# The *Traveler Language*

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# Sample Program

```
27 #lang traveler
26
25 (plan (Boston -> Beijing)
24       (timezone -10 +8) ;; Standard timezone diff.
23       ;; All optional
22       (departure 10:30 ~ 20:00)
21       (date 02/08/2018 ~ 02/10/2018)
20       (wait-time 0 ~ 5 hrs)
19       (price $700 ~ $ 1200)
18       (duration 8 ~ 12 hrs)
17       (go-through Shanghai ...)
16       (bypass NewYork ...))
15
14
13 ;; A flight / train / bus / UFO
12 ;; from Boston to Shanghai
11 ;; It costs $980,
10 ;; Takes off at 7:30 am 02/08/2018 CST
 9 ;; Arrives   at 1:00 pm 02/09/2018 EST
 8 (Boston (UA1105 17:00 02/08/2018 7:30  02/10/2018 980  Shanghai)
 7         (SA207  19:00 02/09/2018 13:00 02/10/2018 1500 Beijing))
 6
 5
 4 (Shanghai (SC770  20:30 02/08/2018 0:30  02/09/2018 300 Beijing)
 3           (JA3600 07:30 02/10/2018 12:40 02/09/2018 670 とうきょう)
 2           (SC1400 14:20 02/09/2018 18:45 02/09/2018 450 北京))
 1
59
```

```
Ryans-Work-Station:traveler ryanguo$ racket test.rkt
================================================================================
Plan A
From Boston to Shanghai

********************************************************************************
Number of Stops: 2
Total Price:     $4602
Total Duration   46 hours

Origin          Destination   Departure Time    Arrival Time      Cost
Boston          JFK           16:14 02/02/2018  19:00 02/03/2018  $1534
JFK             Shanghai      22:00 02/02/2018  02:00 02/04/2018  $1534
Shanghai        Beijing       20:00 02/04/2018  02:00 02/05/2018  $1534
********************************************************************************
================================================================================
Ryans-Work-Station:traveler ryanguo$
```

# Grammar

**program** = plan-clause … city-clause …

**city-clause** = (name (to-clause ...) )

**to-clause** =

(name number time date time date name)

**plan-clause** = (plan (name -> name)
constraint ...)

;; (constraint ...) must be different specifications

**constraint** is one of:

- (depart-time time ~ time)

- (wait-time number ~ number) ;; Unit is hour -

- (go-through name ...)

**name** is an id

**time** = hour:min

s.t. (<= hour 0 24) && (<= min 0 60)

**date** = mm/dd/yyyy

s.t. It represents a standard sensible date after 0 A.D.