# Psychomotor Vigilance Task

CK Note: recreated the gaps used in the Empirical study in the PVT ACE instructions that currently work with the UAgent. Manual updating can be done in run.py – to test these gaps set do\_gaptest=1, and gap\_name to the gap you want to test.

Streamlined way to test from the console (note: currently hardcoded to get the file from tasks/pvt/gaptests/ directory).

**bash gaptest.sh GAPNAME** (e.g. bash gaptest.sh pvtgap\_lexical1)

When run 3 logs are made in /data/logs/

1) think logfile (filename will be gap\_name + current timestamp)

2) interpreter-logfile

3) console-logfile (this includes all the ontology queries, but does capture any errors thrown!)

note: currently, if the program is interrupted (error, etc), it will not rename the base “interpreter-logfile.txt” or “console-logfile.txt” to include the gap tested

## Original Instructions (pvtgap\_original; identical to pvt/ace.txt)

* p:psychomotor-vigilance is a task.
* There is a screen that is in the task.
* The n:space\_bar is a button and is in the task.
* There is a subject that is in the task.
* There is a letter that is in the task.
* If a subject is in the task then the task is active.
* If the task is active then a letter appears on the screen.
* If the letter appears on the screen then the subject presses the n:space\_bar.

## Lexical Gaps

* **pvtgap\_lexical1** – using rare lexical variants;
* Outcome: Instructions are processed without error, but UA doesn't perform task correctly. Checks for 'stimulus', but never finds it (as the PVT environment displays 'letter'), and thus never responds, even when it should.
  + p:psychomotor-vigilance is a task.
  + There is a screen that is in the task.
  + The n:space\_bar is a button and is in the task.
  + There is a subject that is in the task.
  + There is a **stimulus** that is in the task.
  + If a subject is in the task then the task is active.
  + If the task is active then a **stimulus** appears on the screen.
  + If the **stimulus** appears on the screen then the subject presses the n:space\_bar.
* **pvtgap\_lexical2** – using nonexisting words;
* Outcome: interpreter soft-fails; the program still runs, but basically nothing is processed into the proper rules to be used by the UA
  + p:psychomotor-vigilance is a task.
  + There is a screen that is in the task.
  + The n:space\_bar is a button and is in the task.
  + There is a subject that is in the task.
  + There is a **slook** that is in the task.
  + If a subject is in the task then the task is active.
  + If the task is active then a **slook** appears on the screen.
  + If the **slook** appears on the screen then the subject presses the n:space\_bar.

## Context Gaps

* **pvtgap\_context1** – absent screen (likely inferred)
* Outcome: UA performs the task as desired. The UA doesn't attempt to differentiate different sources or contexts of stimuli yet; it just checks the current visuals, which are the screen by default. We want to add that functionality in the near future, to start multi-tasking
  + p:psychomotor-vigilance is a task.
  + ~~There is a screen that is in the task.~~
  + The n:space\_bar is a button and is in the task.
  + There is a subject that is in the task.
  + There is a letter that is in the task.
  + If a subject is in the task then the task is active.
  + If the task is active then a letter appears ~~on the screen~~.
  + If the letter appears ~~on the screen~~ then the subject presses the n:space\_bar.
* **pvtgap\_context2** – no response reference (“how do I respond?”)
* Outcome: UA does not recognize 'respond' as an action it knows how to take (there is no action function 'respond' defined), so it never attempts to respond.
  + p:psychomotor-vigilance is a task.
  + There is a screen that is in the task.
  + ~~The n:space\_bar is a button and is in the task.~~
  + There is a subject that is in the task.
  + There is a letter that is in the task.
  + If a subject is in the task then the task is active.
  + If the task is active then a letter appears on the screen.
  + If the letter appears on the screen then the subject **responds.**
* **pvtgap\_context3**– no connection between the response and the letter (will likely be inferred)
* Outcome: the 'subject presses the space\_bar' instruction never makes it into the ground\_rules which the UA processes during the task; accordingly it never responds.
  + p:psychomotor-vigilance is a task.
  + There is a screen that is in the task.
  + The n:space\_bar is a button and is in the task.
  + There is a subject that is in the task.
  + There is a letter that is in the task.
  + If a subject is in the task then the task is active.
  + If the task is active then a letter appears on the screen.
  + ~~If the letter appears on the screen then~~ the subject presses the n:space\_bar.