Shuffling Cards - Simple Introduction to a STRIPS-based Plan Model using the Interactive Storyworld "Harold in Trouble" [1]

Steve Hoffmann & Ulrike Spierling (Hochschule RheinMain), Georg Struck

The following pages contain the cards for the card game “Harold in Trouble”. They are subdivided into action cards and general/initial/goal proposition cards.

Printing

All have a size of 10 x 15 cm (4” x 6”) and are printer ready for standard photo paper of that size. For printing the paper size has to be set up in the general printer options depending on the used device. Each printed proposition card (10 x 15 cm) has to be cut-up into six single cards (10 x 2.5 cm).

A few of them are empty and for no further use.

Preparations

We suggest a layout on two tables like in the figure below. On the upper part the used action cards can be placed and represent the evolving story.

On the lower part an area should be marked as “world state”.

The green initial proposition cards should be placed onto a square called “Initial state”, the only blue proposition card onto a square called “Goal state”.

All other general proposition cards (grey) should be placed on the table in their described order (P01 to P46). After that the grey proposition cards that match the green cards in the “Initial state” should be placed onto the “world state” area.

All 40 action cards have to be shuffled and then handed out to the players.


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Card Game

„Harold in Trouble“

Steve Hoffmann & Ulrike Spierling
(Hochschule RheinMain), Georg Struck
Action Cards
### PRECONDITIONS

- P01 Bored woman
- P02 Woman has cigarette in hand
- P03 Cigarette is not lit

### ACTION

**A01**  
Harold lights cigarette with a match

### EFFECTS

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P04 Cigarette is lit</td>
<td>P03 Cigarette is not lit</td>
</tr>
</tbody>
</table>
PRECONDITIONS

P04 Cigarette is lit

ACTION

A02 Harold carelessly throws match away

EFFECTS

ADD

P05 Fire is spread

DELETE

P04 Cigarette is lit
PRECONDITIONS

P05 Fire is spread
P06 Poodle is present

ACTION

A03
Poodle burns

EFFECTS

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P07 Someone burns</td>
<td>P05 Fire is spread</td>
</tr>
<tr>
<td>P10 Raise Silvertoes anger by 1</td>
<td></td>
</tr>
<tr>
<td>P09 Poodle is burning</td>
<td></td>
</tr>
</tbody>
</table>
**PRECONDITIONS**

P10 Raise Silvertoes anger by 1  
P11 Silvertoes anger level 0

---

**ACTION**

A04  
Silvertoe notices trouble and gets angry

---

**EFFECTS**

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
</table>
| P12 Silvertoes anger level 1 | P10 Raise Silvertoes anger by 1  
P11 Silvertoes anger level 0 |

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PRECONDITIONS

P10 Raise Silvertoes anger by 1
P12 Silvertoes anger level 1

ACTION

A05
Silvertoe notices trouble and gets even more angry

EFFECTS

ADD
P13 Silvertoes anger level 2

DELETE
P10 Raise Silvertoes anger by 1
P12 Silvertoes anger level 1
**PRECONDITIONS**

- P10 Raise Silvertoes anger by 1
- P13 Silvertoes anger level 2

**ACTION**

A06
Silvertoe notices trouble and gets furious

**EFFECTS**

**ADD**

- P14 Silvertoes anger level 3

**DELETE**

- P10 Raise Silvertoes anger by 1
- P13 Silvertoes anger level 2
PRECONDITIONS

P07 Someone burns

ACTION

A07 Harold tries to extinguish the fire

EFFECTS

ADD
P15 Try to extinguish fire

DELETE
PRECONDITIONS

P07 Someone burns

ACTION

A08
Harold waits what happens with the fire

EFFECTS

ADD
P16 Wait for fire

DELETE
P15 Try to extinguish fire

A09
Harold tries to extinguish with floor vase

EFFECTS

ADD
P17 Extinguish with floor vase

DELETE
P15 Try to extinguish fire

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PRECONDITIONS

P15 Try to extinguish fire

ACTION

A10
Harold tries to extinguish with garden hose

EFFECTS

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P18 Extinguish with garden hose</td>
<td>P15 Try to extinguish fire</td>
</tr>
</tbody>
</table>
P15 Try to extinguish fire

A11
Harold tries to extinguish with bucket

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P19 Extinguish with bucket</td>
<td>P15 Try to extinguish fire</td>
</tr>
</tbody>
</table>
PRECONDITIONS

P15 Try to extinguish fire

ACTION

A12
Harold tries to push victim into the pool

EFFECTS

ADD
P20 Extinguish with pool

DELETE
P15 Try to extinguish fire
**PRECONDITIONS**

P15 Try to extinguish fire

**ACTION**

A13
Harold tries to push victim into the pond

**EFFECTS**

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P21 Extinguish with pond</td>
<td>P15 Try to extinguish fire</td>
</tr>
</tbody>
</table>
**PRECONDITIONS**

P15 Try to extinguish fire

**ACTION**

A14
Harold tries to choke the fire

**EFFECTS**

**ADD**

P22 Try to choke fire

**DELETE**

P15 Try to extinguish fire
PRECONDITIONS

P09 Poodle is burning
P17 Extinguish with floor vase

ACTION

A15
Harold extinguishes burning poodle with floor vase

EFFECTS

ADD
P23 Poodle is drenched

DELETE
P09 Poodle is burning
P17 Extinguish with floor vase
P07 Someone burns
**PRECONDITIONS**

P09 Poodle is burning  
P17 Extinguish with floor vase  
P24 Pee in floor vase

**ACTION**

A16  
Harold extinguishes burning poodle with special floor vase

**EFFECTS**

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P23 Poodle is drenched</td>
<td>P09 Poodle is burning</td>
</tr>
<tr>
<td>P25 Poodle smells awfully</td>
<td>P17 Extinguish with floor vase</td>
</tr>
<tr>
<td>P10 Raise Silvertoes anger by 1</td>
<td>P07 Someone burns</td>
</tr>
</tbody>
</table>
Preconditions

P01 Bored woman
P08 Woman has no drink in hand

Action

A17
Harold tries to get hot punch for the lady

Effects

Add

P26 Try to get hot punch

Delete
P26 Try to get hot punch

A18
Harold takes punch from buffet, accidentally drops hot chili sauce into punchbowl

EFFECTS

ADD
P27 Drinks contaminated
P28 Hot punch

DELETE
P26 Try to get hot punch
PRECONDITIONS

P28 Hot punch

ACTION

A19
Harold serves hot punch to the lady

EFFECTS

ADD
P29 Woman thankful

DELETE
P28 Hot punch
P08 Woman has no drink in hand
PRECONDITIONS

P29  Woman thankful

ACTION

A20  Harold has smalltalk with the lady

EFFECTS

ADD

P30  Some time passes
P34  Harold is thirsty
P42  Woman loves Sinatra music

DELETE
**PRECONDITIONS**

P30  Some time passes  
P27  Drinks contaminated

**ACTION**

A21  
Other guests drink from "hot" punch

**EFFECTS**

**ADD**

P31  Some guests are ill  
P32  Toilet is occupied

**DELETE**

P30  Some time passes  
P33  Toilet is available
PRECONDITIONS

P34 Harold is thirsty

ACTION

A22
Harold drinks some beer

EFFECTS

ADD
P35 Harold needs to go to toilet

DELETE
P34 Harold is thirsty
PRECONDITIONS

P32 Toilet is occupied
P35 Harold needs to go to toilet

ACTION

A23
Harold pees in a floor vase

EFFECTS

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P36 Pee in floor vase</td>
<td>P35 Harold needs to go to toilet</td>
</tr>
</tbody>
</table>
PRECONDITIONS

P33 Toilet is available
P35 Harold needs to go to toilet

ACTION

A24
Harold goes to toilet

EFFECTS

ADD

DELETE

P35 Harold needs to go to toilet
PRECONDITIONS

P31 Some guests are ill

ACTION

A25
Guests complain about bad drinks/food

EFFECTS

ADD

P10 Raise Silvertoes anger by 1

DELETE
PRECONDITIONS

P31  Some guests are ill
P32  Toilet is occupied

ACTION

A26  Guests complain about occupied toilet

EFFECTS

ADD

DELETE
PRECONDITIONS

P37 Some guests are drenched

ACTION

A27
Guests complain about wet clothes

EFFECTS

ADD
P10 Raise Silvertoes anger by 1

DELETE
**PRECONDITIONS**

P18 Extinguish with garden hose

**ACTION**

A28 The garden hose gets out of control

**EFFECTS**

**ADD**
- P23 Poodle is drenched
- P37 Some guests are drenched

**DELETE**
- P09 Poodle is burning
- P18 Extinguish with garden hose
- P07 Someone burns
PRECONDITIONS

P19 Extinguish with bucket

ACTION

A29
Harold tries to fill bucket, accidentally turns on lawn sprinklers

EFFECTS

ADD
P23 Poodle is drenched
P37 Some guests are drenched

DELETE
P09 Poodle is burning
P19 Extinguish with bucket
P07 Someone burns
**PRECONDITIONS**

P20 Extinguish with pool

**ACTION**

A30

Poodle falls into pool

**EFFECTS**

**ADD**

P23 Poodle is drenched

**DELETE**

P09 Poodle is burning

P20 Extinguish with pool

P07 Someone burns
PRECONDITIONS

P21 Extinguish with pond

ACTION

A31
Poodle falls into pond

EFFECTS

ADD
P23 Poodle is drenched
P41 Poodle is in pond

DELETE
P09 Poodle is burning
P21 Extinguish with pond
P07 Someone burns
PRECONDITIONS

P38 Poodle in danger

ACTION

A32
Harold jumps into water to rescue the poodle

EFFECTS

ADD
P39 Poodle is saved
P29 Woman thankful

DELETE
P38 Poodle in danger
P41 Poodle is in pond
PRECONDITIONS

P38 Poodle in danger

ACTION

A33
Harold waits what happens with the poodle

EFFECTS

ADD

P40 Poodle loses tail
P10 Raise Silvertoes anger by 1

DELETE

P38 Poodle in danger
P41 Poodle is in pond

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**PRECONDITIONS**

P16  Wait for fire  
P09   Poodle is burning

**ACTION**

A34  
Poodle jumps into pond

**EFFECTS**

**ADD**

P23  Poodle is drenched  
P41   Poodle is in pond

**DELETE**

P09   Poodle is burning  
P21    Extinguish with pond  
P07    Someone burns
PRECONDITIONS

P41 Poodle is in pond

ACTION

A35
Hidden alligators emerge

EFFECTS

ADD
P38 Poodle in danger

DELETE
**PRECONDITIONS**

P42 Woman loves Sinatra music

**ACTION**

A36 Harold tries to get on stage to sing

**EFFECTS**

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P43 Going on stage</td>
<td></td>
</tr>
</tbody>
</table>
PRECONDITIONS

P43  Going on stage

ACTION

A37
Harold stumbles over cables and damages them

EFFECTS

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P44 On stage</td>
<td>P43 Going on stage</td>
</tr>
<tr>
<td>P45 Damaged electric cables</td>
<td></td>
</tr>
</tbody>
</table>
**PRECONDITIONS**

P44 On stage

**ACTION**

A38
Harold pushes vocal singer away and sings terribly wrong

**EFFECTS**

**ADD**

P46 Vocal singer is falling

**DELETE**

P44 On stage  
P42 Woman loves Sinatra music  
P29 Woman thankful

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**PRECONDITIONS**

P45 Damaged electric cables  
P46 Vocal singer is falling

**ACTION**

A39  
Vocal singer gets an electric shock

**EFFECTS**

<table>
<thead>
<tr>
<th>ADD</th>
<th>DELETE</th>
</tr>
</thead>
</table>
| P10 Raise Silvertoes anger by 1 | P46 Vocal singer is falling  
P45 Damaged electric cables |
**PRECONDITIONS**

P45 Damaged electric cables
P37 Some guests are drenched

**ACTION**

A40
Some guests get an electric shock

**EFFECTS**

**ADD**

P10 Raise Silvertoes anger by 1

**DELETE**

P45 Damaged electric cables
General Proposition Cards
P01  Bored woman

P02  Woman has cigarette in hand

P03  Cigarette is not lit

P04  Cigarette is lit

P05  Fire is spread

P06  Poodle is present
PROPOSITION
P07 Someone burns

PROPOSITION
P08 Woman has no drink in hand

PROPOSITION
P09 Poodle is burning

PROPOSITION
P10 Raise Silvertoes anger by 1

PROPOSITION
P11 Silvertoes anger level 0

PROPOSITION
P12 Silvertoes anger level 1
P13  Silvertoes anger level 2

P14  Silvertoes anger level 3

P15  Try to extinguish fire

P16  Wait for fire

P17  Extinguish with floor vase

P18  Extinguish with garden hose
PROPOSITION
P19  Extinguish with bucket

PROPOSITION
P20  Extinguish with pool

PROPOSITION
P21  Extinguish with pond

PROPOSITION
P22  Try to choke fire

PROPOSITION
P23  Poodle is drenched

PROPOSITION
P24  Pee in floor vase
P25  Poodle smells awfully

P26  Try to get hot punch

P27  Drinks contaminated

P28  Hot punch

P29  Woman thankful

P30  Some time passes
P31 Some guests are ill

P32 Toilet is occupied

P33 Toilet is available

P34 Harold is thirsty

P35 Harold needs to go to toilet

P36 Pee in floor vase
P37 Some guests are drenched

P38 Poodle in danger

P39 Poodle is saved

P40 Poodle looses tail

P41 Poodle is in pond

P42 Woman loves Sinatra music
PROPOSITION

P43 Going on stage

PROPOSITION

P44 On stage

PROPOSITION

P45 Damaged electric cables

PROPOSITION

P46 Vocal singer is falling
Initial Proposition Cards
P01  Bored woman

P02  Woman has cigarette in hand

P03  Cigarette is not lit

P06  Poodle is present

P08  Woman has no drink in hand

P11  Silvertoes anger level 0
P33 Toilet is available

P34 Harold is thirsty
Goal Proposition Card
GOAL STATE

P14  Silvertoes anger level 3