Philosophy 220

An example from “There Are No Ties At First Base” by Ted Cohen, printed in Baseball and Philosophy Ed. Eric Bronson pp.73-86

Tie goes to the runner

- Often in a baseball or softball game, if the ball and the runner both arrive at first base at the same time or nearly the same time, you'll hear people say "Tie goes to the runner".
- That the tie should favor the runner has become a common convention of baseball play. But what do the rules say?

Rule 6.05(j)

- *A batter is out when after a third strike or after he hits a fair ball, he or first base is tagged before he touches first base.*
- This rule is in the section of the baseball rule book that has to do with batters, and the conditions under which they are put out.
- It does indeed indicate that a tie would favor a runner at first base.

Rule 7.08(e)

- *Any runner is out when he fails to reach the next base before a fielder tags him or the base, after he has been forced to advance by reason of the batter becoming a runner.*
- This rule is in the section dealing with base runners, and indicates that at second, third, or home, a tie favors the fielder.
- This is odd, but not problematic…until…

Rule 6.09(a)

- *The batter becomes a runner when he hits a fair ball.*
- So what happens at first base in the event of a tie? If the runner is out and the batter is safe, and this rule makes a player a batter and a runner, then it would seem as if the rules were inconsistent.
- Let’s check.

Simplifying the rules:

- Let’s remove those parts of the rules with which we are not concerned (we are concerned with ties at the base):
- *A batter is out when after a third strike or after he hits a fair ball, he or first base is tagged before he touches first base.*
- *Any runner is out when he fails to reach the next base before a fielder tags him or the base, after he has been forced to advance by reason of the batter becoming a runner.*
- *The batter becomes a runner when he hits a fair ball.*

Simplifying the rules:

- Let’s remove those parts of the rules with which we are not concerned (we are concerned with ties at the base):
- *A batter is out when the base is tagged before he touches the base.*
- *Any runner is out when he fails to reach the base before a fielder tags the base*
- *The batter becomes a runner when he hits a fair ball.*

The rules formalized:

- Let’s formalize the rules, one at a time.
- *A batter is out when the base is tagged before he touches the base.*
- *Any runner is out when he fails to reach the base before a fielder tags the base*
- *The batter becomes a runner when he hits a fair ball.*

The safe/out conditions for a batter:

- *A batter is out when the base is tagged before he touches the base.*
- The rule means that when the ball does not arrive before the batter, the batter is not out.
  - UD: will be players and things in a baseball game.
  - Bx: x is a batter
  - Ox: x is out
  - Axy: x arrives at the base before y
  - b: the baseball
- $(\forall x)[(Bx \,\&\, {\sim}Abx) \supset {\sim}Ox]$

The safe/out conditions for a runner:

- *Any runner is out when he fails to reach the base before a fielder tags the base*
- The rule means that when the runner does not arrive before the ball, the runner is out.
  - UD: will be players and things in a baseball game.
  - Bx: x is a batter
  - Rx: x is a runner
  - Ox: x is out
  - Axy: x arrives at the base before y
  - b: the baseball
- $(\forall x)[(Rx \,\&\, {\sim}Axb) \supset Ox]$

The conditions for a tie:

- Our third rule establishes that in some cases a batter is a runner, and so we want to know if the rules are inconsistent in the case of a tie. So we must represent the third rule and the conditions for a tie as happening in one particular case. Since we are concerned about what happens when any one batter becomes a runner AND ties at first, we must make this statement an existential…

The conditions for a tie:

- *There is a case in which the batter becomes a runner and that batter ties the ball at the base.*
- One player is a batter and a runner and arrives at the base at the same time as the ball.
  - UD: will be players and things in a baseball game.
  - Bx: x is a batter
  - Rx: x is a runner
  - Ox: x is out
  - Axy: x arrives at the base before y
  - b: the baseball
- $(\exists x)[(Bx \& Rx) \& \sim(Abx \vee Axb)]$

The Formalized Rules:

- $(\forall x)[(Bx \ \& \ {\sim}Abx) \supset {\sim}Ox]$
- $(\forall x)[(Rx \ \& \ {\sim}Axb) \supset Ox]$
- $(\exists x)[(Bx \ \& \ Rx) \ \& \ {\sim}(Abx \vee Axb)]$

- Now let's see if they are consistent:

The Tree:

1. $(\forall x)[(Bx \ \& \ {\sim}Abx) \supset {\sim}Ox]$
2. $(\forall x)[(Rx \ \& \ {\sim}Axb) \supset Ox]$
3. $(\exists x)[(Bx \ \& \ Rx) \ \& \ {\sim}(Abx \vee Axb)]$

Let’s do the existential first so that we can check it off and so that we won’t have to do the universals over again for the constant foreign to the branch…

The Tree:

1. $(\forall x)[(Bx \,\&\, {\sim}Abx) \supset {\sim}Ox]$ SM
2. $(\forall x)[(Rx \,\&\, {\sim}Axb) \supset Ox]$ SM
3. $(\exists x)[(Bx \,\&\, Rx) \,\&\, {\sim}(Abx \vee Axb)]$√ SM
4. $(Ba \,\&\, Ra) \,\&\, {\sim}(Aba \vee Aab)$ $\exists$D

- Now we do 4 because it doesn't branch

The Tree:

1.	$(\forall x)[(Bx \,\&\, {\sim}Abx) \supset {\sim}Ox]$	SM
2.	$(\forall x)[(Rx \,\&\, {\sim}Axb) \supset Ox]$	SM
3.	$(\exists x)[(Bx \,\&\, Rx) \,\&\, {\sim}(Abx \vee Axb)]\surd$	SM
4.	$(Ba \,\&\, Ra) \,\&\, {\sim}(Aba \vee Aab)\surd$	$\exists$D
5.	$Ba \,\&\, Ra$	4 &D
6.	${\sim}(Aba \vee Aab)$	4 &D

- Then we do 5 because it doesn’t branch

The Tree:

1.	(∀x)[(Bx & ~Abx) ⊃ ~Ox]	SM
2.	(∀x)[(Rx & ~Axb) ⊃ Ox]	SM
3.	(∃x)[(Bx & Rx) & ~(Abx v Axb)]√	SM
4.	(Ba & Ra) & ~(Aba v Aab)√	∃D
5.	Ba & Ra √	4 &D
6.	~(Aba v Aab)	4 &D
7.	Ba	5 &D
8.	Ra	5 &D

- Then we do 6 because it doesn't branch

The Tree:

1.	(∀x)[(Bx & ~Abx) ⊃ ~Ox]	SM
2.	(∀x)[(Rx & ~Axb) ⊃ Ox]	SM
3.	(∃x)[(Bx & Rx) & ~(Abx v Axb)]√	SM
4.	(Ba & Ra) & ~(Aba v Aab)√	∃D
5.	Ba & Ra√	4 &D
6.	~(Aba v Aab)√	4 &D
7.	Ba	5 &D
8.	Ra	5 &D
9.	~Aba	6 ~vD
10.	~Aab	6 ~vD

- Then we do 1 and 2 because there's nothing else that can be done. We must substitute 'a' for 'x'. (Remember, universals are never checked off.)

The Tree:

1.	(∀x)[(Bx & ~Abx) ⊃ ~Ox]	SM
2.	(∀x)[(Rx & ~Axb) ⊃ Ox]	SM
3.	(∃x)[(Bx & Rx) & ~(Abx v Axb)]√	SM
4.	(Ba & Ra) & ~(Aba v Aab)√	3 ∃D
5.	Ba & Ra√	4 &D
6.	~(Aba v Aab)√	4 &D
7.	Ba	5 &D
8.	Ra	5 &D
9.	~Aba	6 ~vD
10.	~Aab	6 ~vD
11.	(Ba & ~Aba) ⊃ ~Oa	1 ∀D
12.	(Ra & ~Aab) ⊃ Oa	2 ∀D

- Then we do 11 and 12 because there's nothing else that can be done.

The Tree:

1.	(∀x)[(Bx & ~Abx) ⊃ ~Ox]					SM
2.	(∀x)[(Rx & ~Axb) ⊃ Ox]					SM
3.	(∃x)[(Bx & Rx) & ~(Abx v Axb)]√					SM
4.	(Ba & Ra) & ~(Aba v Aab)√					3 ∃D
5.	Ba & Ra√					4 &D
6.	~(Aba v Aab)√					4 &D
7.	Ba					5 &D
8.	Ra					5 &D
9.	~Aba					6 ~vD
10.	~Aab					6 ~vD
11.	(Ba & ~Aba) ⊃ ~Oa√					1 ∀D
12.	(Ra & ~Aab) ⊃ Oa √					2 ∀D
13.	~(Ba & ~Aba) √		~Oa			11 ⊃D
14.	~Ba	~~Aba				13 ~&D
15.	X	Aba				14 ~~D
16.		X		~(Ra & ~Aab)	Oa	12 ⊃D

The Tree:

1.	(∀x)[(Bx & ~Abx) ⊃ ~Ox]						SM
2.	(∀x)[(Rx & ~Axb) ⊃ Ox]						SM
3.	(∃x)[(Bx & Rx) & ~(Abx v Axb)]√						SM
4.	(Ba & Ra) & ~(Aba v Aab)√						3 ∃D
5.	Ba & Ra√						4 &D
6.	~(Aba v Aab)√						4 &D
7.	Ba						5 &D
8.	Ra						5 &D
9.	~Aba						6 ~vD
10.	~Aab						6 ~vD
11.	(Ba & ~Aba) ⊃ ~Oa√						1 ∀D
12.	(Ra & ~Aab) ⊃ Oa √						2 ∀D
13.	~(Ba & ~Aba) √		~Oa				11 ⊃D
14.	~Ba	~~Aba					13 ~&D
15.	X	Aba					14 ~~D
16.		X	~(Ra & ~Aab) √			Oa	12 ⊃D
17.				~Ra	~~Aab	X	16 ~&D
18.				X	Aab		17 ~~D
					X		

Inconsistent!