In [1]:

```
import numpy as np
import pandas as pd
```

Alpha_beta search as baseline:

Principle variation search as option:

Use fair_match:True

In [2]:

```
df = pd.DataFrame({'vs GREEDY': ["100%", "97.5%"],
                   'vs MINIMAX': ["83.5%", "49.0%"]},
                  index=['Alpha-beta search', 'Principle variation search'])
df
```

Out[2]:

	vs GREEDY	vs MINIMAX
Alpha-beta search	100%	83.5%
Principle variation search	97.5%	49.0%

In [3]:

```
df = pd.DataFrame({'-t = 75': ["78.0%", "49.0%"],
                   '-t = 150': ["83.5%", "49.0%"],
                   '-t = 300': ["77.0%", "49.0%"],},
                  index=['Alpha-beta search', 'Principle variation search'])
df
```

Out[3]:

	-t = 150	-t = 300	-t = 75
Alpha-beta search	83.5%	77.0%	78.0%
Principle variation search	49.0%	49.0%	49.0%

In [4]:

```
df = pd.DataFrame({'depth_limit = 50': ["81.0%", "45.0%"],
                   'depth_limit = 100': ["80.0%", "44.0%"],},
                  index=['Alpha-beta search', 'Principle variation search'])
df
```

Out[4]:

	depth_limit = 100	depth_limit = 50
Alpha-beta search	80.0%	81.0%
Principle variation search	44.0%	45.0%

Q:

Choose a baseline search algorithm for comparison (for example, alpha-beta search with iterative deepening, etc.). How much performance difference does your agent show compared to the baseline?Q:Choose a baseline search algorithm for comparison (for example, alpha-beta search with iterative deepening, etc.). How much performance difference does your agent show compared to the baseline?

A:

baseline: alpha_beta search against MINIMAX.

The result is not what expected. Not concerning with '-t' or 'depth_limit', the win rate is like the tables.

Q:

Why do you think the technique you chose was more (or less) effective than the baseline?

A:

Principle variation search is supposed to search and prune more effectively.

In other hand, principle variation search is said that it occurs many recursions and takes time to search.

So I tried under some different conditions; ex. depth lilmit, time limit, etc.