**S23 Position Measurement**

Added a sentence in the scope note to emphasise that S23 Position Measurement is not a sub-class of S21 Measurement:

"This class does not inherit properties from class S21 Measurement."

Revised examples:

    • the measurement of the position of the Titanic for the initial distress call after hitting an iceberg (S23) [The iceberg was hit on 14 April 1912 at 23:40 ship’s time. The subsequent position measurement was likely done by Capt. Edward Smith and was transmitted 15 April 1912 at 00:27.] (Halpern, 2011)
    • the measurement of the position of the Titanic by officer Joseph G. Boxhall after the initial distress signal was sent (S23) [done between 00:27 and 00:35, when Boxhall showed the coordinates to Smith] (Halpern, 2011)
    • the measurement of the position of the Titanic by Robert Ballard's team after the Titanic ship-wreck was found (S23) (Ballard et al., 1987)

**O30 determined position**

Revised examples:

    • The measurement of the position of the Titanic for the initial distress call after hitting an iceberg (S23) *determined position* 41°44′N 50°24′W (E94). [This was quickly determined via ‘dead reckoning’, i.e. based on the distance travelled since the previous known location, extrapolating a previous dead reckoning for 14 April 1912 20:00] (Halpern, 2011, Boxhall, 1962)
    • The measurement of the position of the Titanic by officer Joseph G. Boxhall after the initial distress signal was sent (S23) *determined position* 41°46′N 50°14′W (E94). [This was again determined via dead reckoning but extrapolating Boxhall's own measurement shortly after 20:00, and revised the original position.] (Halpern, 2011, Boxhall, 1962)
    • The measurement of the position of the Titanic by Robert Ballard's team after the Titanic ship-wreck was found (S23) *determined position* 41°43′32′′N 49°56′49′′W (E94). [This was the position of the centre of the ‘boiler field’, part of the Titanic debris] (Ballard et al., 1987)

**O31 has validity time-span**

Changed scope note opening sentence:

From: "This property associates an instance of S23 Position Measurement with the instance of E52 Time-Span for which the measurement is valid."

To: "This property associates an instance of S23 Position Measurement with the instance of E52 Time-Span for which the measurement is valid according to the observer at the time of the observation. "

Revised examples (note these no longer refer to E52 with date/times and apart from the ship-wreck discovery event, they refer to the collision, not the measurement):

    • The measurement of the position of the Titanic for the initial distress call after hitting an iceberg (S23) *has validity time-span* the time of the collision (E52). [This is a plausible guess based on Boxhall’s account; the collision was on 14 April 1912 23:40 ship’s time.] (Halpern, 2011, Boxhall, 1962)
    • The measurement of the position of the Titanic by officer Joseph G. Boxhall after the initial distress signal was sent (S23) *has validity time-span* the time of the collision (E52). [Boxhall was convinced of the correctness of his position measurement until his death.] (Halpern 2011, Boxhall, 1962)
    • The measurement of the position of the Titanic by Robert Ballard's team after the Titanic ship-wreck was found (S23) *has validity time-span* the time of the position measurement (E52). [This time period falls within the 1st of September 1985 00:48, i.e. the first encounter of a piece of Titanic debris and 1987] (Ballard et al., 1987)

**O32 measured position of**

Revised examples:

    • The measurement of the position of the Titanic for the initial distress call after hitting an iceberg (S23) *measured position of* the Titanic (E22). (Halpern, 2011)
    • The measurement of the position of the Titanic by officer Joseph G. Boxhall after the initial distress signal was sent (S23) *measured position of* the Titanic (E22) (Halpern, 2011)
    • The measurement of the position of the Titanic by Robert Ballard's team after the Titanic ship-wreck was found (S23) *measured position of* the Titanic. [More precisely it measured the centre of the ‘boiler field’ of Titanic’s debris] (E22) (Ballard et al., 1987)

**Revised works cited:**

Ballard, R.D. (1987) *The Discovery of the Titanic*. Warner.

Boxhall, J. (1962) ‘Joseph Groves Boxhall - Radio Interview’. Available at: <https://www.encyclopedia-titanica.org/boxhall.html> (Accessed: 10 February 2023).

Halpern, S. (2011) ‘Chronology of events with references and notes’, in *Report into the loss of the SS Titanic: a centennial reappraisal*. Stroud, Gloucestershire [U.K.]: History Press.

**Figure 10**

Figure 10 has been modified accordingly to reflect the time-span validity of the collision as in the examples.