0	1	1	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0	1	1	0

Symmetric BoS with Public information 5/3/2013 (With Chart)																	
Group 1		Group 2		Group 3		Group 4		Group 5		Group 6		Group 7		Group 8		Group 9	
7	12	14	16	8	15	4	10	2	5	11	13	3	9	1	17	6	18
0.1	0.5	0	0	0.5	0.5	1	1	1	0	1	0	0.6	0.2	0.6	0	0	0.4
0	0	0	0	0.4	0.5	0	1	0	0	0	0	0.3	0.2	1	0	0	0.9
0	0.7	0	0	0.1	1	0	1	0	0.1	0.05	0	0	0.2	1	0	0	1
0	0.3	0	1	0.1	1	0	1	0	0.5	0	0	1	0.4	1	0	0	1
0	0	0	1	0.1	1	0	1	0	0.6	0.5	0	1	0.9	1	0	0	1
0	1	0	1	0	0	0	1	0	1	0	1	0	0.1	1	0	0	1
0	0	0	1	0.1	1	0	1	1	1	0	0	0	1	1	0	0	1
0	0	0	1	0	1	0	1	1	0.6	0.09	1	0	0	1	0	0	1
0	0.5	0	1	0	1	0	1	0	0.6	1	0	0	1	1	0	0	1
0	1	0	1	0	1	0	1	0	0.7	0	1	1	0	1	0	0	1
0	0	0	1	0	1	0	1	0	0.6	1	0	0	1	1	0	0	1
0	0	0	1	0	1	0	1	0	0.6	0	1	1	0	1	0	0	1
0	0	0	1	0	1	0	1	0	0.9	1	0	0	1	1	0	0	1
0	0	0	1	0	1	0	1	0	0.9	0	1	1	0	1	0	0	1
0	0	0	1	0	1	0	1	0	0.6	1	0	0	1	1	0	0	1
0	0	0	1	0	1	0	1	0	0.6	0	1	1	0	1	0	0	1
0	0	0	1	0	1	0	1	0	0.9	1	0	0	1	1	0	0	1
0	0	0	1	0	1	0	1	0	0.1	1	0	0	1	1	0	0	1
0	0	0	1	0	1	0	1	1	1	0	1	1	0	1	0	0	1
0	0	0	0	0	0	0	0	0	0.9	1	0	0	1	0	0	0	1
1	0	0	0	0	0	0	0	0	0.9	0	1	1	0	0	0	0	1
0	0.5	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	1
1	0.5	0	0	0	0	1	0	0	0.9	0	1	1	0	0	0	0	1
0	1	0	0	0	0	1	0	0	0.9	1	0	0	1	0	1	0	1
1	0	0	0	0	1	1	0	0	0.9	0	1	1	0	0	1	0	1
0	1	0	0	0	1	1	0	0	0.9	1	0	0	1	0	1	0	1
1	0	0	0	0	1	1	0	0	0.9	0	1	1	0	0	1	0	1
0	1	0	0	0	1	1	0	0	0.7	1	0	0	1	0	1	0	1
0	1	0	0	0	1	1	0	0	0.7	0	1	1	0	0	1	0	1
1	0	0	0	0	1	1	0	0	0.7	0	1	1	0	0	1	0	1
0	1	0	0	0	1	1	0	0	0.8	1	0	0	1	0	1	0	1
1	0	0	0	0	1	1	0	0	0.8	0	1	1	0	0	1	0	1
0	1	0	0	0	1	1	0	0	0.9	1	0	0	1	0	1	0	1
0	1	0	0	0	0	1	0	0	0.9	0	1	1	0	0	1	0	1
0	1	0	0	0	0	1	0	0	0.9	1	0	0	1	0	1	0	1
1	0	0	0	0	0	1	0	0	0.9	0	1	1	0	0	1	0	1
0	1	0	0	0	0	1	0	0	0.9	1	0	0	1	0	1	0	1
1	0	0	0	0	0	1	0	0	0.9	0	1	1	0	0	1	0	1
0	1	0	0	0	0	1	0	0	0.9	1	0	0	1	0	1	0	1
1	0	0	0	0	0	1	0	0	0.9	0	1	0	0	0	1	0	1
0	1	0	0	0	0	1	0	0	0.9	0	0	0	1	0	1	0	1
1	0	0	0	0	0	1	0	0	0.9	0	0	0	1	0	1	0	1

Symmetric Payoff, Dark Information

Symmetric BoS with NO public information 4/19/2013 (With Chart)																							
Player ID	Group 1		Group 2		Group 3		Group 4		Group 5		Group 6		Group 7		Group 8		Group 9		Group 10		Group 11		
	5	20	8	19	3	14	4	17	2	9	10	11	6	18	21	22	1	16	13	15	7	12	
1	1	0	0	0	0.5	0	0	0.5	1	0	0	1	0.2	0.7	0.5	0	1	0	1	1	1	0	
2	0	0	0	0	0.3	0	1	0.6	0.5	0	0	0.5	0	0.8	1	1	1	0	0.5	0.7	0	0	
3	1	1	0	0	1	1	0	0.7	1	0	0	0.7	0.1	1	1	0	1	0	0.2	0.7	1	1	
4	0	0.5	0	0	1	0	1	0.5	1	0	0	0.75	0	1	0	0	1	0	0.5	0.7	0	0.5	
5	1	0.5	0	0	1	0	0	0.9	0	0	0	0.6	0	1	1	0	1	0	0.65	0.7	1	0	
6	0	0	0	0	1	1	1	0.9	1	0	0	0	0	1	1	0	1	0	0.2	0.65	0	1	
7	1	0.5	0	0	1	0	1	1	1	0	0	0.85	0	1	1	0	1	0	0	0.65	1	0	
8	0	0.5	0	0	0	0	0	0.6	1	0	0	0.37	0	1	1	0	1	0	0.1	0.7	0	1	
9	1	0	0	0	1	0	1	0.7	1	0	0	1	0	0	1	0	1	0	0	0.7	1	0	
10	0	1	0	0	0.5	1	1	0	0.7	1	0	1	0	0	1	0	1	0	0.5	1	0	1	
11	1	0	0	0	0.5	0	0	0.2	0.8	0	0	1	1	0	0	1	0	1	0	0.9	1	0	
12	0	1	0	0	1	0	1	0.8	0.8	0	0	1	1	0	0	0	1	0	0.1	0.9	0	1	
13	1	0	0	0	1	0	1	0.8	0.7	0	0	1	1	0	0	0	1	0	0.5	0.95	1	0	
14	0	1	0	0	1	0	1	0.7	0.6	0	1	1	1	0	0	0	1	0	0.5	0.85	0	1	
15	1	0	0	0	1	1	0	0.6	0.5	0	1	1	1	0	0	0.5	1	0	0	0.9	1	0	
16	0	1	0	0	1	0	1	1	0.6	0	1	0	1	0.9	0	0	1	1	0	0.2	0.8	0	1
17	1	0	0	0	1	1	0	0.8	0.4	0	1	0	1	0.8	0	0	1	1	0	0.1	0.8	1	0
18	0	1	0	0	1	0	1	0.2	0.3	0	1	0	1	0.2	0	0	1	1	0	0	0.9	0	1
19	1	0	0	0	1	1	0	0.5	0.6	0	1	0	1	0.1	1	0	1	1	0	0.1	0.8	1	0
20	0	1	0	0	1	0	1	0.5	0.6	0	1	0	1	0	1	0	1	1	0	1	0.7	0	1
21	1	0	0	0	1	1	0	0	0.8	0	1	0	1	0	1	1	1	1	0	0	0.6	1	0
22	0	1	0	0	1	0	1	1	0.9	0	1	0	1	1	1	0	1	0	0.15	0.7	0	1	
23	1	0	0	0	1	1	0	0	0.6	0	1	0	1	0	1	1	0	1	0.05	0.75	1	0	
24	0	1	0	0	1	0	1	1	0.6	0	1	0	1	0	1	1	0	1	0	0	0.75	0	1
25	1	0	0	0	1	1	0	0	0.5	0	1	0	1	0	0.9	1	0	1	0	0	0.8	1	0
26	0	1	0	0	1	0	1	1	0.5	0	1	0	1	0.8	0.8	1	0	1	0	0	0.81	0	1
27	1	0	0	0	1	1	0	0	0.5	0	1	0	1	1	0	1	0	1	0	0	0.81	1	0
28	0	1	0	0	1	0	1	0	0.7	0	1	0	1	1	0	1	0	1	0	0	1	0	1
29	1	0	0	0	1	1	0	0	0.7	0	1	0	1	1	0	1	0	1	0	0	1	1	0
30	0	1	0	0	1	0	1	1	0.7	0	1	0	1	1	0	0	0	1	0	0	1	0	1
31	1	0	0	0	1	1	0	0	0	0	1	0	1	1	0	0	1	1	0	0	1	1	0
32	0	1	0	0	1	0	1	0	0	0	1	0	1	0.8	0	0	1	1	0	0	1	0	1
33	1	0	0	0	1	1	0	0.6	1	0	1	0	1	0	1	0	1	1	0	0	1	1	0
34	0	1	0	0	1	0	1	0.7	1	0	1	0	1	0	1	0	1	1	0	0	1	0	1
35	1	0	0	0	1	1	0	1	0.6	0	1	0	1	0	1	0	1	1	0	0	1	1	0
36	0	1	0	0	1	0	1	1	0.6	0	1	0	1	0	1	0	1	1	0	0	1	0	1
37	1	0	0	0	1	1	0	0	0.6	0	1	0	1	0	1	0	1	1	0	0	1	1	0
38	0	1	0	0	1	0	1	1	0.5	0	1	0	1	0.2	0.8	0	1	1	0	0	1	0	1
39	1	0	0	0	1	1	0	0	0.5	0	1	0	1	1	0	0	0	1	0	0	1	1	0
40	0	1	1	1	0	1	0	0	0	0	1	0	1	1	0	0	0	1	0	0	1	0	1

Symmetric BoS with NO public information 3/15/2013 (With Chart)									
Group 1		Group 2		Group 3		Group 4		Group 5	
4	6	5	7	9	10	2	8	1	3
0	0	0	0	1	1	0	0	0	0
0.5	0	0.7	1	0	0	0.5	0.5	0.7	0
1	1	1	0	0	1	0.5	1	1	0
0.5	0	1	0	0	0	0	0	1	0
0.5	0	0	0	1	1	0.5	1	1	0
1	0	0	0	1	0	0	0.5	1	0
0.5	0	0	0	0	1	0	0	1	0
1	0	0	0	1	0	0	1	1	0
1	0	1	0	0	1	0	1	1	0

Asymmetric Payoff, Dark Information

		(No Information Beyond their Own Payoffs) Asymmetric Battle of the Sexes (No Information Beyond their Own Payoffs)														
		11/1/2012 (No Chart)						11/2/2012 (No Chart)								
Player ID	Group 1		Group 2		Group 3		Group 1		Group 2		Group 3		Group 4		Group 5	
	1	4	2	3	5	6	8	9	1	3	4	10	2	6	5	7
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1
2	0.1	1	0.25	0.5	1	0.8	0.5	0	1	1	0	1	0	0.5	1	1
3	0.05	0.7	0.45	0.3	0	0.9	0.5	0.5	1	1	0.45	0	0	0	1	1
4	0.01	0.5	0.67	0	0.5	1	0	0.75	1	1	0.5	0.2	0	0	1	1
5	0	0.6	0.33	0.6	0	1	1	0.5	0	1	0.4	0.5	0	1	1	1
6	0.01	0.45	0.5	0.8	1	1	0.7	0.5	0	0	0.45	0.75	0	0	1	1
7	0.01	0.45	0.8	1	0.9	0.2	0.2	0.5	0	1	0.5	1	0	0	1	1
8	0.01	0.4	0.4	1	1	1	0.1	0.25	0	1	0.3	1	0	0	1	1
9	0.01	0.35	0.45	0.8	1	0.19	0	0	0	0	0.25	1	0	0	1	1
10	0.5	0.3	0.55	1	0.99	1	0	0	0	1	0.55	1	0	0	1	1
11	0.01	0.28	0.9	0.75	1	0.15	0	0.5	0	0	0.6	1	0	0	1	1
12	0.01	0.24	0.2	0.7	1	1	0	0.5	0	1	0.65	1	0	0	0	1
13	0.01	0.22	0.25	0.9	0	0.14	0	0.75	0	0	0.7	1	0	0	0	1
14	0.01	0.17	0.15	0.4	1	1	0	1	0	1	0.75	1	0	0	0	1
15	0.01	0.11	0.11	0.7	0	1	0	1	0	1	0.8	1	0	0	0	1
16	0.01	0	0.18	0.9	0.6	1	1	1	0	1	0.85	1	0	0	0	0
17	0.01	1	0.16	0	0	0.77	1	0.8	0	1	0.9	1	0	0	0	0
18	0.01	0.02	0.44	0.3	1	1	0.6	0.8	0	1	1	1	0	0	0	1
19	0.01	0	0.33	0.5	0.95	0.18	0.8	0.75	1	1	1	1	0	0	0	1
20	0.01	0	0.3	0.9	0	1	0.4	0.75	1	1	1	1	0	0	0	1
21	0.01	0	0.1	0.7	0.05	1	0.5	0.8	1	1	0.2	1	0	0	0	1
22	0.01	0	0.5	0.8	1	1	0.7	0.8	1	1	1	1	0	0	0	1
23	0.01	0	0.8	0.8	1	0.15	0.1	0.9	1	1	1	1	0	0	0	0
24	0.01	0	0.9	0.8	0	1	0.9	0	1	1	1	1	0	0	0	0
25	0.01	0	0.15	1	0	1	0.1	0.75	1	1	1	1	0	0	0	0
26	0	0	0.25	0.9	1	1	0	0.75	1	1	1	1	0	0	0	0.5
27	0	0	0.25	0.8	1	1	0	0.75	1	1	1	1	0	0	0	0
28	0	0	0.25	0.7	1	1	0	0.5	1	1	1	1	0	0	0	0
29	0	0	0.45	0.6	1	1	0	0.2	1	1	1	1	0	0	0	0
30	0	0	0.35	0.55	1	1	0	0	1	1	1	1	0	0	0	0
31	0	0	0.3	0.7	1	1	0	0	1	1	1	1	0	0	0	0
32	0	0	0.3	0.8	1	1	0	0	1	1	1	1	0	0	0	0
33	0	0	0.33	0.8	1	1	0	1	1	1	1	1	0	0	0	0
34	0	0	0.33	0.8	1	1	1	1	1	1	1	1	0	0	0	0
35	0	0	0.33	0.8	1	1	1	1	1	1	1	1	0	0	0	0
36	0	0	0.4	0.7	1	1	1	0	1	1	1	1	0	0	0	0
37	0	0	1	0.7	1	1	0	0	1	1	1	1	0	0	0	0
38	0	0	0.78	0.65	1	1	0	0	1	1	1	1	0	0	0	0
39	0	0	1	0.7	1	1	0	1	1	1	1	1	0	0	0	0
40	0	0	0.67	0.72	1	1	1	1	1	1	1	1	0	0	0	0

Asymmetric Battle of the Sexes Dark					
1/28/2013 (With Chart)					
Group 1		Group 2		Group 3	
2	5	3	4	1	6
0	0.7	0	1	0	0.7
0.1	1	0.7	0.5	0	0.3
0	1	0.3	0.45	0	0
0.5	1	0.25	0.55	0	0
1	1	0.35	0.2	0	0
1	1	0.35	0.2	0	0
0	1	0.35	0	0	0
1	0	0.2	0.3	0	0
0.5	0	0.3	0.2	0	0
0	0	0.25	1	0	0
0	0	0.25	1	0	0
0	0	0.25	1	0	0
0	1	1	1	0	0
0	1	1	0	0	0
0	1	1	0	0	0
0	1	0	0	0	0
1	1	0	1	0	0
1	1	1	1	0	0
1	1	0	0	0	0
1	0	1	1	0	0
0	0	0	0	0	0
0	0	1	1	0	0
0	0	0	0	0	0
0	1	1	1	0	0
0	1	0	0	0	0
1	1	1	1	0	0
1	1	0	0	0	0
1	1	1	1	0	0
1	0	0	0	0	0
0	0	1	1	0	0
0	0	0	0	0	0
0	0	1	1	0	0
1	1	0	0	0	0
1	1	1	1	0	0
1	1	0	0	0	0
0	0	1	1	0	0
0	0	0	0	0	0
0	0	1	1	0	0
1	1	0	0	0	0
1	1	1	1	0	0
1	1	1	1	0	0

Asymmetric Payoff, Full Information

Asymmetric Battle of the Sexes (Full Information About Everyone's Payoffs)																					
Date	16-Jan-17					19-Jan-17															
Player ID	Group 1	Group 2	Group 3	Group 4	Group 5	Group 1	Group 2	Group 3	Group 4	Group 5											
1	0.7	1	0.5	1	0.2	1	1	0.6	0.6	0	1	0.8	0	1	0	0	0	0.5	0.5	0	
2	0	1	1	1	0.5	1	0.4	0.6	0	0.6	1	1	1	0.7	0.5	0	1	0.1	1	0	1
3	0	0.5	0	1	1	0	0	0.5	0	1	1	1	1	0.5	0.5	1	0	0	0.7	1	0
4	0.5	0	0	1	0	1	0	0.7	0	1	1	1	1	0.5	0.6	0	1	0	0.7	1	1
5	0.3	0.5	0	0	0	0	0.1	0.9	0.6	1	1	1	1	0.5	0.7	0	0	0	0.5	0	0
6	0.3	0.5	0	0	0	1	0.9	0.95	1	1	1	1	1	0.4	0.8	1	1	0	0	1	1
7	0.2	0	0	0	0	0	1	0.95	1	0.6	1	1	1	0.2	0.7	0	0	0	1	0	0
8	0	0.4	0	1	0	1	1	0.95	0	1	1	1	1	0.3	0.4	1	1	0	1	1	1
9	0	0.2	0	0.5	0	1	1	0.95	0.6	0	1	1	1	0.4	0.2	0	0	0	1	0	0
10	0	0	0	0	0	1	1	0.95	0	1	1	1	1	0.5	0.3	1	1	0	1	1	1
11	0	0	0	0	1	1	1	1	0	0	1	1	1	0.5	0.2	0	0	0	1	0	0
12	0	0	0	0	1	1	1	1	1	0	1	1	1	0.5	0.4	1	1	0	1	1	1
13	0	0	0	0	1	1	0	1	0	0	1	1	1	0.5	0.6	0	0	0	1	0	0
14	0	0	0	0	0	1	0.1	0.95	1	1	1	1	1	0.5	0.6	1	1	0	1	1	1
15	0	0	0	0	1	0	1	0.99	0	0	1	1	1	0.4	0.6	0	0	0	0.9	0	0
16	0	0	0	0	0	0	1	1	1	1	1	1	1	0.4	0.5	1	1	0	0.9	1	1
17	0	0	0	0	0	1	0.5	1	0	0	1	1	1	0.5	0.4	0	0	0	1	0	0
18	0	0	0	0	1	1	0.5	1	1	1	1	1	1	0.4	0.3	1	1	0	0.9	1	1
19	0	0	0	0	1	0	0.4	1	0	0	1	1	1	0.4	0.4	0	0	0	0.9	0	0
20	0	0	0	0	0	1	0.3	1	1	1	1	1	1	0.4	0.5	1	1	0	0.9	1	1
21	0	0	0	0	1	0	1	0.8	0	0	1	1	1	0.5	0.6	0	0	0	0.9	0	0
22	0	0	0	0	1	1	0.8	1	1	1	0	1	1	0.4	0.9	1	1	0	1	1	1
23	0	0	0	0	0	0	0	0.9	0	0	0	0	0	0.5	0.5	0	0	0	1	0	0
24	0	0	0	0	0	1	0.1	0.9	1	1	0	0	0	0.5	0.5	1	1	0	1	1	1
25	0	0	0	0	0	1	0.15	0.95	0	0	0	0	0	0.5	0.6	0	0	0	1	0	0
26	0	0	0	0	0	1	0.1	0.95	1	1	0	0	0	0.4	0.6	1	1	0	1	1	1
27	0	0	0	0	0	1	0.2	0.98	0	0	0	0	0	0.4	0.5	0	0	0	1	0	0
28	0	0	0	0	0	1	1	0.99	1	1	0	0	0	0.5	0.5	1	1	0	0.6	1	1
29	0	0	0	0	1	1	1	1	0	0	0	0	0	0.5	0.5	0	0	0	0.6	0	0
30	0	0	0	0	0	1	1	1	1	1	0	0	0	0.5	0.5	1	1	0	0.6	1	1
31	0	0	0	0	1	1	1	1	0	0	0	0	0	0.5	0.5	0	0	0	0.6	0	0
32	0	0	0	0	1	1	1	1	1	1	0	0	0	0.5	1	1	1	0	1	1	1
33	0	0	0	0	1	1	1	1	0	0	0	0	0	0.4	0.5	0	0	0	1	0	0
34	0	0	0	0	1	1	1	1	1	1	0	0	0	0.5	0.5	1	1	0	1	1	1
35	0	0	0	0	1	1	1	1	0	0	0	0	0	0.5	0.5	0	0	1	1	0	0
36	0	0	0	0	1	1	1	1	1	1	0	0	0	0.5	0.5	1	1	1	1	1	1
37	0	0	0	0	1	1	1	1	0	0	0	0	0	0.5	0.5	0	0	1	1	0	0
38	0	0	0	0	1	1	1	1	1	1	0	0	0	0.5	0.7	1	1	1	1	1	1
39	0	0	0	0	1	1	1	1	0	0	0	0	0	0.4	0.5	0	0	1	1	0	0
40	0	0	0	0	1	1	1	1	1	1	0	0	0	0.5	1	1	1	1	1	1	1

