Duration Constraints

I had an email exchange with John Dulcey about the duration constraint (attribute) of a guideline step. A duration_constraint is a duration range with a duration_min and a duration_max. I noticed that on page 27 (42/110), duration_constraint is erroneously specified as being of type Time_Literal_Expression. I thought (and wrote to John) that it should be Time_Interval_Expression. But, I now looked again at the temporal expression package and saw that Time_Interval_Expression is composed of two time stamps. We did not mean two anchored time stamps, but a lower_bound of duration and an upper bound for the duration.

As Lola suggested, one possibility is to create a new type called "duration-range" that has just two attributes: lower_bound (a duration), and upper_bound (also a duration). So 2-3 days would be modeled as a duration-range with upper bound 2 days and lower bound 3 days

Another possibility is to use Fuzzy_Duration that we already defined for Iteration Specification.

Fuzzy Duration
duration: Duration
before_window: Duration
after_window: Duration
before_offset: Duration
after_offset: Duration

Where duration is a float with a time unit.
Any time point within (duration-before_window, duration+after_window) is considered to be valid.
Offset is important for iteration. If the occurrence happened in the interval (every.duration - every.before_window- allowed_before_offset, every.duration - every.before_window) then the iteration point should be reset to the time of the event occurrence.

2-3 days would be modeled as a fuzzy duration with duration 2 days, after_window 1 day, and before_window, before_offset, and after_offset of 0 days).