AIWolf Protocol Specification (Ver 3.6, 2019, English Translation)

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For AIWolf server version 5

This file describe the accepted sentence structure and content for the Protocol Division of the AIWolf Competition.

1. Words:

A word is a unit of meaning. It can be one of the following:

- *[subject]*: an agent identifier (ex: Agent1), or UNSPEC (ommited), or ANY
- *[target]*: an agent identifier, or ANY (undefined)
- *[role]*: one of the 6 valid roles (VILLAGER, SEER, MEDIUM, BODYGUARD, WEREWOLF, POSSESSED) or ANY
- *[species]*: one of the 2 valid teams (HUMAN, WEREWOLF) or ANY
- *[verb]*: one of 15 valid verbs (specified below)
- *[talk number]*: unique id for each sentence (composed of [day number] and [talk id])

If ANY is specified for any of [subject][target][role][species], it means that it can refers to any of the valid options in each set of [subject][target][role][species].

2. Sentence:

There are 13 types of sentence. Each sentence is composed of multiple words.

2.1. Sentences that express knowledge or intent (2 types)

[subject] ESTIMATE [target] [role]: The [subject] suggests that the [target]'s role is [role]

[subject] COMINGOUT[target] [role]: The [subject] states that the [target]'s role is [role]

2.2. Sentences about actions of the Werewolf game (4 types)

[subject] DIVINATION [target]: The [subject] divines the [target]
[subject] GUARD [target]: The [subject] guards the [target]
[subject] VOTE [target]: The [subject] votes on the [target]
[subject] ATTACK [target]: The [subject] attacks the [target]

2.3. Sentences about the result of past actions (5 types)

[subject] DIVINED [target][species]:
The [subject] used the seer's action on living [target] and obtained the result [species]
[subject] IDENTIFIED [target][species]:
The [subject] used the medium's action on dead [target] and obtained the result [species]
[subject] GUARDED [target]: The [subject] guarded the [target]
[subject] VOTED [target]: The [subject] voted on the [target]

[subject] ATTACKED [target]: The [subject] attacked the [target]

2.4. Sentences that express agreement or disagreement (2 types)

[subject] AGREE [talk number]
[subject] DISAGREE [talk number]

2.5. Sentences related to the flow of the conversation (2 types)

OVER: "I have nothing else to say" – implies agreement to terminate current day of conversation
SKIP: "I have nothing to say now" – implies desire to continue the current day of conversation

NOTE: The two sentences above can only be used as single statements, never nested in other statements.

3. Operator:

There are 8 types of operators. Each operator is used to frame sentences and express their relationships.

3.1. Operators for directed requests of action and information (2 types)

[subject] REQUEST [target] ([sentence]):

[subject] requests that [target] acts according to [sentence], or acts so that the state of [sentence] is achieved. If the sentence uses ANY in its composition, then any appropriate expansion of ANY is acceptable as the object of the REQUEST.

[subject] INQUIRE [target] ([sentence]):

[subject] questions [target] about [sentence]. If ANY is not used in the sentence, [target] is simply being asked if it agrees with the sentence or not. If ANY is used in the sentence, [target] is being asked to reply with the appropriate word to replace ANY.

3.2. Reasoning Operators (1 type)

[subject] BECAUSE ([sentence1]) ([sentence2])

[subject] states that [sentence1] is the reason for [sentence2]

3.3. Time indication Operators (1 type)

[subject] DAY [day_number] ([sentence]): Subject indicates that [sentence] took place on [day_number]. (Note: Good for using along with BECAUSE)

3.4. Logic Operators: (4 types)

[subject] NOT ([sentence]): Negate the [sentence]
[subject] AND ([sentence1])([sentence2])([sentence3])…: Claims that all sentences are true

[subject] OR ([sentence1])([sentence2])([sentence3])…: Claims that at least one sentence is true.
[subject] XOR ([sentence1])([sentence2]): Claims that either sentence1 or sentence 2 is true.

4. Grammar Notes:

- An agent's statement can be composed of one or more sentences.
- More than one sentences can be separated by parentheses
- Sentences can be prefaced by an operator.
- The type of operator defines what type of word or sentence should follow it.
- Sentences following an operator should be delimited by parenthesis.

4.1 About omitting subjects (UNSPEC)

It is possible to omit the [subject] of a sentence (using UNSPEC). In cases where omitting the [subject] does not change the meaning of the sentence, we recommend that the [subject] is omitted. However, note that every agent should be able to interpret sentences in full or shortened format.

When [subject] is omitted, if the sentence is in the widest scope (when the sentence comes at the beginning of the agent's statement), the omitted [subject] should be interpreted to be the same as the speaking agent. If the [subject] is in a sentence on a narrower scope (a nested sentence), the interpretation of the omitted [subject] depends on the type of the parent sentence.

- REQUEST, INQUIRE: omitted [subject] is to be interpreted to be the same as the [target] of the parent sentence.
- Other cases: omitted [subject] is to be interpreted to be the same as the [subject] of the parent sentence.

5. Example Sentences

"COMINGOUT Agent1 SEER": The speaker declares that Agent1 is a seer.

"Agent1 COMINGOUT Agent1 SEER": Agent1 declares that Agent1 is a seer.

"DIVINED Agent1 HUMAN": The speaker has at some point used the seer's ability on Agent1, and obtained the "Human" result.

"Agent1 DIVINED Agent2 WEREWOLF": Agent1 has at some point used the seer's ability on Agent2, and obtained the "Werewolf" result.

"REQUEST Agent2 (DIVINATION Agent3)": The speaker desires that Agent2 uses the seer's ability on Agent3. (Note, this is identical to "REQUEST Agent2 (Agent2 DIVINATION Agent3)"

"GUARD Agent2": The speaker will use the Bodyguard's ability on Agent2

"Agent1 REQUEST Agent2 (GUARD Agent3)": Agent1 desires that Agent2 uses the Bodyguard Role's ability on Agent3.

5.1. Interpretation of REQUEST sentences:

* Requesting the agreement of other agents:

“REQUEST Agent1 (ESTIMATE Agent2 [role])”: The speaker is asking that Agent1 change their mind about Agent2, and consider them to be [role]. (Ex: Alice, would you consider that Bob might be a Werewolf?)

“REQUEST ANY (ESTIMATE Agent1 [role])”: The speaker is asking that anyone change their mind about Agent1, and consider them to be [role]. (Ex: Everyone! You should believe that Anna is a Werewolf!)

“REQUEST Agent1 (COMINGOUT Agent2 [role])”: The speaker requests that agent1 declares agent2 to be [role]. This is particularly useful when werewolves are discussing strategy during the night negotiation period.

“REQUEST ANY (COMINGOUT Agent1 [role])”: The speaker requests that someone declare agent1 to be [role]. This is particularly useful when werewolves are discussing strategy during the night negotiation period.

* Requesting game actions:

“REQUEST Agent1 (DIVINATION Agent2)”: The speaker requests that Agent1 uses the Seers’ divination action on Agent2.

“REQUEST ANY (DIVINATION Agent1)”: The speaker requests that anyone who is a Seer to use their divination action on Agent1

“REQUEST Agent1 (GUARD Agent2)”: The speaker requests that Agent1 uses the Bodyguard’s protection ability on Agent2

“REQUEST ANY (GUARD Agent1)”: The speaker requests that anyone who is a Bodyguard to use their protection ability on Agent1

“REQUEST ANY (VOTE Agent1)”: The speaker request that anyone vote on Agent1 (ex: Let’s all vote on agent1!)

“REQUEST Agent1 (ATTACK Agent2)”: The speaker request that Agent1 uses the werewolf kill ability on Agent2. This is particularly useful when werewolves are discussing strategy during the night negotiation period.

* Requesting an assumed result of actions:

“REQUEST Agent1 (DIVINED Agent2 [species])”
“REQUEST Agent1 (GUARDED Agent2)
“REQUEST ANY (IDENTIFIED Agent1 [species])”

In these sentences, the speaker is requesting that Agent 1 (or any agent, in the last case) behave as if they had performed and received the respective result for a role’s special action (Divined, Guarded, or Identified). This is particularly useful for werewolves who wish to coordinate lies about having particular roles during the night negotiation period. (Ex: “Agent2, you should pretend that you are a

Seer, and that you divined that Agent1 (Me) is a Villager").

* Examples of agreement request:

"REQUEST Agent1 (AGREE [talk number])": Speaker is requesting that Agent1 agree with the statement specified by [talk number].

"REQUEST ANY (DISAGREE [talk number])": Speaker is requesting that everyone disagree with the statement specified by [talk number]. (Ex: Everyone, please disregard talk number X)

5.2. Interpretation of BECAUSE sentences:

"Agent2 BECAUSE (DAY 1 (Agent1 VOTE Agent2)) (vote Agent1)": Because Agent1 voted on Agent2 (myself) on Day 1, I will vote on Agent1.

5.3. Interpretation of INQUIRE sentences:

"Agent2 INQUIRE Agent1 (VOTED ANY)": Agent2 wants to know who Agent1 voted against.

"Agent2 INQUIRE Agent1 (VOTE ANY)": Agent2 wants to know who Agent1 will vote against.

"Agent2 INQUIRE Agent1 (ESTIMATE Agent2 WEREWOLF)": Agent2 wants to know if Agent1 considers Agent2 (itself) to be an werewolf.

5.4. Interpretation of ANY sentences:

The ANY word is equivalent to expanding all possible substitutions, and connecting them using the OR operator. For example:

"Agent2 INQUIRE Agent1 (VOTED ANY)" is equivalent to:
"Agent2 INQUIRE Agent1 (OR (VOTED Agent1) (VOTED Agent2) (VOTED Agent3) …)

"REQUEST ANY (DIVINED [agent] [species])" is equivalent to:
OR (REQUEST Agent1 (DIVINED [agent] [species])) (REQUEST Agent2 (DIVINED [agent] [species])) ...