
Pragbot II Corpus: Collection and Syntactic Annotation

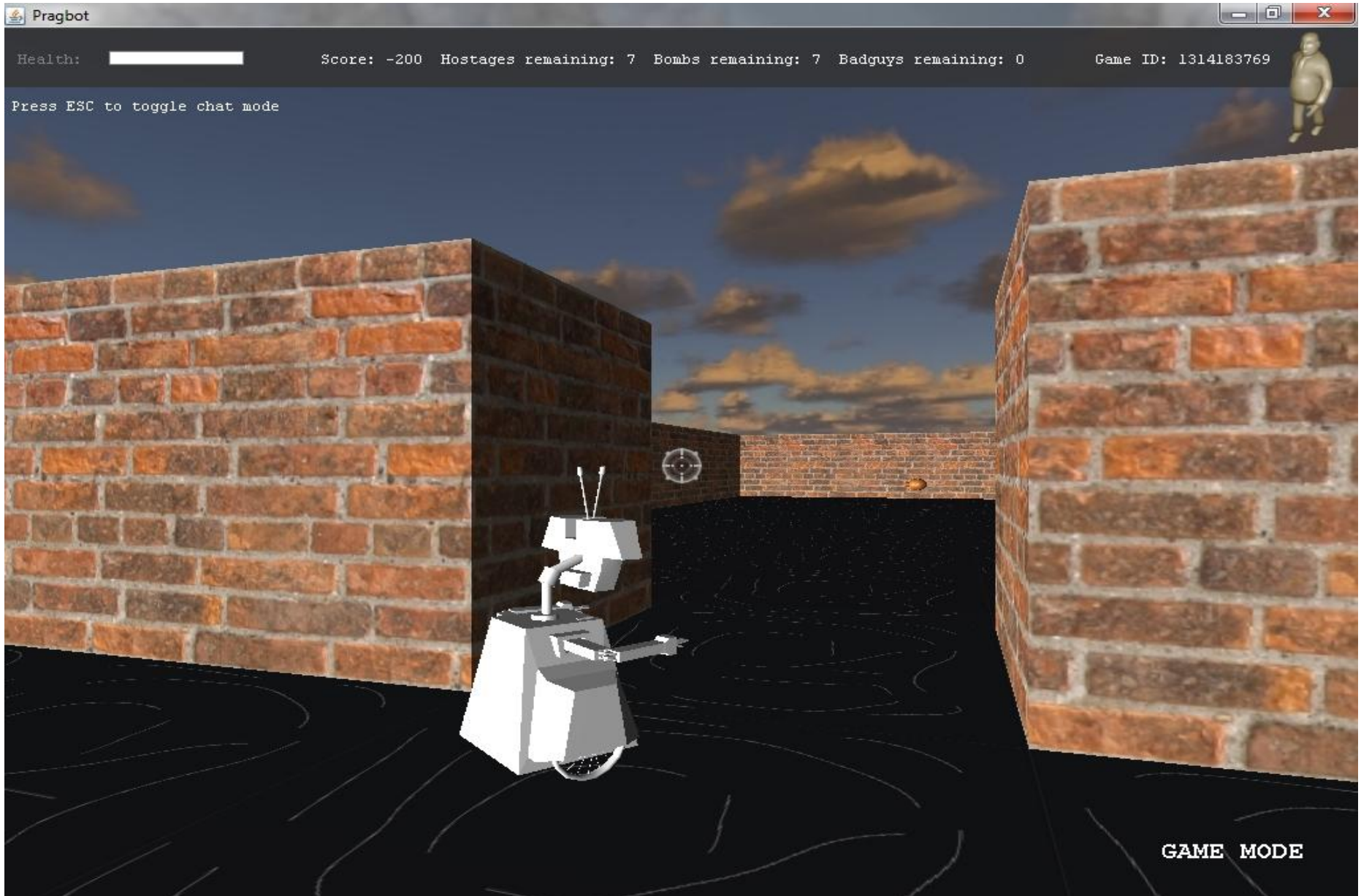
Oct 2012 Review

Mitch Marcus & Ariel Diertani

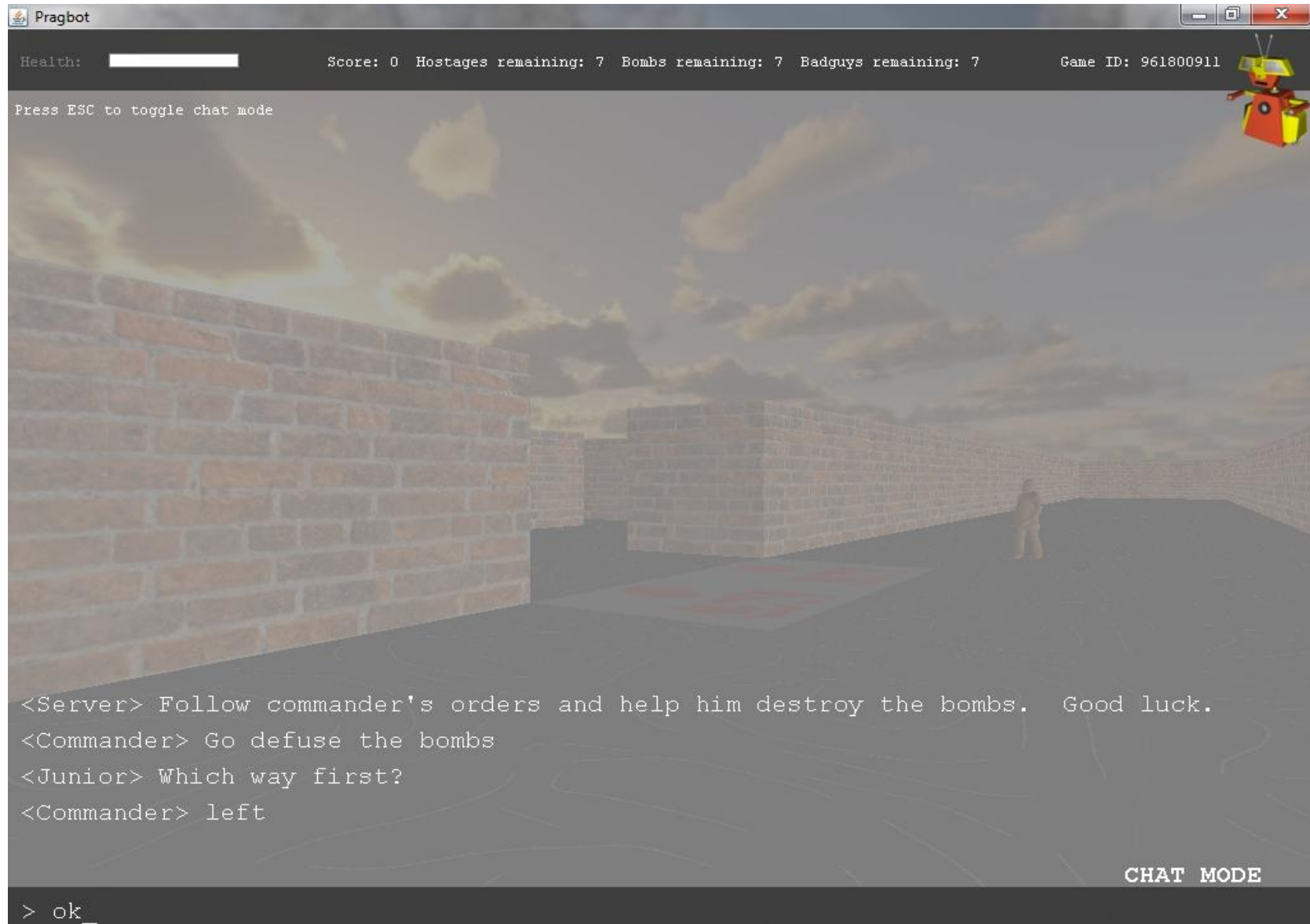
Pragbot 2 gameplay

- Two players coordinating to *contain* and destroy badguys
- Rescue hostages, defuse bombs, keep Commander alive, keep Junior functioning
- Players have to develop a strategy to keep the badguys from escaping

Pragbot 2.2 user interface



Pragbot 2.2 chat interface



More on Gameplay

- Locations of badguys, hostages and bombs are randomized before every session.
 - Expert effects
 - Data is more generalized
- Badguys exhibit goal-oriented behavior
 - Actively avoid Commander
 - Aggressively attempt to disable Junior
 - A* path-finding algorithm
- New user interface gives better feedback about how their actions alter the environment
 - Score
 - Reticle
 - Health indicator

MTurk: How the participants find us

All HITs

1-10 of 1177 Results

Sort by: HIT Creation Date (newest first) GO!

Show all details | Hide all details

<u>EC Native Speaker</u>			
Requester: Jonathan Marston	HIT Expiration Date: Oct 23, 2011 (2 days 23 hours)	Reward: \$0.01	HITs Available: 4
	Time Allotted: 2 hours 30 minutes		
<u>A Survey about Your Basic Mathematical Skills (A 10 seconds questionnaire)</u>			
Requester: Ling-Jyh Chen	HIT Expiration Date: Oct 27, 2011 (6 days 23 hours)	Reward: \$0.03	HITs Available: 341
	Time Allotted: 24 hours		
<u>A Survey about Your Basic Mathematical Skills (A 1 minutes questionnaire)</u>			
Requester: Ling-Jyh Chen	HIT Expiration Date: Oct 27, 2011 (6 days 23 hours)	Reward: \$0.03	HITs Available: 318
	Time Allotted: 24 hours		
<u>Play a video game: Rescue hostages! Transcript will be used for linguistics research.</u>			
Requester: Mitchell Marcus	HIT Expiration Date: Oct 27, 2011 (6 days 23 hours)	Reward: \$1.00	HITs Available: 4
	Time Allotted: 10 hours		
<u>A Survey about Your Basic Mathematical Skills (A 30 seconds questionnaire)</u>			
Requester: Ling-Jyh Chen	HIT Expiration Date: Oct 27, 2011 (6 days 23 hours)	Reward: \$0.03	HITs Available: 343
	Time Allotted: 24 hours		
<u>A Survey about Your Basic Mathematical Skills (A 10 seconds questionnaire)</u>			

Data Collection, Phase I

- Data collected on Mechanical Turk for 2 2-week periods
 - \$1 for each game played.
 - Restricted to US participants only, at least 18 years old
- Criterion for payment:
 - Meaningful communication
 - Positive score
 - \$0.50 bonus for rich communication or a good score
- Subcorpus:
 - 269 non-trivial transcripts, 136 completed sessions
 - 12,600 words in July, 6,000 words in October
 - Many participants with negative scores had rich interactions

Data Collection, Phase II

- Data collected using a group of gamers
 - Some participants played through M-Turk; others did not
 - Also included regular M-Turkers
 - Session lasted for two hours
 - Still US participants only, at least 18 years old
- More difficult conditions
 - Game was altered so that participants lost if more than one badguy escaped
- Subcorpus:
 - 5000 words produced
 - On average, richer interactions

Sample Transcript

<Commander> Hello
<Junior> hi
<Junior> ready?
<Commander> Yes im ready now
<Junior> ok
<Commander> My name is steve. whats yours?
<Junior> jim
<Commander> cool. nice to meet you
<Junior> nice to meet you too
<Commander> lets start by following the right wall.
<Commander> does that make sense?
<Junior> ok
<Commander> go into the hallway to your right
and tell me what you see
<Commander> what do you see?
<Junior> one bad guy but he disappeared
<Commander> any bombs?
<Junior> no the bad guy flipped me over I'm stuck
<Commander> on my way, you followed the your
right wall correct?
<Commander> i cleared the bad guy
<Junior> i followed the right wall then i saw the
bad guy on the left
<Commander> is the room to your right clear?
<Junior> as far as i can see yes

<Junior> thanks
<Commander> continue to the next room on your right
<Junior> nothing here
<Commander> okay, exit the room and continue right
down the hallway and
<Commander> enter the next room to your right
<Commander> report what you see
<Junior> hostage and bomb
<Commander> is the bomb defused?
<Junior> yes
<Commander> nice work i will enter and save hostage
<Junior> what just happened
<Commander> i dont know i was hit
<Commander> exit that room and continue to the hallway
<Commander> when in the hallway enter the next room
on your right
<Junior> which way from here
<Commander> to your right
<Commander> see anything?
<Junior> empty
<Commander> exit and work the next room to your right
<Commander> see anything?
<Junior> hostage is here i destroyed bomb
<Commander> any other bombs left?
<Junior> no

Annotation: Overview

- Approximately 25,000 words
- Conversations are tokenized
 - Orthographical conventions regarding words do not always reflect underlying syntax and must be adjusted
 - Non-standard punctuation was edited
 - Absence of punctuation can lead to ambiguity with regard to sentence boundaries
- Each word is give a tag indicating part-of-speech
- Conversations are parsed
 - Initial parse is done using Bikel parser followed by Gabbard's null element restoration
 - Parses are then hand-corrected

Annotation: Part-of-Speech Tags

- Transcript:
 - `<Commander>` lets start by following the right wall.
- Part-of-speech tagging
 - Penn Treebank annotation conventions are used
 - All word and punctuation tokens receive a tag
 - Meta-material is tagged CODE
- After pos-tagging:
 - `<Commander>/CODE let/VB s/PRP start/VB by/IN following/VBG the/DT right/JJ wall/NN ./.`

Annotation: Parsing

- Parsing output

```
( (S (CODE Commander-184685)
  (NP-SBJ (-NONE- *))
  (VP (VB Let)
    (NP-o (PRP 's))
    (VP (VB start)
      (PP-MNR (IN by)
        (S-NOM (NP-SBJ-o (-NONE- *))
          (VP (VBG following)
            (NP (DT the)
              (JJ right)
              (NN wall))))))))))
(. .)))
```

- Corrected Parse

```
( (S-IMP (CODE Commander-184685)
  (NP-SBJ (-NONE- *PRO* ))
  (VP (VB Let)
    (S (NP-SBJ (PRP 's))
      (VP (VB start)
        (PP-MNR (IN by)
          (S-NOM (NP-SBJ (-NONE- *PRO*))
            (VP (VBG following)
              (NP (DT the)
                (JJ right)
                (NN wall))))))))))
(. .)))
```

Future Plans

- Release of first installation of annotated corpus in about a month
 - Sanity checks for errors and inconsistencies underway
- Annotation, Phase II
 - 16,000-17,000 words of raw data ready for annotation
 - Collected in three sessions under the newer conditions
- Collection of new data under new conditions
 - Pending IRB renewal
 - Data collection under simulation of final evaluation conditions & new situations of increased difficulty

Thanks!