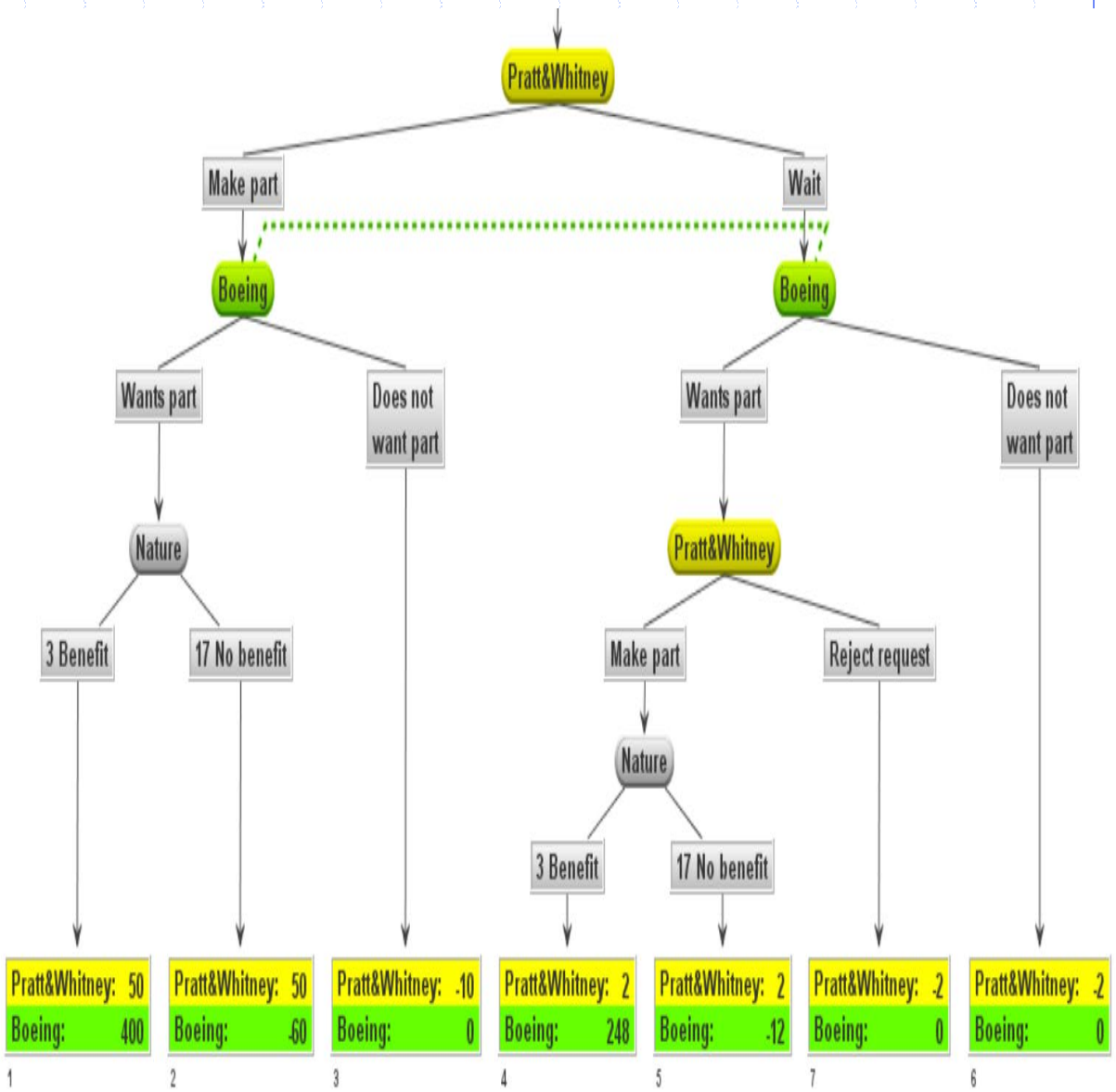
Session 2.2
Just in Time?

This session uses the techniques developed in the second lecture to show how parts of game can be folded back into a reduced simultaneous move game. The reduced game can be written in bi-matrix form and easily solved. The example illustrates a problem that Boeing has faced for years with its outsourcing strategies.

The payoffs to Pratt and Whitney

- In this game the payoffs to Pratt and Whitney from making the part are much higher (50) than for any other outcome (<3) if:
  - Pratt and Whitney make part
  - and Boeing wants the part.

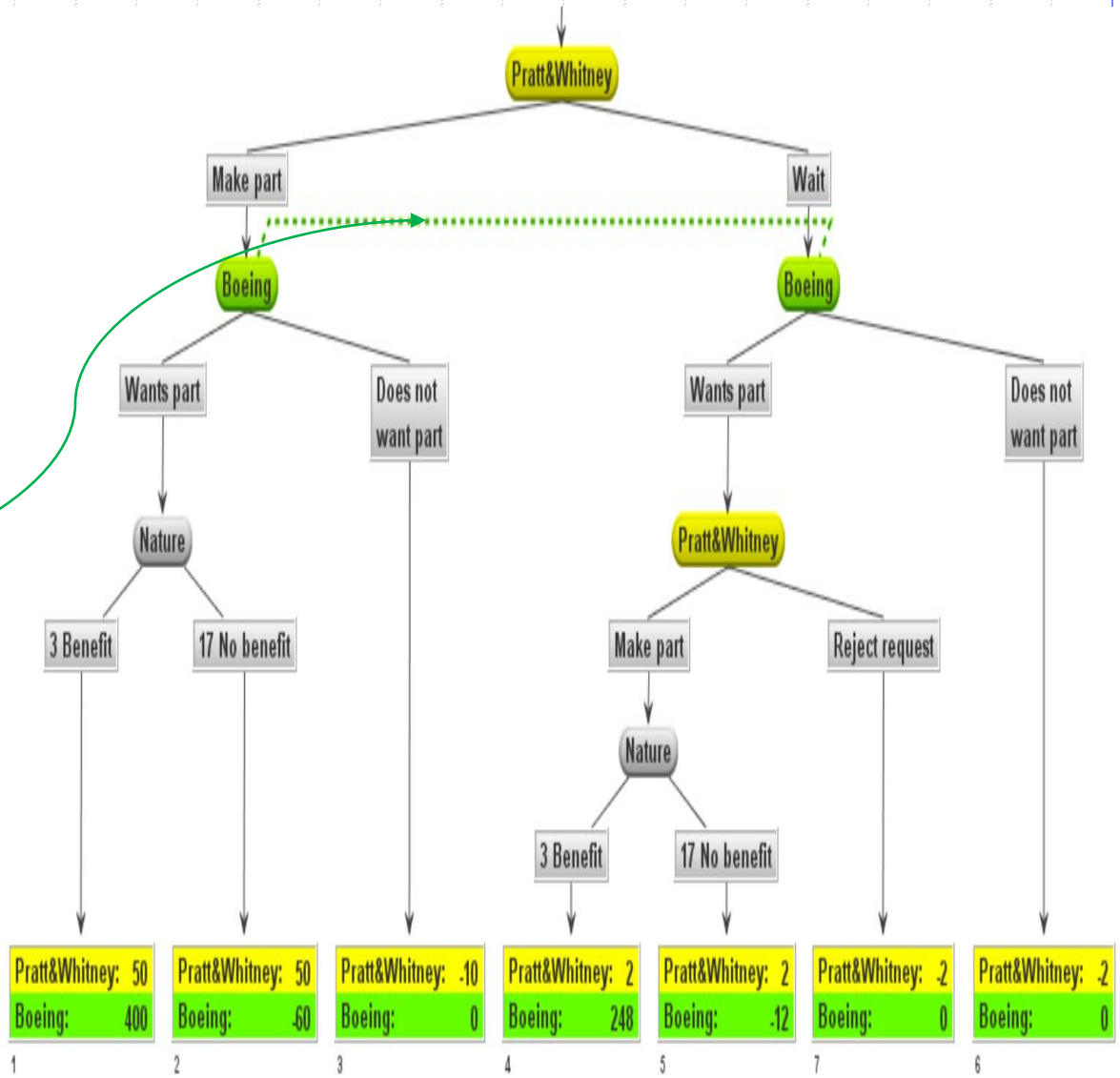


Information: What do they know?

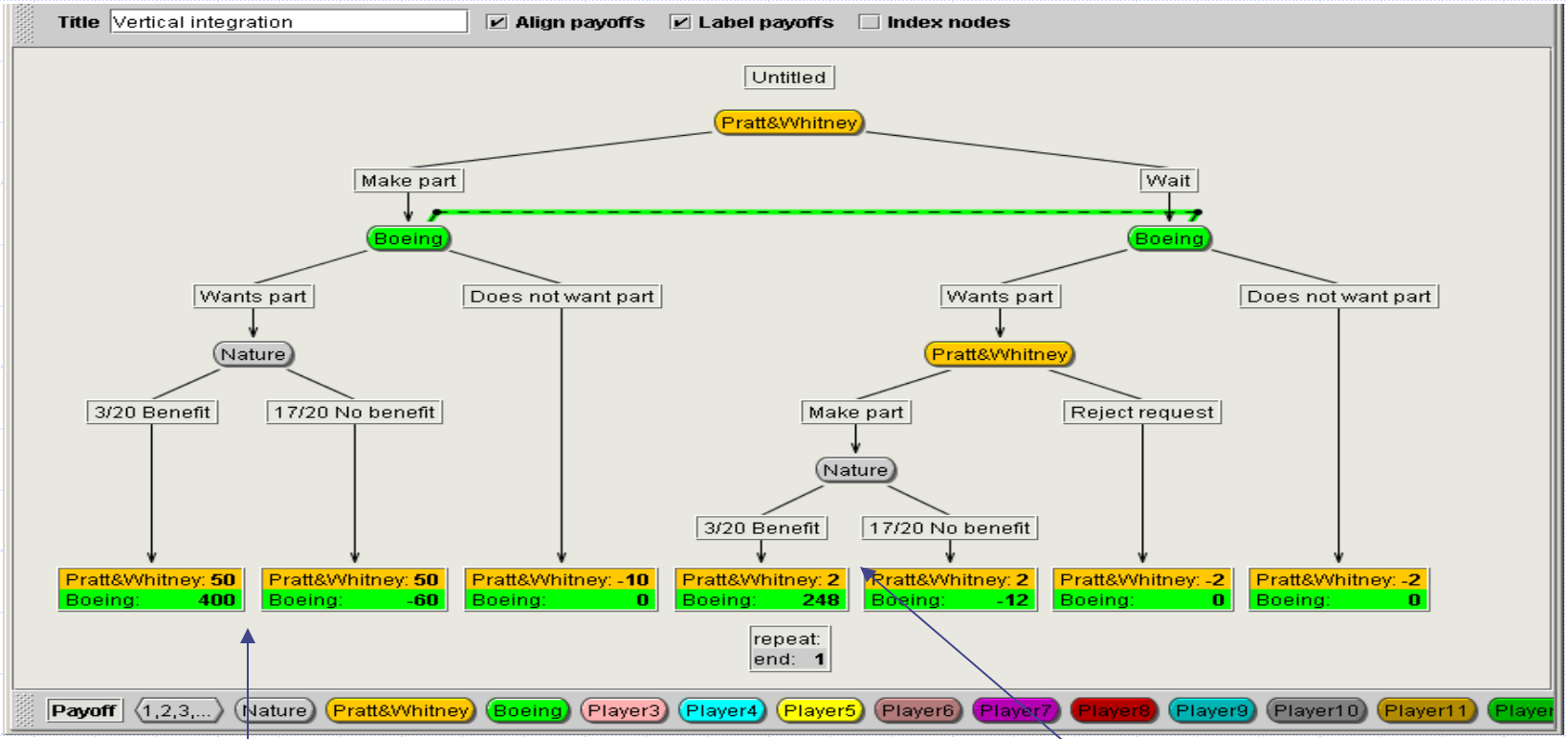
- Each non-terminal decision node is associated with an information set.
- If a decision node is not connected to a dotted line, the player assigned to the node knows the partial history.
- If two nodes are joined by a dotted line, they belong to the same information set, and the two sets of branches emanating from them, which define the player's choice set, must be identical.
- A player cannot distinguish between partial histories leading to nodes that belong to the same information set.

Boeing has a single information set

- Boeing chooses between:
  - wanting the part
  - or not.
- The *green* dotted line indicates that Boeing does not know what Pratt and Whitney has done when Boeing makes its choice.



Just in time



3/20*50+17/20*50=50

3/20*400-17/20*60=9

3/20*2+17/20*2=2

3/20*248-17/20*12=27

Strategic form for the reduced game

Folding the solution of the subgame into the extensive form, we see the resulting is a 2 by 2 simultaneous move game with the strategic form depicted.