

The 11th White House Papers
Graduate Research in Cognitive
and Computing Sciences at Sussex

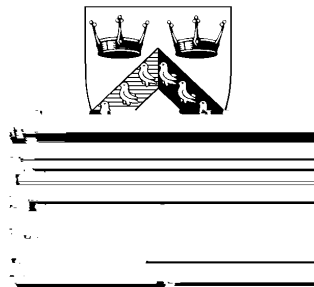
Editor,
Fabrice P. Rétkovsky

CSRP

October 1

ISSN 10-12

UNIVERSITY OF



Cognitive Science
Research Papers



A



n o n v n o n n



7
A s o orns s s no r ro r s r s n v v b n s-
s b n s v so s s s n rs 's on r n nr r os o
s s p ro n b r b s- r v r r r s r b b on r on o C
r s r s ns- n or n v s on o r r on 1 7 s v 11 s o orns
vor s op v r C s ns r opr sn r vor s r so s n sp n o o
so sn -
i s p rs r on son o s r's vor s op- Yo v n r so r s
sv sso s or rp pr v r n b Ds ns n s v on s- s os ov v
o ns v r n rs n n o ro on vs n so v 's o o -
vo o n v r n s s n C r r s r C pr or n n
p vor s op s v s Ds ns v o on r b o s i s p rs b
p r r on r or n or b n os r pr sn n Co s n or n n s
orns vor s op-

r br ovs

o v o Don' Do v _r o

on n

nB n n

bn snob nns on' o b n
- mn n bo s p n r b on ----- 1

n n n w

Con r on n r pro ss n
yoro s o r on ono st ----- 1

Ann

ro n En op o n p
s n b n oos ----- 13
7

n n n

D p r - mn n En ron n -----

n n n w

D op n n p r n yor b n
os so y r r s ro on p rsp -----

n n n n

r r now n ro o -----

n n n n

n n on r n or Dr n s -----

n v n

A opo ss n r -----

n n n n n D n

E o oo on A ss b o sons
os or r E ns pp n
An App on o A b r s s o orr b s ss s -----

n oys E 1
i s p rs Co n n s r p r
o o Co n & Co p n n s n rs o ss

n o r m n n n
n n n n n n n
n B n n
n n n n
n v n n
n v n
B n
B

o ons ns ss ro E _'s s or bo s s ss n onr q r s p r
n n n n ron n-E sn' p r or no n ons or s no r n ron n o

A problem descriptor n r s s or s r p or or s p r b s on v or n
r pr s n on o prob n p r on v b s n m r n r s v or n
r pr s n on-

A bias pool manager ss s r n n prob s n pp s m rs n b spoo o s
prob s or n o m n ss r r n n prob s r ss n r s
o os r b s or n s o or n on b s v s r n r s o
s p - - s l - o s l - o l 7 q p- -

own words: spoon Jr sp -

d
 b b
 e
 a a
 f
 c c
 g

Homogeneity: n bro s br sp -

Balance of the tree: n poss b s or () s

$$() = *$$

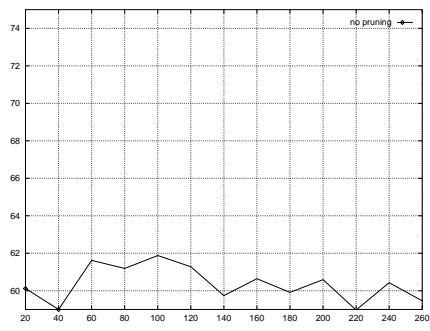
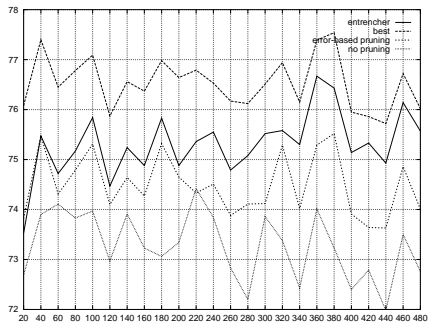
rs n bro s or n s o r - n s n
 s r b o own s or poss b s or ()

$$\sum_{=} () o(0000)$$

prob s r por n r n - 1 1-6 n or n r b so prob s r
r poss b ss ons-For r n p r n s n b ro ss ons v r os n
n 1 prob s o pos b r n n n s s s v r ons r or ss on-
rn n s s v s r n on n r s n n b ro prob s n s on r n s s s
o prob s-

→ 7

r zor s pop r n v spr b s v n r poss b pr r s p s po s s-
n n on s bo s n s s n n vo pp o s p o b v n r n
m s- n n ro n s o r zor on so sor



non

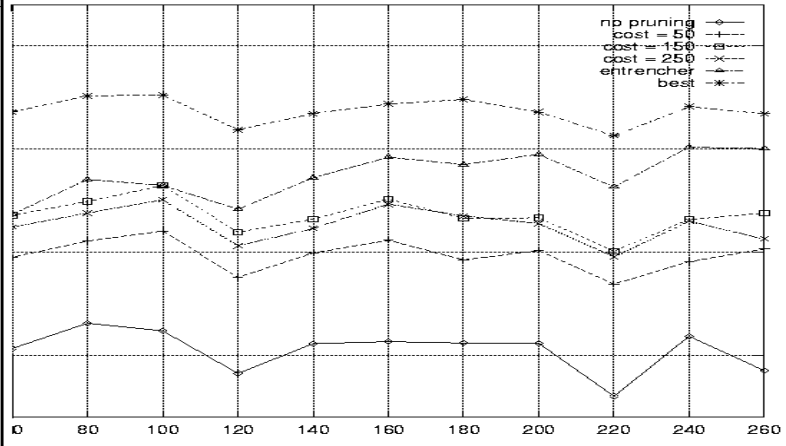
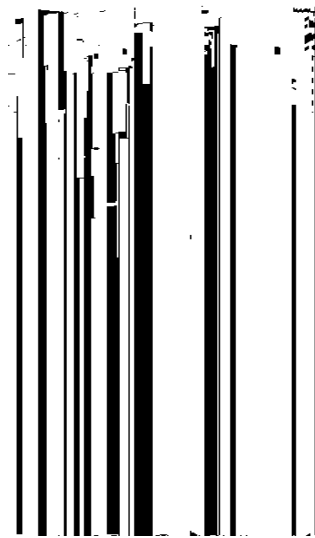
np r pr s n on o prob ss n n n s o r rn n pr or n Cr n
& ... 1 - n rn n b s s n r pr s n on s oo o n o or s b n
p n n n pprop r sr s o pro np sr p on o prob s rn n
b o s s r or n b s- s or s o n on s p r o rn n pro ss s n
b r np r pr s n on s p o r ro n r on b y n prob n
rn r s 1 n & Co 1 n & s 1 - rn rs b
o s r or rn np sr p on s r o n on s r rn rs- Cons r n on
s now o on sr o pro rn n pr or n s on n s s b o
r s r b prob so n n r s C ns on o rn n s s -
n s p p r s on s r r n sr s or r b on or o on s r n
on- n n n o s s r r pr s n s b n n y r b s s s o

, É E E G É ψ n o oos b ψ n ons r ors n s p b s n
rn r ψ no r b - non ψ r b s n o b n or n r pr sn on o
prob s ons r o b s non o s n ons r ors o pro -
o ψ s r r o prob s n no o no pr s o n ons r or ψ n r
n ψ r b s b b ons r or pro o rn n s r o s - or s
prob n no o no pr s o or non ons r or-

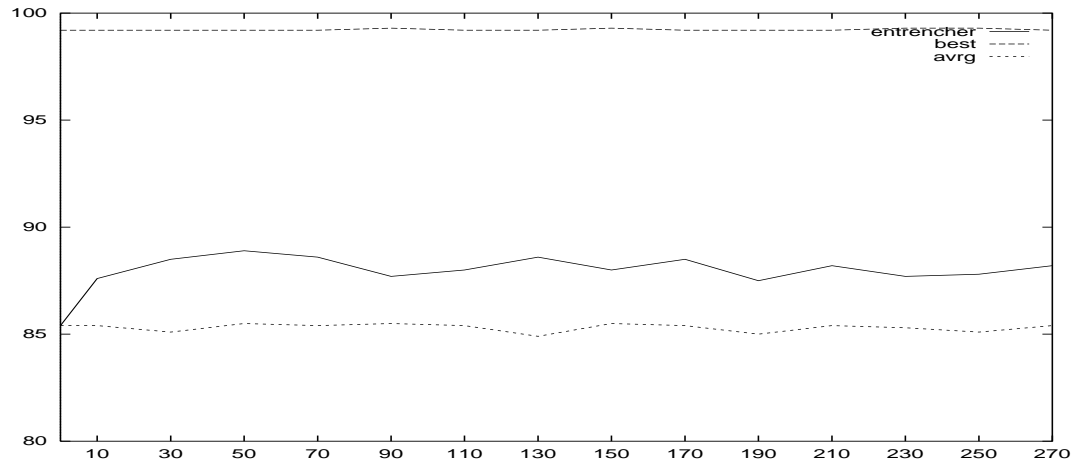
ann o ee en o

For s pr ns l ACE ss ons s n o nr prob s vo
no o no pr s o ons r or ψ r nr - For ss on l prob s
ψ l r nn ns n s ψ r nr - r or n o ons r ors ψ r sr n s s
o pos o ψ o ss ns n sp ns n s - rn n s s ψ s r n
on n nr sn n bro prob s n n s on non o r pp n s s s o, prob s -
pr or n s ψ s n o pr o b s poss b b s n ons r or poo → r s b or
s s r n s s s n sr pr s ns r nn s s s - n n
po nr pr s ns r o l r ns nr r nn s s s -
o ψ sn r r o r ps b ψ n o ns o pr s rn o pr or n b ψ n
b s n s on b s ons r or b sos s no rs n s s or , É E
E G É

s n ns n b no - rn n n r or b s n s or r n n rn n
ro E _'s n on rn o n or n on o _'s s -



r — mn oy os o p pr nn sr q r



n

B ns s n i 1 7 6 o o sn' v s s v 's zor rn n v n n o v o pr n -
n C- & o ro, C- E s-
pp- 1 1 1 B r n- pr n r-

B ns s n i 7 & s - 1 - - rn n o rn boo n s s b s on r s r p ors- n
o r n - - & r 6- E s-
pp- 1 1 1 r C 7 p b -

B r A- E r n A- i 7 ss r D- & r - 1 7 6 - - m b n pn
C r on n s ns on-

B r A- E r n A- i 7 ss r D- & r - - 1 7 6 - 's r zor-
02 7

C n - & o o - 1 - E pr n son s r rn n b rn n - n

rp / -& / 77 n / - 1 / 1 - 1 o Cons r n on o o n on ps or s r n ors
n s on r s- p n
o CA A- or n nn-

rp / -& / 77 n / - 1 / -E p or n s on or s An pr s on o o 's
r or n s on r n on-

o / -& / 77 n / - 1 / -Boo n r s o r n pr rn n -
1 1 -

n n - - 1 / 7 - n on o s on r s- 1 7 1 -

n n - - 1 - 2 : - or n n n o CA
A-

n n - -& / s - - 1 / 7 - n rr n s on r s s n n D s r p on - n
r n p - An r rs on pp r s - C n
r por - C p b r 1 / 7 -

1. D n

Bo. pr ns on s s o s n on ons- s no r on on o s v v r

- 1 n np
- B rr v ss n r r 1 p s
- r b r r n n o or zon s r ps
- p r
- r b n p r
- B rr n r b
- B rr n p r -

Ab v ns b s s n v s po n s b s v r r n o ss n o on on-
b s v r ss n o s on on or bo. pr ns n or r n v s b s
o p v o s s v s o n r b n -

1. 7 7

For pr n 1 p o o r p s o br s o s n s r s r s-D s r or s
v r n o r s o n b s s o r o o r n n n q o

For pr n v o p o o r p s v r n o s n s n r s Co on on-
s v r r n o s n r s n on n np p o o v s s n s p s
v s o o r np v s s o v n r n s p s - n p o o o o r n n
s v s o o r n s s r s s r o r s n s p s -

1. 0

s n pr n 1 v r pr n o s b s o n n r n o or r- b s o
v r r v s br or non n - r o r o s v s r
r on v s r or - n pr n s b s r s r s p s n v v
n np r s o n o r s o n or s o n s- s p s o pr n
pr s n pr n 1

1. 7 A 1 v J 7

1. 0

1. n 0 n

n oys E 1
i d s p rs Co n n s r p r
oo o Co n & Co p n n s n rs o ss

n n n n n n
n n oo

Ann

on ro n s op p rson n ro p p r s s s n v or s s oo n r n n
p b s - n b v o p n on p r n os o s oo n s n or s
v n o pro -
o r r s b n s ss on o s ss s s r s b n n on o b n s
o n s on ppro - n E p b s n r on o v s o o s s v b s s v s
n r bo pro o on n o o n n n 1 7

o on r r n s s or s n ssroo s n so r s ss s
no b n s v ss n s s - n o os n sp s n
ors ns op r p n r on o on n s s n on o - sp p r p r s n s
n r n or v s n s r ss n - r on o s s s b r v s s o v
bo o pr spons o n n n r o so - o n or sn s -

noys E 1
i s p rs Co n n s r p r
oo o Co n & Co p n n s n rs o ss

D n n v n n n v en n

no

n

o n v n n

nv

B en

B

n en

s pr s n s propos or r s r pro r ob op on pp on o r
n ron n s o r n n - s b s n o s o s n r on s n vor
n propos ns o s ob s-
n s on s on v pr s n so o os n n propos on ss on o
r p s ons on v so s ss on pon po o or o p r r p ss s s n s
s n ss- s op s por n s n v n b s o r po n n r prop r s
s n o s s s -
n v v r bo s n on p r vor s o v prob o r n n - p

po n s l - 7 1 - 7 1 o 1 1

s r os op r sp s n bo r n n b n r so n - s n rs
s nsor p r n pp- -

- A ono r rs o r n n n p o p on o ns
n s s s ns v o s n s or p b v n s s s
s o b r n no r rs sn rr on n or n o sr ons-
- n r on r rs o r o s s o o p r rs r n pp-1 -1 1
Z r 1 p on so r so r o b b s s o sr n r on
s o b os s n o s r q r ns-
- rs n r rs o r n n r n ro o r p o n vor v s os
r n r p s ons o o s nsor np n o p -
s r prop r s or b n v r n s s s n b o p r -For p
s s v s s o b -ono os ns n ob s n r or n
o s o s on n r q r spons o ons o n p r p n pp-
1 -Z r 1 s s s n s or oro s q n s propos prop r s-
p s s ono n pr sn r so v r on ps rs b s s s
o r sr bo n r s b v ns s s n r ono sp r no r
n o s s s s on b s p no ono pr sn o sno r no
on s b ns on n poss b r n v n n s r n s nsor s on
no pr sn on so r ro s o s -

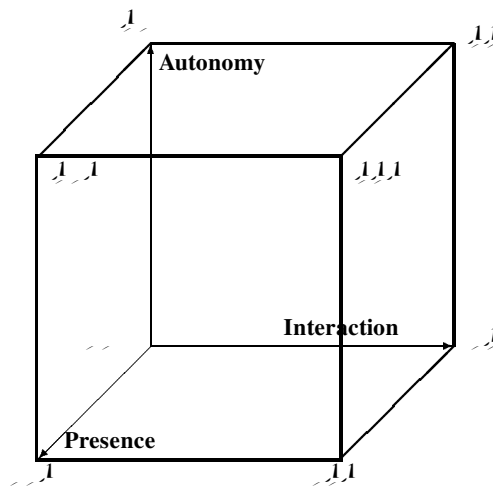


Figure 1: A p ro Z r 1 pp 1 -

A o o p o o r p o p r s s

- n r o r s r n r n o o r s r o on r s s
q s on o r r p o r n o r n s s n s
- r p r s n on r s n ron n n
- r p r s n on r s v o r p o s s b i

• r o on r o s s s s v r s o n r b o r s or
n r n r on o r r s p o n s o or s s -

• r s n o r s o n s r r o r s o n s r o r q r s b n o b
s r s-

n r n s s o n n n o on s s s n s o o r v o r s r s n r
n p r o p o s s o b o v r s n r on- v s r r s s r s b v n E s n
Z r's p r o p o s s- n v n s r n s s b s b E s b o o b s n o r s
r s b s Z r's on p o o n o n Z r's n r on p s s s s s E s
n s- r n r s s o n E s p n s s o n p s o n s r n r n
r o n n s r s p p o r s n Z r o n p r n s o

— n p r r s ns o pr s n n b n

o n or on ro on p o rn r pr s n on o no r n r n n n rs n n
r ons ps b y n -For p o rs n l ons r n rp o on r
rn r pr s n ons n or bs r rn r pr s n ons n o pr ns on o oo y bs-
Cons rn r n y o pr s n n n or on oys b r o pr ns on s no no
n o rs l -
r ps n s b p rsp snow oo o n r s s s r n p r or n E
n r on r q r ns- sp rsp n s o or n r n n rs n n
o s n b p n n E n or s

or on n sso r p r pr s n ons- rn o n on ppro y b
s ss r r -

s • ann p

ns n B r l ons r o r p so rn n

o - 1 ons r r s r on on pp ons o Es s b n on
m v s on v r n ss or s nsor o or s s- r s no r s r ss ss n
r ons p b v n sr r n or o En n r q on p m n s
p - ors so r por D o n z n C o n i b n n 1 r s r on
pr on o n ss o E or n s on p ons n ons r s v or
b n s ns r s s q s ons bo s no pprop o s or ns r n
o ns or on ps-
r r s r p so Es s s v r b or on p m n on ro b o o

n n n r r pr s n ons- r s r n

n r b poss b o pro r n v or v o n rs n n n
r ons r n or no ons s o s r b on p s o rs n 1 pp--

As $\forall \psi \forall r \exists s \exists n \text{prn p s n b s n on n on } \psi \dots \text{ on s } \dots \text{ n}$
 $\text{o rs } \exists \text{ ons r } \dots \text{ s n } \dots \text{ n } \dots \text{ p s s o } \dots \text{ r s r } \dots \text{ n } \dots \text{ s } \dots \text{ s nprn p s}$
 $\text{n b r r s p } \dots \text{ n } \dots \text{ s } \psi \text{ b on o } \dots \text{ n r o s o } \dots \psi \text{ or } \dots$

n • \neg

$\dots \text{ n } \dots \text{ r } \dots \psi \text{ or } \dots \text{ ons r } \dots \text{ n or } \dots \text{ r s r } \dots \text{ n o } \dots \text{ s}$

- $\text{n } \dots \text{ oo } \dots \text{ ns ons or } \dots \text{ r } \dots \text{ r z } \dots \text{ on o r p } \dots \text{ s } \dots \text{ ons nor r o n rs n } \psi \dots$
 $\dots \text{ r } \dots \text{ n r } \dots \text{ prop r s } \dots \text{ s s s } \dots \text{ s pro o}$
- $\text{ons r } \dots \text{ r } \dots \text{ r s s } \dots \text{ n } \dots \text{ o rs } \exists \text{ n } \dots \text{ o rs n } \dots \exists \text{ propos}$
 $\text{or } \dots \text{ m r p r s n } \dots \text{ ons s } \dots \text{ n r } \dots \psi \text{ or } \dots \text{ n } \dots \text{ s s o E s}$
- $\text{s } \dots \text{ s n } \dots \text{ ns ons r } \dots \text{ r b } \dots \text{ n } \dots \text{ o rs } \exists \text{ n } \dots \text{ ns } \exists \text{ n } \dots \text{ ns}$
 $\text{n B r } \exists \text{ or } \dots \text{ r s o pr } \dots \text{ s n r s r } \dots$
- $\text{s } \dots \text{ n r } \dots \text{ s s or E s } \dots \text{ ns n B r } \exists \text{ propos s } \psi \exists \exists \exists \neg \text{ o } \neg \exists \neg \dots$

ob s nr o n rs n n o prob b np n r nob n r o
 o s no n n or on n n ss r on on o ob s p n n on
 s np on- s n poss b or o sn rn r n on on r n n or on
 oo s n son or r oo s vo b o poss b so np n
 ob ons rn rn o pr sn n n or on b s p o n np -
 s on prob s or on n n ss pron o p n rpr ons- s r o
 n rs n n ovy nvy or p ons r on o n bs r r pr sn on ro
 so or p n pr p r nr pr sn ons- n ss so now ovy ob
 on r r pr sn ons n ovy o n v bs r o s-
 s r ovy r o pr son b v n vo prob s s no on s on sn s
 n no rn pr orr spon n o vo- sso b s n or s vo s s s
 v s on ro r b s-

7 7 0 0 2 0 7 on

prob v n on s ro r oo s por on s s n sso or
 r s s ons- or sp v n o n rs n b n so ovy n rn ro por
 s on o r n o on or n ron n o rvs vo no b b o pr n - p
 so s ns r ss n prob o v r b n so pro n on r r pr sn on
 v s o n r n o n p op n s o pr n - s so
 ons rs por n o pro n so r s o r pr sn on n r s r s b
 s pr n vo r n ss s

- p or r s or n or n o o - 1
- n r r s v s o n no on

ψ non ons rs o p o ns- o p o r pr sn on s n b no r prob
sn o p r pr sn ons no r n on prop r sn o p n s- o n
b s s ψ nno o n sn o p pr p prob s n s n or p
s b r on s s pr r or n so r pr sn on ob or ob pro o s
oo or b n o s-

ψ n r n v s n n
n r prop r s b n n s r

- s z n b n so poss b o sp n or on sn n on ns on
D sp - s o D r pr sn ons ψ r n o s n prob s- r or
r oo s ψ b ψ o pro o r s b or s r o r p s ψ p
n rs n n o prob s s-
-

ropo os -1 - r n ron ns ns n

Z. n. - 1 - n. r. o. m. r. p. r. s. n. o. n. s. n. p. r. o. b. s. o. n. - 3

n oys r E 1
 i s p rs Co n n s r p r
 o o Co n & Co p n n s n rs o ss

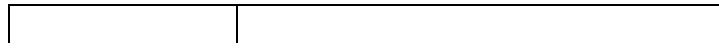
D v e n n n w e n
 w n v v
 ow
 n v n n
 nv e
 B en
 B

A r o v r r s s pro s n pro r n n q s o n no
 o op n s-B so n o s pro r rs' o n on n r n or s



r r E p r n s p

n
D n n
p r n onss n s n J b nn rs opro r s p ss b r s n ss ro
A p s-
A p s r s n r p so ss s v r n b n r ors o -



1. n 7 7

2. s b s o ov 3. s p m o pro r n - rs 4. r n r o n rs n
5. prob s r p on oo 6. n on r - n oo or o pon n or s
7. n son r o so s b s n' s r n n pro r n - n
8. vo s s o o r q r or n n s-

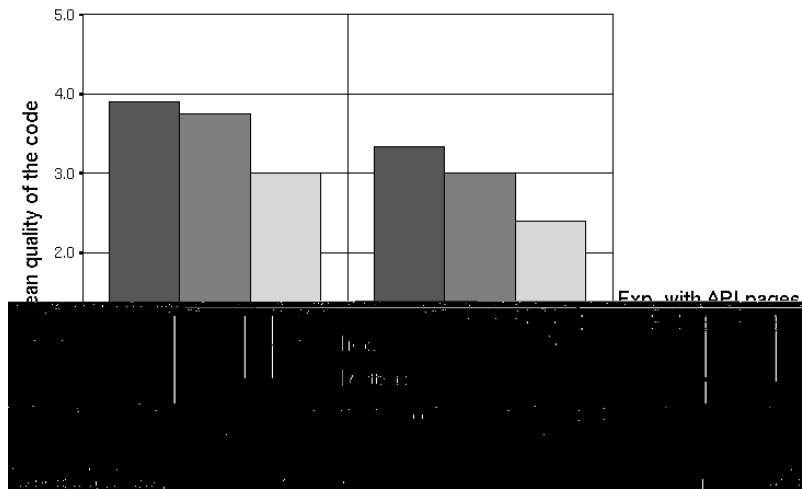
r b	on b r	on b r or
o	l s	l s
o-o p s v n s r n	- 7 s	- p s
o-o p s v n pro r n	- p s	- p s
o o	-	-
r n o r s rs		
b o o pon n s	- 7 s	l
n o r s	-	-

b s s or on b r n on b r or s s

or A p s v pro r n prob b b s pro r n v s on r- q o
 r s n o s s or bo s s o

En s on pro b r pro r s n b s o ss r s n pro
r s b s on r s r o ss r q s --

o s b s r b n r s r r n v o s r n s o r p r s n



For Expression prior view results are

probably responses for prior view results are opposite to those of previous studies. A typical prior view results are:

on the other hand

the results of previous studies are very different from those of previous studies.

- The results of previous studies are very different from those of previous studies.
- The results of previous studies are very different from those of previous studies.
- The results of previous studies are very different from those of previous studies.

The results of previous studies are very different from those of previous studies. The results of previous studies are very different from those of previous studies.

Component description As a result of previous studies, the results of previous studies are very different from those of previous studies.

r or **v** **v** **b** s r s r s on o o pon n s r p on o on A t o n
on-Y s **b** s s s s **v** o ons

- s s n p n s s o so **b** s p n or or **b** n n r s
- s o s s n r no o
- s o so s r **b** o s n s s **b** or n n n
s r p on p r r or n r s n n 's
- s o n so p s
- p s s o s r p on s **v**
- s o **b** s s o p n s or r s s s **b** or s r s p r
n pro s **b** s on' s o s' -

Navigation n n on s n por n ss **v** n s n o p n n s
o n on oo s- s **b** s r n s n on s o **b** r s p --
A t n r n

- s o pro so n so s r s on' os
- r s s o s r oo
- s o **v** s s s m poss **b** s so s r o s no r p p n on no
so oo so on
- s o s s s **b** no **b** n r s -

As ons q n **v** s o p n on oo s o n s **b** r n n
s **v** r o v s q n on **b** **v** n o r s s o r s -

Structure n s s s o n so n oo s o s p n n r o
pon n s n **b** n o p r **v** **v** s n ro p r n 's r n r r s s p -
s **v** r no p m r s **b** **v** **b** n n p on n p r on s s -

n n **v** n e oo

n s p r n **v** s o p **v** op o po s r n r n
s **b** **v** poss **b** s r s- n s p on s s n s n n p r n oo n n
pro r n **v** o r s **v** or **b** n or r -

n s s s o p **v** **v** p r or p r n s r **b** n s p p r n **b**
s n o r oo n s o r n r r s s s s r - s **v** **v** o s

- o s **v** r r r n or **v** s n s no oo or **v** r s **b** s n
prob n s n s n o n r oo s n s s s
- n o no **v** r n s p on r on **b** s on A t o n on o r s s r
b r n s s o n o **b** n s -

n **v** **v** op n o p r so n **v** s s o o s or p o n
s r n q s or o n on s s -

Answer

... on ... br ... ss ... r ... sn ... A ... ss-

- A ... ob ... v ... on ... n ... p ... on ... n ... br ... s ... s ... 1
- ... v ... b ... n ... z ... sn ... rn ... pr ... r ... -- ... 1
- ... v ... o ... rn ... o ... v ... v ... b ... rn ... s ... s ... 1

You HAVE to reuse a Java API class to write this class.

Answer

... r ... s ... on ... s ... ss ... v ... s ... s ... n ... r ... n ... z ... r ... pro ... r ... -

- ... s ... b ... s ... or ... on ... b ... ro ... b ... s
- ... r ... n ... z ... r ... pro ... r ... s ... s ... on ... s ... s ... on ... b ... rs ... o ... r ... o ... on ... b ... rs ... n ... pr ... n

```

public class PhoneList
{
    int MaxSize = 3;
    PhoneNumber[] PhoneArray = new PhoneNumber[MaxSize];
    int NbNumbers = 0;
    // position 1 for PhoneArray[0]

    PhoneList()
    {
    // creates two default numbers
        PhoneNumber OneNumber = new PhoneNumber("1111111111");
        PhoneNumber NineNumber = new PhoneNumber("9999999999");

        this.addNumber(OneNumber);
        this.addNumber(NineNumber);
        this.printNumbers();
    }

    public boolean addNumber(PhoneNumber aNumber)
    {
        if (NbNumbers == MaxSize)
        return false;
        PhoneArray[NbNumbers] = aNumber;
        NbNumbers++;
        return true;
    }

    public boolean removeNumber(int position)
    {
        int i;

        if (position > NbNumbers)
        return false;
        if (position == NbNumbers)
        {
            PhoneArray[position] = null;
            NbNumbers--;
            return true;
        }
        for (i=position; i<NbNumbers; i++)
        PhoneArray[i-1] = PhoneArray[i];
        NbNumbers--;
        return true;
    }

    public void printNumbers()
    {
        int i;

        if (NbNumbers == 0)
        System.out.println("Empty List");
        else
        for (i=0; i<NbNumbers; i++)
            System.out.println("Phone n. "+i+": "+PhoneArray[i].toString());
    }
}

```

7 B

For this assignment, you must reuse a Java API class to write this class.

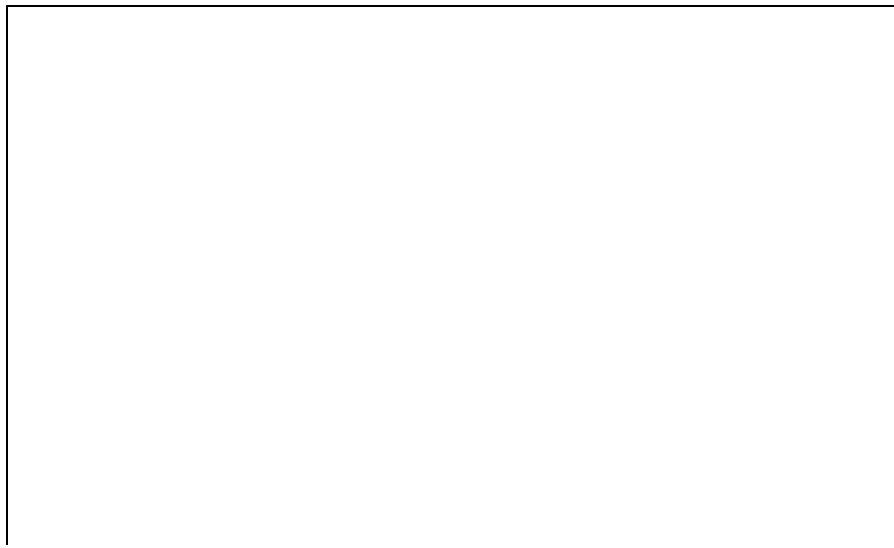
- A widget that displays a phone number.
- The widget must have a text field for the phone number.

You HAVE to reuse a Java API class to write this class.

7 B

```
import java.awt.*;
import java.applet.*;

public class PhoneWidget extends Applet
{
    // The interface attributes
    TextField input = new TextField(15);
}
```

n

B r r - & D n n r s on n n o n n on ' n r

n oys E 1
i s p rs Co n n s r p r
oo o Co n & Co p n n s n rs o ss

n o w n o o
n o o o
n o o o
o o o n v n n
nv o
B en
B

A n o w b o v p r s o p r r p o r n o p r n
p r r s s b o n r o r s r r n o w n s o
b s o r s n o n s r o n s s s o r p r r n - r b n s
r s s s s p r r r s o p r o

no s ppor b ps o o n - pr n sr b n spprr on o w

o pro r o pr ns on or ro o o r r s o v o n or on n por
or r n o n or on r ons ps o s pro ss- n or on r ons ps ons

A or n o Broo s 1 7 n nb 1 7 pro r rs s b ons n o o
r o pr ns on pro ss-D s 1 1 s s s b ons nb ons r s
rn n o o n rn r pr s n o sr r s o pro r r's sr r now
- s sr r now s s o b b s n o pro r n p ns or s o
pro r n s b s no b s or ro o o b r o p n
sno o n rp r n ro o or n r o p ns s r r n n s n -

D n

As n on b or s sno po s s s n p r

o_sor

o_sor or \neg s

\forall r \neg ' n r sor n \neg '
r

n \neg \neg s
b bb sor \neg s or \neg s -

n \neg s op **I** -

n \neg **I** | s **I**

\forall r \neg ' n r sor n \neg '
r \forall

n \neg \forall s -

b bb sor or \neg s or \neg s

r \neg sor or \neg s -

b bb sor \neg s or \neg s

s \forall p \neg s \neg s **I**

b bb sor \neg s **I** or \neg s -

r \neg sor **I** -

r \neg sor **[X]** -

r \neg sor **[X Y]** | s **I**

X = < Y

r \neg sor **[Y]** | s **I** -

s \forall p **[X Y]** | s **I** **[Y X]** | s **I**

X > Y -

s \forall p **[Z]** | s **I** **[Z]** | s **I**

s \forall p s s **I** -

\forall r A rs on o **b bb** sor pro r -

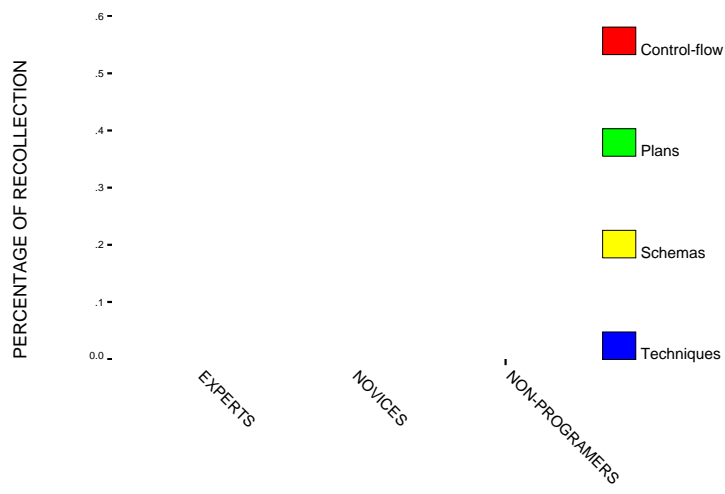
s... sr... o... sr... r n or... on-^rn... on ro... ov r... ons s... ob... b
po n s v r r rs on... sp... -
^rn... s... p r n... s n... s... n... on o... pro r s' n on... s
s' rs ons o... s pro r s... ob pr s n... o... s b... s-... r r o... s s'... s
pro r s s s... r o... on s b... nb... 1 3/4 -

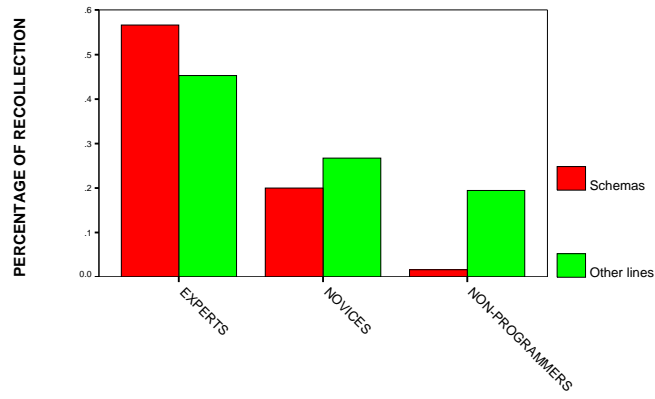
pro r... rs b... so... s p r n p r or... r s... r s s s ons- n... s s s on...
v r... n... r op o... p r n... p r or... n v r s... os... n... ors... -... s
s... p r o s... n s-A r s... s b... s v r... n... n s or... n v r... own
v... o... r... b r o... p r or... -^rn... s s b... s s... no... r p r o... n s o
v r... own s or... p n... on o v... or n o... pro r... o s-... s s... s
v r... o... o v n... s... p r o p o r... ons s... s or... nb... 1 3/4... p r n-
on ro... r o p o... o v... s... r n... p r or... -... v r... no... n s r... o o... p r n
b... on... o... or s... p r o r s-A s o... v r... no... s... o v r... own... n... p n... on o v...
pro r s o-

As... s v s... p n n p p r... r s... o... v s... n v r... n... on o b o...
r o... on n... p n... on o... n... on... o... p r o r... b... s b... s-... r o... on
on v s n s... or... on o... p r o p o s... r r s-^ror... s n s s... s s s r o
r o... on o... on o... s r... r's n s n s v s... or... r s b... -... s n s n s
v r... ons... r s or... r... s b... v r o... r b... op o... p r o r... o... or
s s... n s... o v... r o... s o s p... s n n n... on v r... no... ons... r n... r n n... s
s s s o r o... on-A s o... s b... r... p r o r... or... r b... v... r n n... b
v s on r n... r o... p r o r... v... s o... on... n... o... on v s no... ons... r
s n r r or-

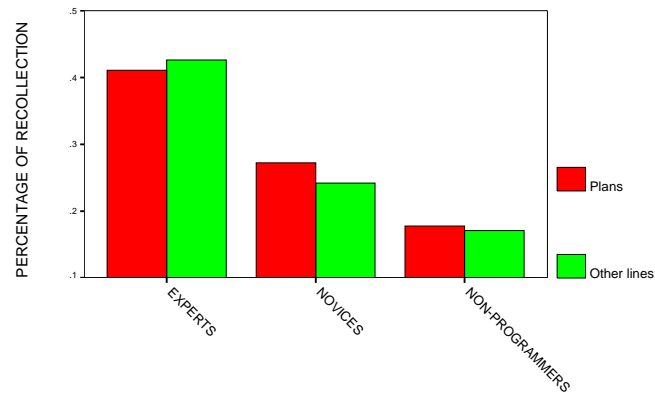
As... n on... b... or... s r... r n s n s o p r s s r... n s v... o... b... s... r... r o...
s... r... n s o... p r o r... -... n... r o... on o v... o... n s n s v s... ons... r... s s... s s... r o
on-^r or... p... o... p r... r n s n v s or... v r... n... own... s n s n v s no
ons... r... s or... r... -... s s r... r r... or... r o... on o n s n s v s... ons... r... s
p p r o p r... b... s... s s... s n r s... n v... s r... r s... s... n s... r r... n o p r o r... r s-
p r o r... r s'... o n o... p r o r... s n... on... v s... n... s... n... r... s o... s or... n s s-
E... o... p r o r... s p r o r... s s... r... n... on s-... p r o r... or... p... r... s... s o
s n ob... n s n... r... o... s... s n... r... o... r r n... -... p r o r
s b n r n... b r n... on r s... o s... q... n n... p r o r... r
r s... s o... s n p r o r... s... s o r... p r o r... o r... -... s b... s'... n... on... s r p on
v s r q r... o... n... on... s... or... n... on s... n o r... r o b... ons... r... or... -^ror... p... or...
p r o r... s... n s... q... n... o... r... s o... s'... ob... n s n... r... '... n... 'ob... n s
'... v r s r... n... s b... s'... s r p on-... n... r... s... n s v r... n
on v s... ons... r... or... -A s... r r r... v s s... or... o... r v o p r o r s-

o... s... p r... n v s n s... n... r... p r s-... r s p r... v... s... s s r... n... n
n... n... on o... p r o r... b... v o... r o p s o p r o r... r s-... s... on... p r v s... on... m
v... o... p r n... s... s s p r n... s o r o... on or... o r s r... r s... n n o... on-
r p r o p r... p r n... o r o... on o... s r... r... r s s... p r n... o r o... on
o... p r o r... 's... n s-





Ernoro on or s s n n s o s



Ernoro on or o sr r s o p ns n n s o s

As o p r sons or s . . . s n p ns- . . . r s s or . . . n q s n on ro o y oo r s . . . r
o os or p ns-

As r o p r sons b y n . . . ro ps o pro r . . . rs . . . r b n p r or n . . . pr
o s n s s n . . . so n or r o o . . . or s on n s z . . . s . . . s s . . . n s s or . . . s
r p r o . . . s . . . o s n . . . r o . . . n o . . .

v n ons r n on b bb sor pro r v s s r o sor pro r nb s s
r b s s o os ob n v n n no on r pro r s- o s s
r n s pro r n n ons r -
s sr son b o n n bs n o n o r n or on n r n m nor m
o n on n v r b n pro r n s o no p o r sp n n o
pro r p rns o p op r ons p r or o r r sr rs nb r por n
os r n s ns o o - s o o n on n nn r b n ss s o
b n por n ss or ro o - r n B n r r 1 3 n on ro o o s
poor ro pr ss n ss' s sp s ns on n s n r b n s r os
on o o n ro o pro r ro pr ss n r b r n p n sr r s'
r n - 1 3 - ob o sq s on s ov n n s n n s pro r o pr ns on
n o or no r vor s v sp o pro r

sr r r ons r por n b nn n o o pr ns onpro ss or ro o pro r rs-
r s so s pr n s s n o ro o pro r rs b r
s so o pr ns onpro ss s r n ro on pro r rs o pro r n s
ons r - or rs s o b b s on sr r r ons v r or n o n
b 1 7 n D s 1 sr o n on n or on- s on s on n s o b on
r n s por n n s o b r o or o onpro r n s s s b n
or pro r o on- n v n s s b s s n n s r por n or pro
r n s s s n or on o b pp o n n pro r n ns r on n s n
o pro r n oo s-

n

Br n D & i ss - 1 1- n or on r ons ps n - 6 pro r s ov o pro r
rs o pr n n on 1 7

Bo v s A & Br n - 1 - ro r n p ns n pro r n n q s- p

Br n - B n A o - E s ns - oo C - & n 1 1- ro o pro r n
n q s- 0 1 1 1 -

Broo s - 1 7 - ov r s or o o pr ns on o o p r pro r s-

D s - - 1 - n r n op n o pro r n p ns-

D s - - 1 - o s n or s o pro r n sr -

D s - - 1 - nov r sr r n n q s on o pro r n p rs -

r r son - - 1 1- rn n ro o n s b s n ron n-

or D & r n - 1 7 7 ro r n p ns n pro r n p rs -

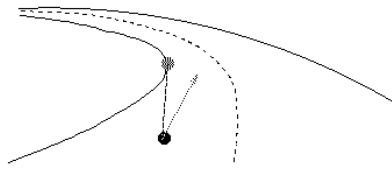
r n - B - E & r r - - 1 7 - rs n n n sr p o o s -
n son - pp r - & o ov E- E s-
pp- 1 1 or voo - Ab -

r ro - C & B - - 1 - An p r on o E n q s or or ro o
pro r n - n pp- 1 1 or voo -
Ab -

nn n on - 1 7 - s sr r s n n r pr s n ons n p r o pr ns on o o
p r pro r s- 1

nb - 1 7 - B ons n o p r pro r o pr ns on-

п оуs , r̄ - E -- 1 7



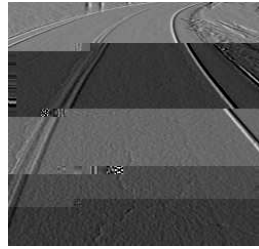
Fr 1 n n on

s n r o s o v r n or s p p n n s s o b r on o r n
 p r o r n - r n on on s p p r n r s n r s s-



r n n s n r o n s p p r s s o v s b s n r b
 p r o s s n n q s n s s n o p r o s s s q n s v s n r s s s o v n n
 s r o r n - s q n s o n n n or s n r s s s o v n n r r
 n s o b p r o s s n p r o s r s o n b r s s-

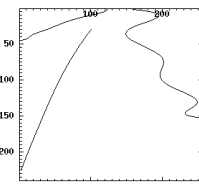
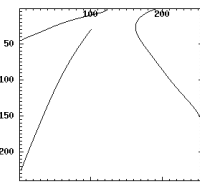
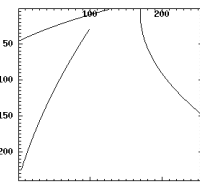
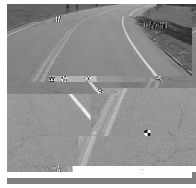
A n n p o n o r s o o n v r r r s r o n o z n r n n r p o n
 o r o b n o b o n o n r s - r o s n r r 1 s r s s - b o
 r p r s n s n p p r o n r n r o r p r s n s n n p o n o n r o b n - o
 r r o v n s r s r r n n n s n s o v s r r s r o n o z v
 o s n n p o n -



b

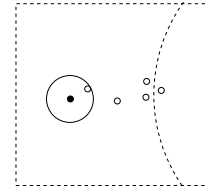
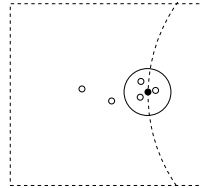
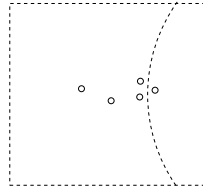
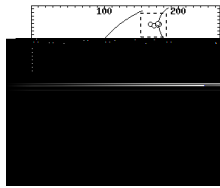
r o o n n A s D r n n

o n b o r n s r s r o r o s o o



b

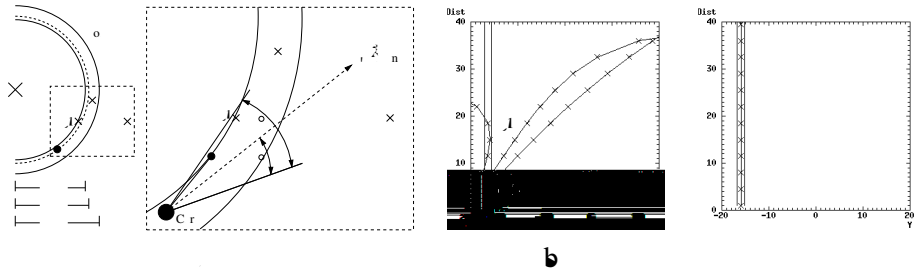
r D r o o no



b

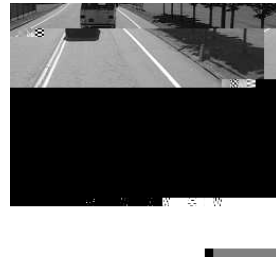
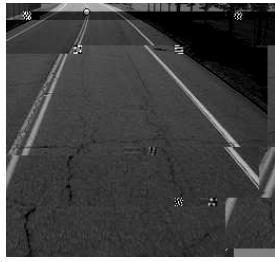
r r n n n on

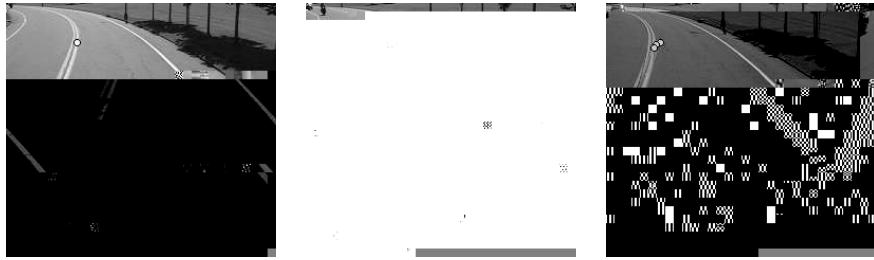
r on o po n n n po n s ro po no s s s n r pro r n r q r s
 rs r r n - n n po n s s o v n n r r s po n n r r s
 r on o z n r n n r b n o ro o



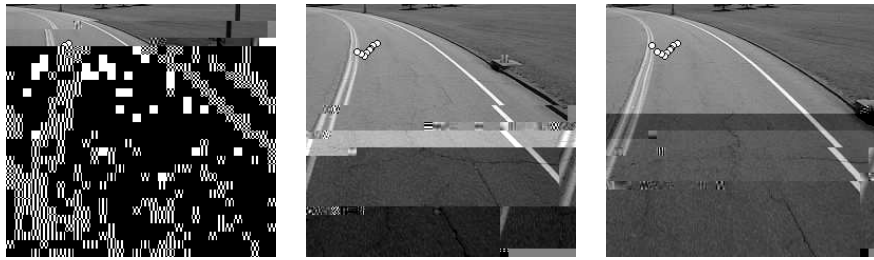
r n n o n n o s

n b o r n r n o s v o o r n n p o n s n s o r - A n b o r n r n n
 o n o s p r o r n s s v o n n p o n s r o s o r o b v n o s
 r s o n v n n p o n - n r p r o s n n p o n s r v n r s o n v





b



Er Csrno n n ons


v n n n n


s q n n r r s ovs r n or s n o r s r o s n b r o n n
 p o n s r o s o v s v o n n p o n s v o b o o v b r r r o

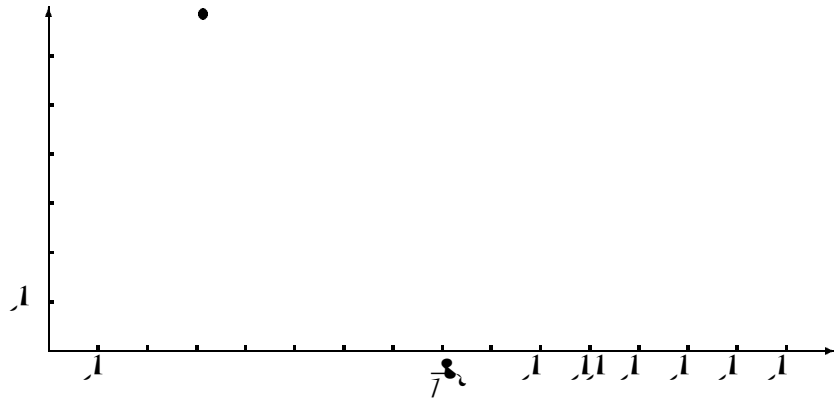


b



Fr  r o n n n o n s

p r o r n o n n p o n r n b n r n r s n r b r o n¹
 s q n o n s s o ¹  o n n o s r o s n v p r o r n n n
 p o n s o r r n ¹ n n p o n n o r r v n o r b r o n- r p_ s r
 s s o v s o n o r o n s n o r z o n s s o v s o n o r n o
 o r z o n r b r o n n n s o p - s o b o s n o n o o r r



o r / D- / - p p p n r pos on n r- -r p- obo s
ns / C m on n rs / sb r / A / / A-

n r / & o r / - on - o - -
D s r s nb / r -

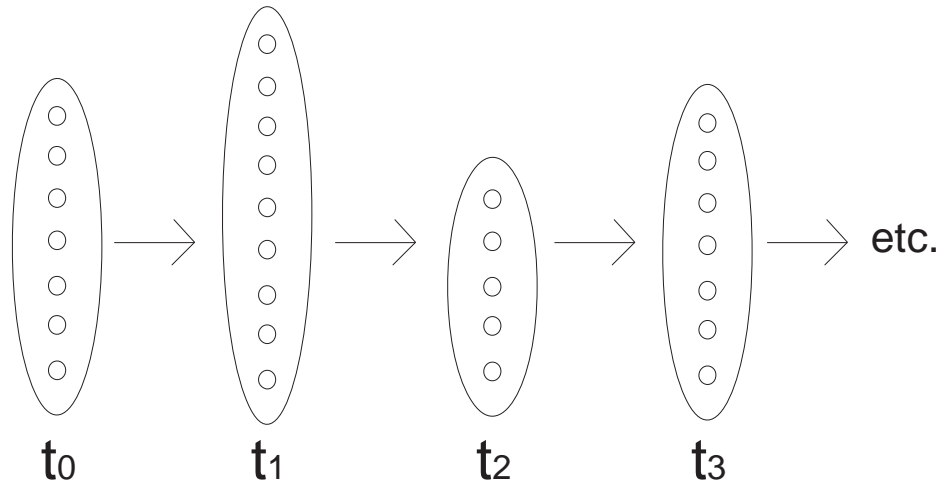
r n C- / - r n r n on o r r ons on r r ro s ns / n o s
r n - -r p- n rs o n r nspor s r ns - / -

n oys E 1
i s p rs Co n n s r p r
o o Co n & Co p n n s n rs o ss

A v n
v v
n v n n
nv n
B en
B

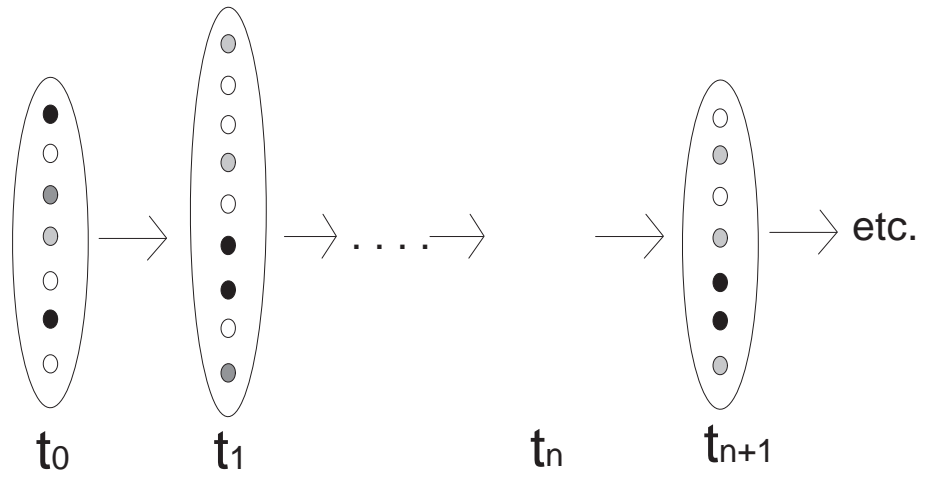
n en

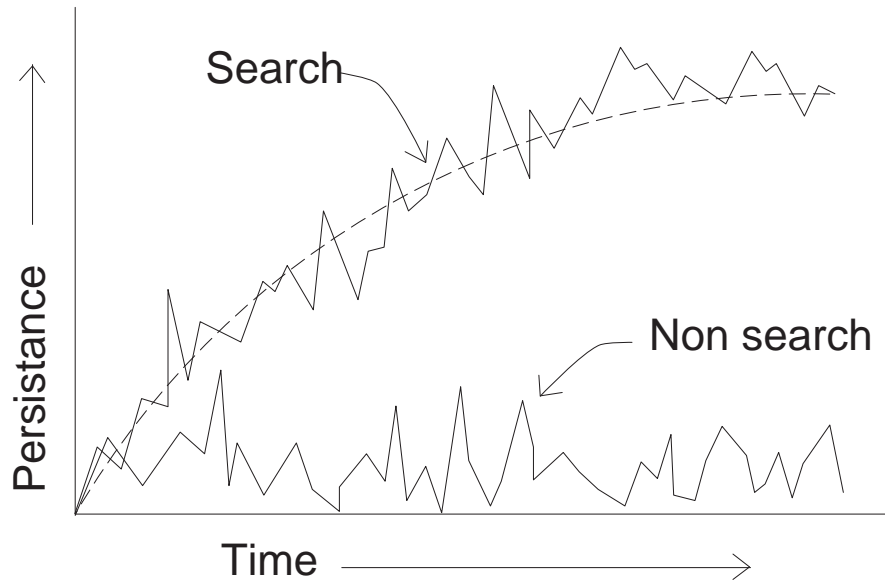
noun n n v so on s b s so on n r or v r s n s r sp o n
so on o r prob s no on r s o s r sp s v r no v v so on
s b s o v r v s r n s s r or on ss prob n so
s r or vo b s - s no v o no v n v r no v b s so on-
r or v v n o n on o s r pro ss s s b s on n s o



For a series of

... sr r o ... sor r s s or ... sr s o ob s- ... sor r ... so s ovs s ...
 or, r n v ... s r pro ss p r or v or s ... on s ons r ob n o v or -
 ... n ... sor r s ovs s v or n so s r pro ss-
 As n n sp o s r pro ss ... sor r nor s s s o ... pons
 ro v ... n n so on v b nr - os s r ... or s s ns n ro
 pr o s ... pons o p r ... r s r r on- v r os on o r b r
 ... v o o ... sor r - ps ... or s p s b

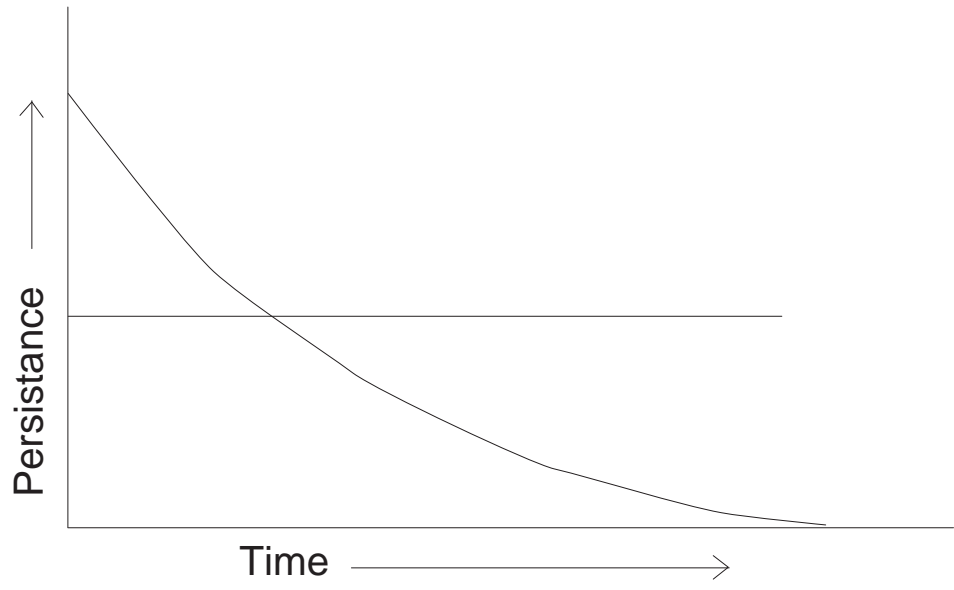


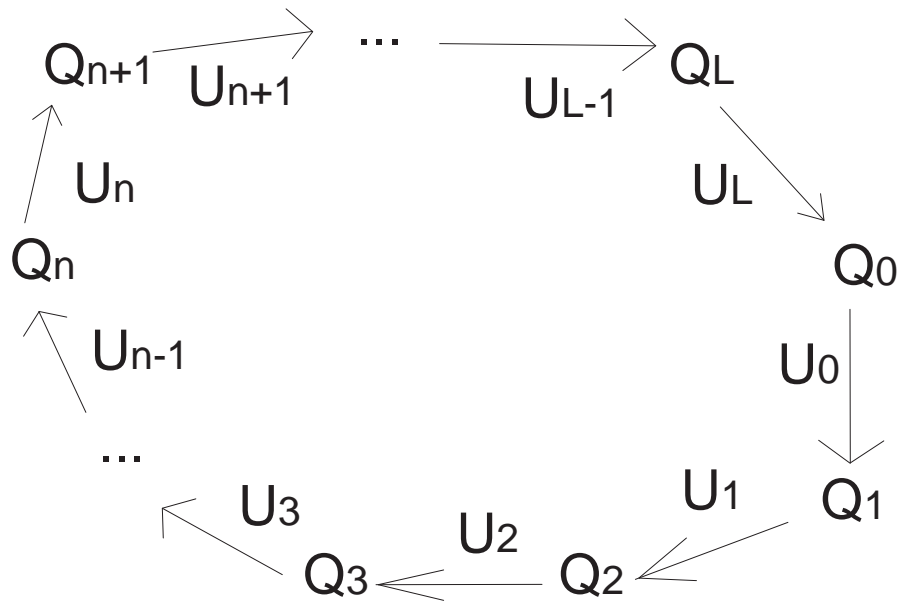


For Disruption by non-search processes

os por n s... r n o pro ss v no... no s n on n n... r v... pro ss
 o... b ron n... n... s... n s p or n... n s p n... r... pp
 v... oo-... n so... b ron n... n... s... n s p s v... on
 r n on n v r... s r s n p

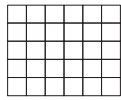
1



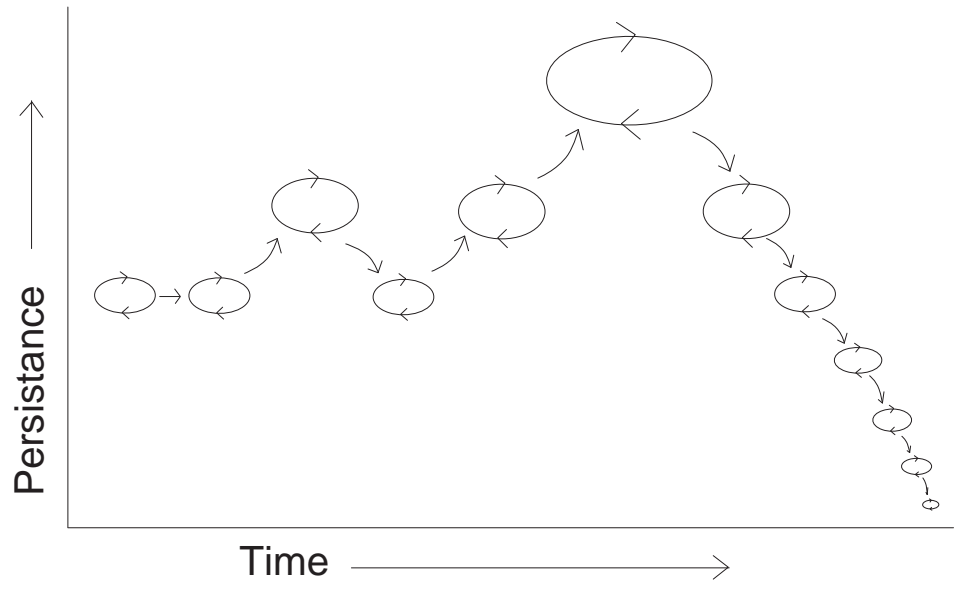


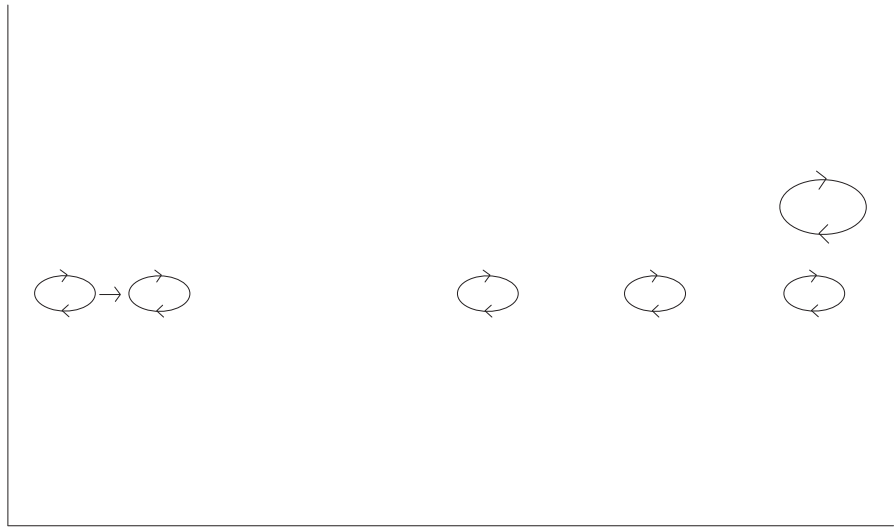
F r or s r r o C r s s n on b C

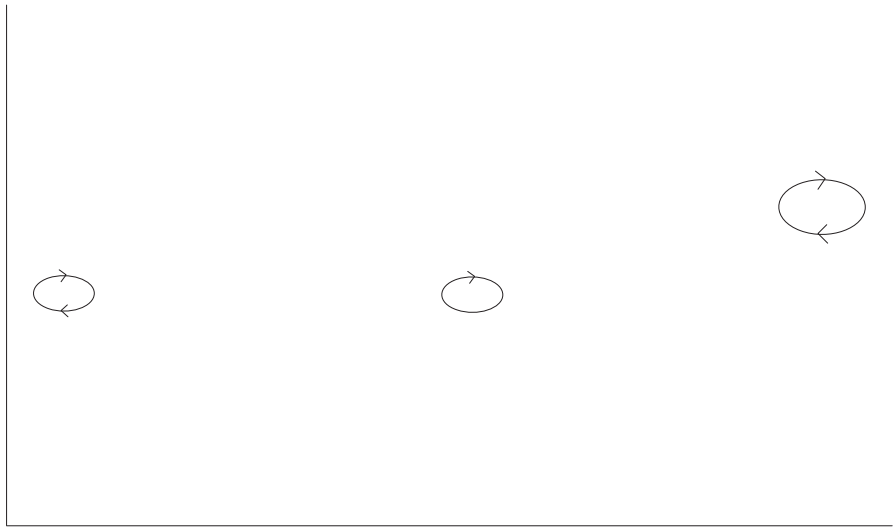
o s s o o v s



1.0







W s/ p n_ ' n n ppro on o n n r so r s- n sp b

n ro . . . p rs s n r . . . - . . . p rs s n r . . .

o ss o p p r s o v n o s o p o s s o o b
s n n s s n s p p o r s r p r o s s r b o v n p o n n r o v o r
b s n s r o r -

n

D s = E -- 1 3 -

noys E -- 1
ll i s p rs Co n n s r p r
oo o Co n & Co p n n s n rs o ss

on A on
v v v n n
An on Av n
n n n n
n n n n
on v n n
nv
B on
B

A b s
B s p o o r r s n r s p o n s o n s p
p n n p r s n s n s o o o n n r o n o r s o n s
r n s p p n n o n n s b o p r o b b o s n s p
p n n -

D s n
s s b y n s b s s n n y r n r o p s o n s s b s
y r n r n p o s o r n r o o n o n s -

o s
A r s p r o o n o n s s b n s - n n l l - n - n -
l p - l l o l - r n - o n - l l o - l l l l - n - l - s - l n - l s -
n - l n - l - l - s - l - l - or o l l l - -

n e on

pr n n ov n b pr n -

p s o pp on o b rs o p n n v orr r p ss s bo

r n ns o s & B r n l l on s r v orr rs n o n r

or r sons n non v orr rs v p r n ns pp n n v r r sons

n o p so s s n s b s v r o n o r r o b o r o s o r b r
v o o r n p r o n s n v v o b s o r n s n o s o r r o
s -

Stage 1 A s b s v r s o o p n n o r r s

nn 7 0 ennr
 ns or on or s b s v s 7 s 1 7 s o p r s v ns or o
 - on n n r ns s p so A r ns b s 1 on & Bor o 1
 n ns or o - on n n o n s p s nos s b b b s r n n
 on & Bor o 1 - r v s nos n n r n n ross r
 oo n on ro ps 7 1 p 7 n s or s or r ro ps v r - s
 1-1 7 s 1 1 n 7 s 1 or os n r Gro ps r sp -

b s ovs n n s n ss n pp n ss s r s or Gro p bo b or n r
 oo n on- s v r s b o ro p n s-pos s-n r pr
 n on s-pos n on n sso r n -An r ns b s n n ro p
 n r on 7 - p 1 4-A o r v s nos n n r n b v n ro ps on
 pr n on s r 7 - D ps 1 r v s s n n r n b v n ro ps on
 pos n on n s r 7 - p 1 4- Gro pr por s n n
 rpos n on n r ns n bo os n r Gro ps 1-D bo ps 1- 1-
 r v s nos n n r n npos n on n r ns b v n ro ps os n
 r - s v r sos b on nos 1 nos v ns b s n ss
 o r n - s b s n n n n r on 7 - p 1 1 r s
 s n n n r s n n o sn ss b v n 1 n n Gro p l n 1-
 p 1 1 o p r v r s n os n r Gro ps-

oo	An		n ss		pp n ss	
	r n on	os n on	r n on	os n on	r n on	os n on
	- 7	- 1-	1- -	- 1	1- -	- -

pp n ssr n s so b s n n ro p r n n r on p 1 - p 1 - 4 r
n on pp n ssr n s no r s n n ross ro ps -D ps b r
s n n b v n ro ps pos n ons p 1 - p 1 - 4 r pp n ssr n s or
Gro p v r s n n ov r pos n on n r n s or bo os n
r Gro ps n os Gro ps ov r pos n on pp n ssr n s n r
Gro p l - D ps l - ns b o v ns b n s so r n pp n ss l
s- ro p n r on v ss n n p 1 - 1 - p 1 - 4 r n pp n ss
r n s o own n Gro p l n - - p 1 - 4 b p n os n r
Gro ps-

on
r 1 no n s ovs r spons pro s' or o - 1 1 7 - - 1 1 7 7

s o os Gro p n n s o r Gro

n oo o n ns s or n n s n n pos or n r
oo s-
-o - 1 1 s sr ons p b v n ss b o r sons v n s
pp n n ns bo prob b o no r n o p n v s r v or r s
s n n r s so b r ns pp n n o n ononv or r s s so
& Bor o 1 - ov r r p n on s b s on v or r s n r bor
s r sons n b n or r ss b n r sons v n r ns
no pp n- pr s n r s s s sr ons p b v n n b r o r r sons
n prob b ns n so b o n n n ns pop on o s b s v n oo s
n p - s n s pr or bor on o r sons ro ron v or r n s no n ss r
on on or s on r s o o n or n prob b s s b oo so
pp rs b o n n ss b o r sons v ns o r-
n o oo on n r on o r sons v r ns or no pp n
pp rs o b r pro on n v n oo n n s n b r o r sons v b r
n pp n n pos oo n n s n b r o r sons v pos r n
pp n- r oo s n n sr sons v ns no pp n- n n o oo on
r son n r on or n on r n s n ros ov r b r - r s r s pons pro 'o
n oo s b s n on o b s n ro r r n s ro o s b s n
n r oo r s no s n n r n b v n pro 'o s ro ps n on
o oo s n ro- s s s s n oo so r s s n n on r sons or n
n o r n - n on r s p r n s or o p n s o pos oo - r s pons
pro 'o s b s n pos oo n on o oo s n ro r s n n ro os
n n n n r oo n r s n ov r r v s so s n n n r n n
r s pons pro or s ro ps n on o b s n ro- s n n s s s p r ps
pos oo s n n b or on n on r n s n ros n n oo r r s
s n n on pro' r sons- n n s ro n n n r oo on on s r ons s n
v p op n s r or r r sons v n n vo pp n r r n r r
r sons v n n vo no pp n D n n n & rp 1 7 - n ro n r oo
n on ro p on s r n b s n o oo n p on pro r sons r s n n
or r n r n on r sons r r sso v r n b n on s r s pos
or n on - r r or oo s on r n v n o n or v r sons
r b n so -- n n o r sons v b n v pp n v n n oo s
r sons r o b or r r r n oo n n o n r n on r n
B n 1 7 Bow r 1 7 s 1 7 n v n pro r sons r or ss b s pp rs
o n b on r sons rs & n n n 1 7 6 1 7 - s pro ss s v
on r b o o n n n r oo so on n r on o pro r sons n no
on r sons- or o r n r sons or oo n n pos oo v r o r n os
b n n b r s pons ro p n so ons r n n s r pron op rs s pro ss n
v n ns pos b no n oo n r n r 1 r n n on r 1
on n p n n b or o n on r n s n ros n pos b no n
oo -
ro ss s v bor on or ss b o r sons v b or n r
ns pp n v pro so p n on o v ron v or r s s n r s
ns bo oo o s ns pp n n s & Bor o 1 -o
1 - r or p s rop s n pro ss r r & - 1 - v - 7 - 111

s n r os bo v orr op D & — 1 s & Bor o 1 n s r
pro ss oys or bo n r on n bor on o r sons y b r n s pp n-
r sp or n n oo r q n sso

D C & - 1 C s rop v orr n p rson n q n p r s r
r s s r s o s rop s n pro ss- b -
D C p on r r - & D son - 1 o r r s s o v orr E
n or v orr n n n s s p r ons r s- rson & p D r n s 1 1
1 -
D C bb - & C ron C- 1 C s rop v orr n s n on o n s n
prob so n on n -Co n r p & s r -
D C s & C p 770 - 1 p no no o o non p o o v orr Apr
n r n s on- p C- D & r s E s orr n r sp s on or ss ss n
n r n -C s r -
D n n D- & rp - 1 7 n on r s s n s b r on n o n r r
son n n ss ss n p o p rson ons n ns- o m o rson & o
s o o 1 -
r 6 - - 1 7 A b n n r r n n pr n- o m o E p r n
s o o - m n or & Co n on 1 -
o ns on - & D C- 1 ps o o p

so A- r n n B- g ors C- - 1 7 orr s s r o n on
o b o n n o n r -B or r p 1 -

