

```

1 ;; =====
2 ;; Data definitions:
3
4 (@htdd Bracket)
5 (define-struct bracket (team-won team-lost br-won br-lost))
6 ;; Bracket is one of:
7 ;; - false
8 ;; - (make-bracket String String Bracket Bracket) A
9 ;; interp. A tournament competition bracket.
10 ;; false indicates an empty bracket.
11 ;; (make-bracket t1 t2 br1 br2) means that
12 ;; - team t1 beat team t2, and
13 ;; - br1 represents team t1's bracket leading up to this match.
14 ;; - br2 represents team t2's bracket leading up to this match.
15
16 (define B0 false)
17 (define BE
18   (make-bracket "Riot" "Schwa" false false))
19 (define BF
20   (make-bracket "Nemesis" "Ozone" false false))
21 (define BG
22   (make-bracket "Scandal" "Phoenix" false false))
23 (define BH
24   (make-bracket "Capitals" "Traffic" false false))
25 (define BK
26   (make-bracket "Riot" "Nemesis" BE BF))
27 (define BL
28   (make-bracket "Scandal" "Capitals" BG BH))
29 (define BN
30   (make-bracket "Scandal" "Riot" BL BK))
31
32 (@template-origin Bracket)
33
34 (define (fn-for-bracket br)
35   (cond [(false? br) (...)]
36         [else
37          (... (bracket-team-won br)
38              (bracket-team-lost br)
39              (fn-for-bracket (bracket-br-won br))
40              (fn-for-bracket (bracket-br-lost br)))]))
41
42
43 (@htdd ListOfTeam)
44 ;; ListOfTeam is one of:
45 ;; - empty
46 ;; - (cons String ListOfTeam)
47 ;; interp. A list of team names
48 (define T0 empty) ; no teams
49 (define T2 (list "Scandal" "Traffic"))
50
51 (@template-origin ListOfTeam)
52
53 (define (fn-for-lot lot)
54   (cond [(empty? lot) (...)]
55         [else
56          (... (first lot)
57              (fn-for-lot (rest lot)))]))
58
59 ;; =====
60 ;; Functions:
61
62 (@htdf ouster)
63 (@signature String Bracket -> String or false)
64 ;; produce the team that knocked out t in bracket br, false if there isn't one
65
66 (check-expect (ouster "Nemesis" false) false)
67 (check-expect (ouster "Scandal" BN) false)

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B

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68 (check-expect (ouster "Nemesis" BN) "Riot")
69 (check-expect (ouster "Traffic" BN) "Capitals") C
70
71 (@template-origin Bracket try-catch)
72
73 (define (ouster t br)
74   (cond [(false? br) false]
75         [else D
76           (if (string=? t (bracket-team-lost br))
77               (bracket-team-won br)
78               (local [(define try (ouster t (bracket-br-won br)))]
79                 (if (not (false? try))
80                     try F
81                     (ouster t (bracket-br-lost br))))))]) E
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