Jutland Alternative First Contact

1. Introduction

Many accounts of the Battle of Jutland describe how the chance presence of the Danish steamer N. J. Fjord between the screening ships of the British Battle Cruiser Fleet (hereafter BCF) and the German I.u.II Aufklarungs-Gruppe (hereafter AG) precipitated the opening actions.

Some of those accounts speculate on what might have occurred if the steamer had not been present. Marder (Reference 3, Volume III, page 56) writes:

> "The course then steered by the two forces was slightly converging, and contact would have been made an hour later but for the sighting…"

Yates (Reference 11, page 127) writes:

> "The outermost wings of the two cruiser screens were less than twenty miles apart, but once Beatty completed his turn to the north, the two fleets would be steaming on roughly parallel courses, just out of sight of each other. They might not have spotted the other fleet until they were much farther north, or missed each other altogether, if fate had not decided to take a hand."

Konstam (Reference 9, page 94) writes:

> "… the eastern edge of the British cruiser screen and the western edge of the German one were now just 16 miles apart. Only the haze kept these cruisers from seeing each other. Both Beatty and Hipper were now heading north on roughly parallel courses. The two groups might not have made contact if fate had not intervened in the shape of a neutral tramp steamer."

Groos (Reference 4, english translation, page 42) writes:

> "Although the converging courses of the two opposing forces would have been bound to bring them into contact sooner or later, there can be no doubt that the later this occurred the more favorable would it have been for the British force. The further this moment was postponed, the closer would Beatty's force have been to Jellicoe's, and the more disadvantageous would the position have been for the German Fleet."

2. Planned Movements

To examine potential contact scenarios in the absence of the Danish steamer, the locations and planned movements of the opposing forces are needed. See Section 3 for conversion of compass courses to true courses.

Grand Fleet (hereafter GF) at 2:00 pm GMT:

Course S 50° E and 113° true (Reference 5, page 14, 5:00 am), implying a declination of about 17° West.
True course at 2 pm 116° (Reference 5, Diagram I), declination about 14° West.
True course at 2pm using the declination from Section 3, 116.75°.
Speed of advance 14 knots (Reference 1, page 46).
Iron Duke Position 57° 54’ 30” N, 3° 52’ E (Reference 5, Diagram I and per Reference 1, page 46, Footnote 38).
Shannon Position 57° 59’ N, 4° 42’ E (Reference 5, Diagram I)
Black Prince Position 57° 41’ 20” N, 4° 03’ 30” E (Reference 5, Diagram I)
Shannon and Black Prince are on either end of the armored cruiser screen. Cochrane was actually on the port end of the line, but Shannon was ahead of the line and thus more likely to spot German ships to the south.

3rd Battle Cruiser Squadron (hereafter 3BCS) at 2:00 pm GMT:

Course and speed as GF (Reference 5, Diagram I).
Invincible Position 57° 51’ N, 4° 41’ E (Reference 5, Diagram I).

BCF at 2:00 pm GMT:

Course at 2:00 pm SSE (144.25° true, but stated as 144) (Reference 1, page 47).
Course between 2:06 pm and 2:15 pm S 81° E (085.75° true but labeled as 85) (Reference 1, page 48, Diagram 1). The signal for the 2:06 pm course change was “Resume original course together” (Reference 13, Appendix II, page 443).
Course after 2:15 pm turn NbyE (358° true) (Reference 13, Appendix II, page 443).
Speed 19 knots at 4 am, with no further speed orders through 2:15 pm (Reference 1, page 46, and Reference 13, Appendix II, pages 419-443). The reply to a query by the 5th Battle Squadron at 10:10 am indicated Lion’s speed was 19.5 knots to make a speed of advance of 18 knots (Reference 13, Appendix II, page 434). It is unknown if BCF intended to resume zigzagging after the turn to the north. Reference 15, page 49 suggests that the 2 point turn to port of the 5th Battle Squadron at 2:32 pm (Reference 5, Diagram III and Reference 13, Appendix II, page 444) indicates a resumption of a zigzag pattern. If zigzagging was resumed, the speed of advance should have remained about 18 knots. The estimated speed of advance between noon and 2 pm from Reference 5, Diagram I is 17.6 knots.
Lion position 56° 48’ 30” N, 4° 41’ E (Reference 5, Diagram I and per Reference 1, page 47, Footnote 48).

AG:

Course 347° true (Reference 2, page 30 and consistent with an estimate based on Reference 4, Bb. V., Karte 2). AG was intended to hold this course to arrive off Norway at 9 pm (7 pm GMT) (Reference 14, German Plan I, Plan of Intended Operations, 31st May.).
Speed 16 knots (Reference 4, Bb. V., Karte 1).
The position relative to BCF will be estimated based on various plots and contact reports (see Section 4).

3. True vs Magnetic Courses

The BCF course after the turn at 2:15 pm is given as 358° true (Reference 2, page 30). The actual order was course NbyE (011¼ °) (Reference 13, Appendix II, page 443). Using the declination of 13° 15' West (Reference 3, Volume III, Charts 2 through 13) gives a true course of 358°.

Reference 5, Diagram I shows two declinations. The western compass rose has 14° 10' West and the eastern one has 12° 50' West.

Using the NOAA Historical Declination website (Reference 6) with a date of 1916 shows that the lines of equal declination in the North Sea in 1916 ran about NNE-SSW and were about 60 NM apart per degree of declination. The actual declination would have varied over the area considered from about 13.75° West (in the WNW) to about 12.75° West (in the ESE).

The NOAA Historical Declination website does not support entry of a specific day, and does not say when in 1916 the lines are drawn, however the declination change from 1916 to 1917 in this area is less than 0.2°.

The declination of 13° 15' West (13.25° West) used by most of the charts of Reference 3 is adequate for this analysis and is used to convert compass courses to true courses.

4. Positions

Lion will be assigned an arbitrary 2:15 pm position of 0 NM North, 0 NM East and the other ship positions will be determined relative to Lion.

Distances and bearings between Latitude/Longitude points are determined using Reference 12.

Figure 1 plots British ship positions in NM relative to Lion, adjusted for the movements between 2 pm and 2:15 pm. The positions are based on:

Lion to Iron Duke at 2:00 pm (using positions from Section 2):
Distance 131.8 km (71.16 NM)
Initial bearing 338° 31' 10" (338.519°)
Final bearing 337° 49' 55" (337.832°)
Average bearing 338.176°

Iron Duke to Shannon at 2:00 pm (using positions from Section 2):
Distance 30.19 km (16.3 NM)
Bearing 074°

Iron Duke to Black Prince at 2:00 pm (using positions from Section 2):
Distance 27.71 km (14.42 NM)
Bearing 156°

Lion to Invincible at 2:00 pm (using positions from Section 2):
Distance 115.8 km (62.53 NM)
Initial bearing 000° 00’ 00”
Final bearing 000° 00’ 00”
Average bearing 000°

Canterbury “about 5 miles ahead” of Invincible. Chester 6 miles “a point or two abaft” Invincible’s starboard beam (Reference 1, page 92).

BCF cruiser screen as ordered at 1:30 pm (Reference 1, page 48, Diagram 1)
Lion to screen center 8 NM, SSE (144.25° true, although erroneously labeled as 122°)
Screen center to Falmouth 2.5 NM, ENE (054.25° true, labeled as 54°)
Falmouth to Inconstant 5 NM, ENE (054.25° true) (based on Inconstant on station)
Inconstant to Galatea 5 NM, ENE (054.25° true) (based on Galatea on station)

Galatea was off station at the time of the BCF 2:15 pm turn. Sources give various reasons for this. This analysis will assume she was on station, or at least no further east than her station.

Figure 2 plots BCF and AG ship positions in NM relative to Lion based on the Lion to Lutzow distance and bearing:

Lion to Lutzow at 2:15 pm. 44.15 NM, bearing 082° (Reference 3, Volume III, Chart 2).

AG cruiser screen (Reference 7, page 144, Sketch IV)
Lutzow to Elbing 8 NM, estimated bearing port 65° (295°) relative, or 282° true.
Lutzow to Pillau 8 NM, estimated bearing port 35° (325°) relative, or 312° true.
Lutzow to Frankfurt 8 NM, bearing 000° relative, or 347° true.

Figure 3 plots BCF and AG ship positions in NM relative to Lion based on the Falmouth to Elbing distance and bearing:

Galatea to Elbing at 2:15 pm. 15.53 NM (Reference 3, Volume III, Chart 2). This distance reflects the movements of Galatea after sighting the N.J.Fjord which took her out of the screen formation and closer to the AG.

Falmouth to Elbing at 2:15 pm. 27.66 NM, bearing 066° (Reference 3, Volume III, Chart 2). Falmouth is shown approximately on station at 2:15 pm, so this is used as an alternative means of positioning AG relative to BCF.

Figure 4 plots the tracks of BCF and AG from the 2:15 pm positions relative to Lion. Included are AG tracks based on the Lion to Lutzow range [labeled (L)] and the Falmouth to Elbing range [labeled (F)].

Figure 5 plots the tracks of the flagships of BCF, GF, 3BCS and AG (Lion, Iron Duke, Invincible and Lutzow). Since the cruisers of all four forces are positioned to make contact earlier than the flagships, the cruiser tracks will be used to determine possible times of contact. It is clear from Figures 1 and 5 that first contact with AG will not be made by Shannon, Black Prince, or the other armored cruisers of the GF screen, and that the GF tracks need not be considered further.

Figures 6 and 7 plot the tracks of the cruisers of BCF (Galatea), 3BCS (Canterbury and Chester) and AG (Elbing and Pillau) based on the Falmouth to Elbing and Lion to Lutzow ranges, respectively.

5. Spotting Range

Historical contact reports can be used to assess the range at which the opposing cruisers would detect each other.

> Galatea sights N.J.Fjord bearing ESE about 12 miles (Reference 8, page 65).
>
> Elbing sights smoke from Galatea just after 2:15 pm (Reference 8, page 66, converted to GMT). From Section 4, the range at 2:15 pm was 15.53 NM.
>
> Message from Galatea at 2:10 pm “Two-funnelled ship has stopped steamer bearing ESE eight miles, am closing” (Reference 13, Appendix II, page 443). This low range may reflect the closing range from Galatea to the steamer between the sighting and the message.
>
> Galatea sees N.J.Fjord “about fourteen miles E.S.E.” (Reference 10, Volume 3, page 329).

The detection range would have been influenced by factors such as visibility variations in different directions and the amount of smoke produced by the ships involved.

Visibility variations in different directions are not a concern. Whichever side detects the other first, their reaction will eventually initiate combat.

Galatea (and the accompanying cruiser Phaeton), Canterbury and Chester were oil fired (Reference 16, pages 55, 58 and 59). Elbing and Pilau had both coal and oil fired boilers, and their accompanying torpedo boats of the B97 class were oil fired (Reference 16, pages 161 and 169). Although well operated oil boilers were not expected to produce smoke (just gas) at cruising speeds (Reference 17, page 54, Rule D-5b), photographs of WW1 era oil fired ships indicate they produced enough smoke for detection ranges similar to coal fired ships in the hazy visibility conditions at Jutland.

From these (admittedly anecdotal) reports, spotting ranges could be as low as 8 or as high as 16 NM, and ranges beyond these limits cannot be ruled out.

6. Potential Contacts

The reduction in BCF speed of advance due to zigzagging after the turn to the north would not significantly change the contact timing. For zigs to the east, the distance to AG might be reduced by about 1.2 NM and contact would be hastened. For zigs to the west, contact between BCF and AG might be delayed.

Figure 6 shows that if the Falmouth to Elbing range is correct, spotting distances greater than 11.7 NM will result in contact between BCF and AG prior to contact between 3BCS and AG. Figure 7 shows that if the Lion to Lutzow range is correct, spotting distances greater than 16.5 NM will result in contact between BCF and AG prior to contact between 3BCS and AG.

7. Summary

Marder's estimate that contact would have been made an hour later seems very reasonable. If visibility for funnel smoke remained good, then either Galatea or Elbing should have sighted the other's smoke within one to two hours. If visibility deteriorated, the screen of AG and that of 3BCS would still have been in contact within two hours. There seems very little possibility of British and German forces missing each other entirely on the afternoon of 31 May.

8. References

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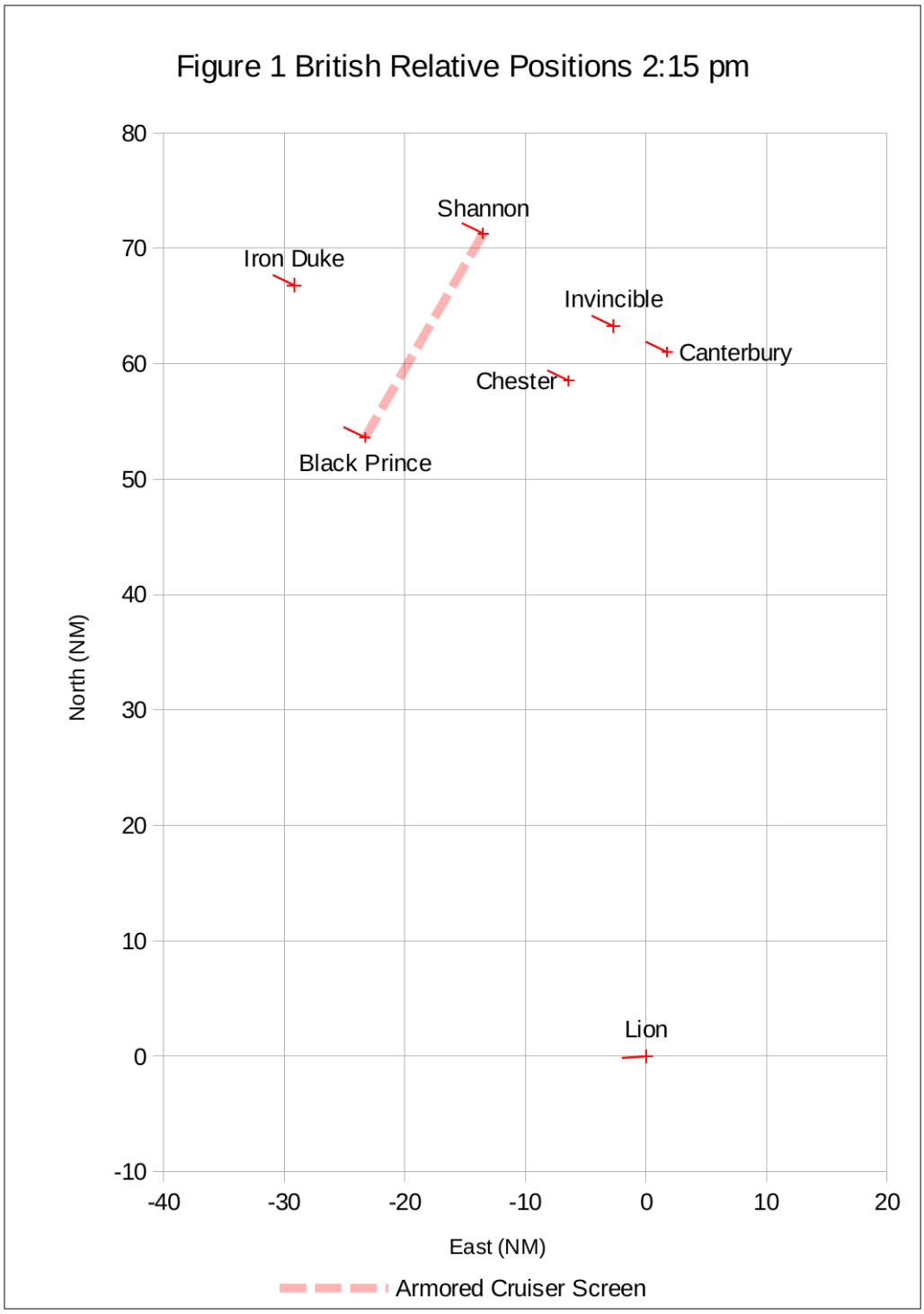

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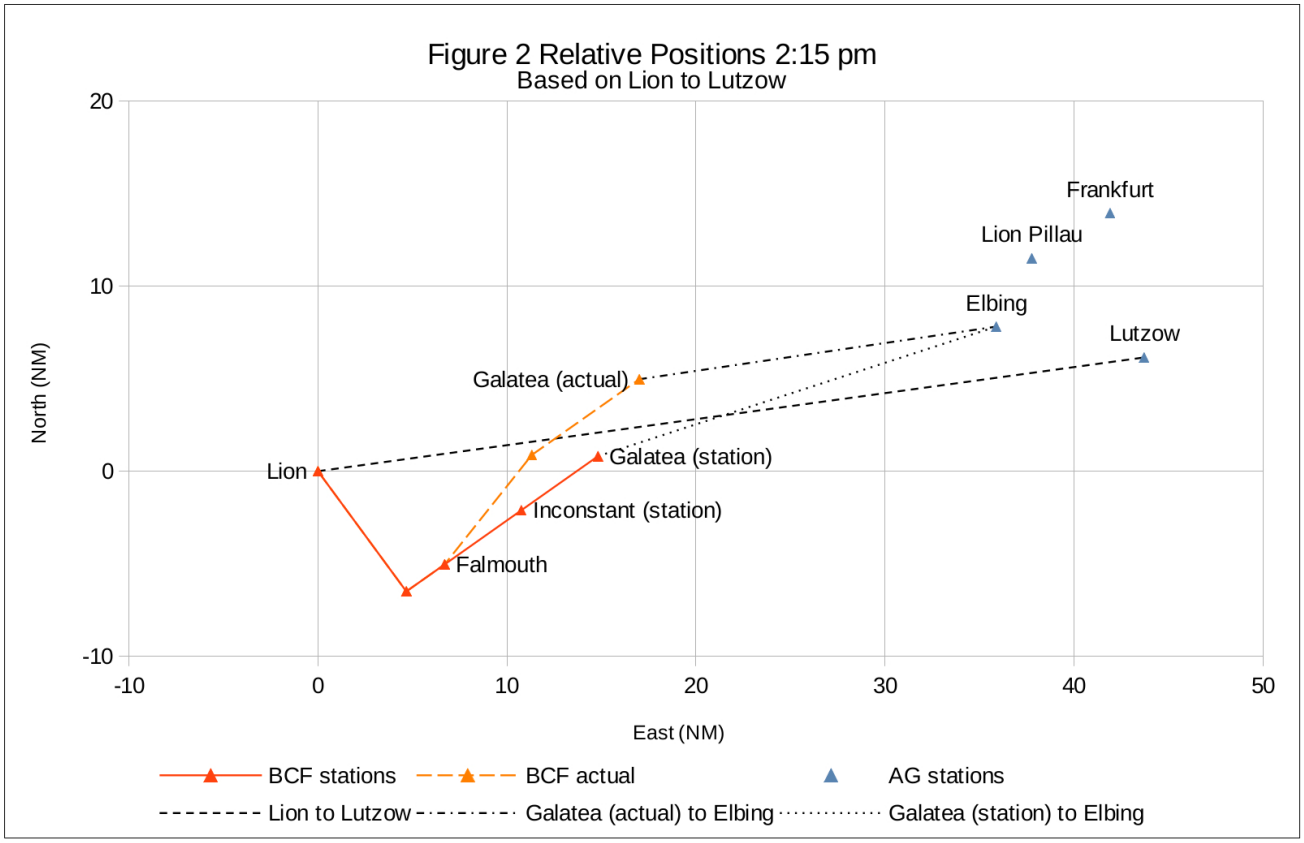

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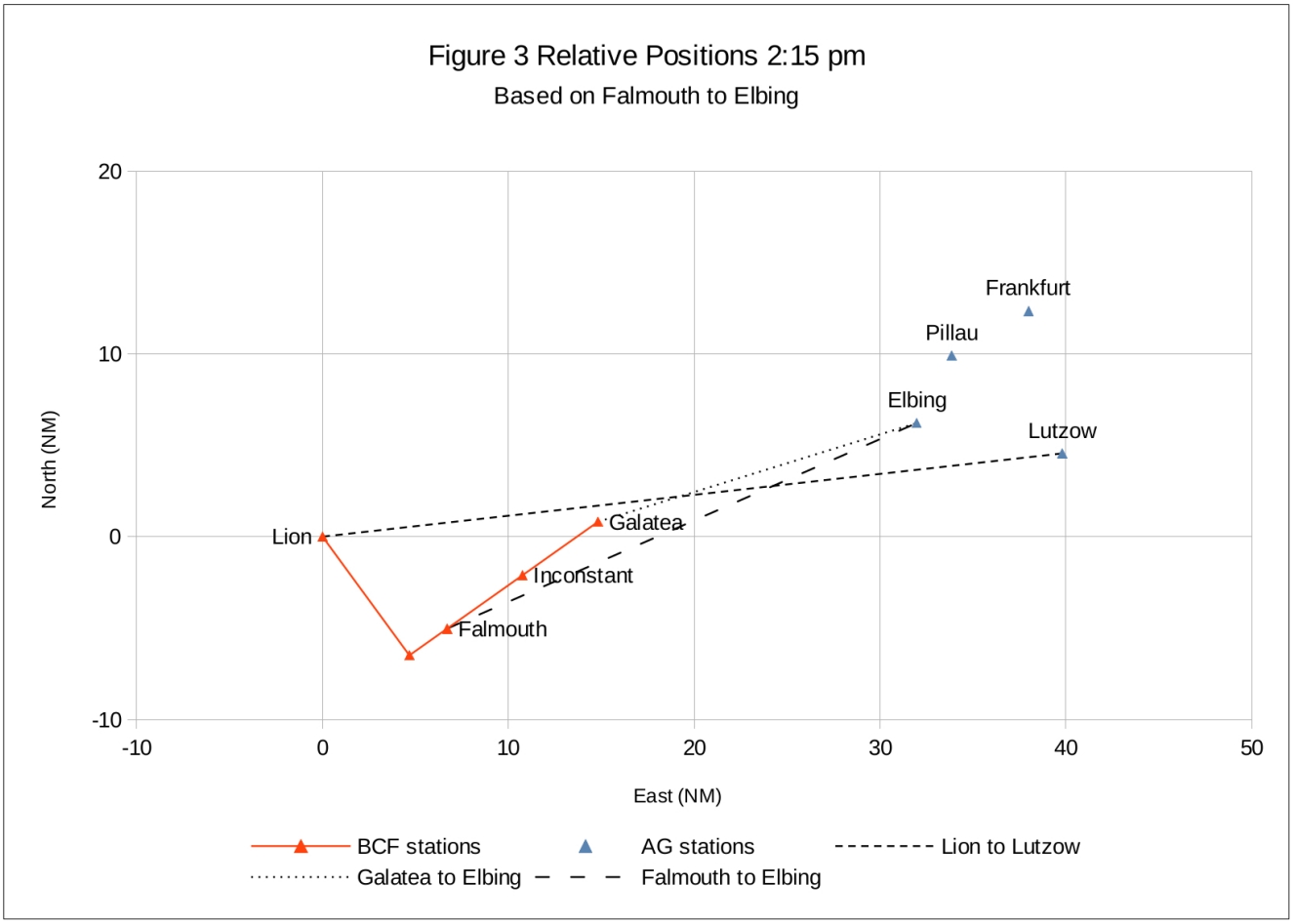

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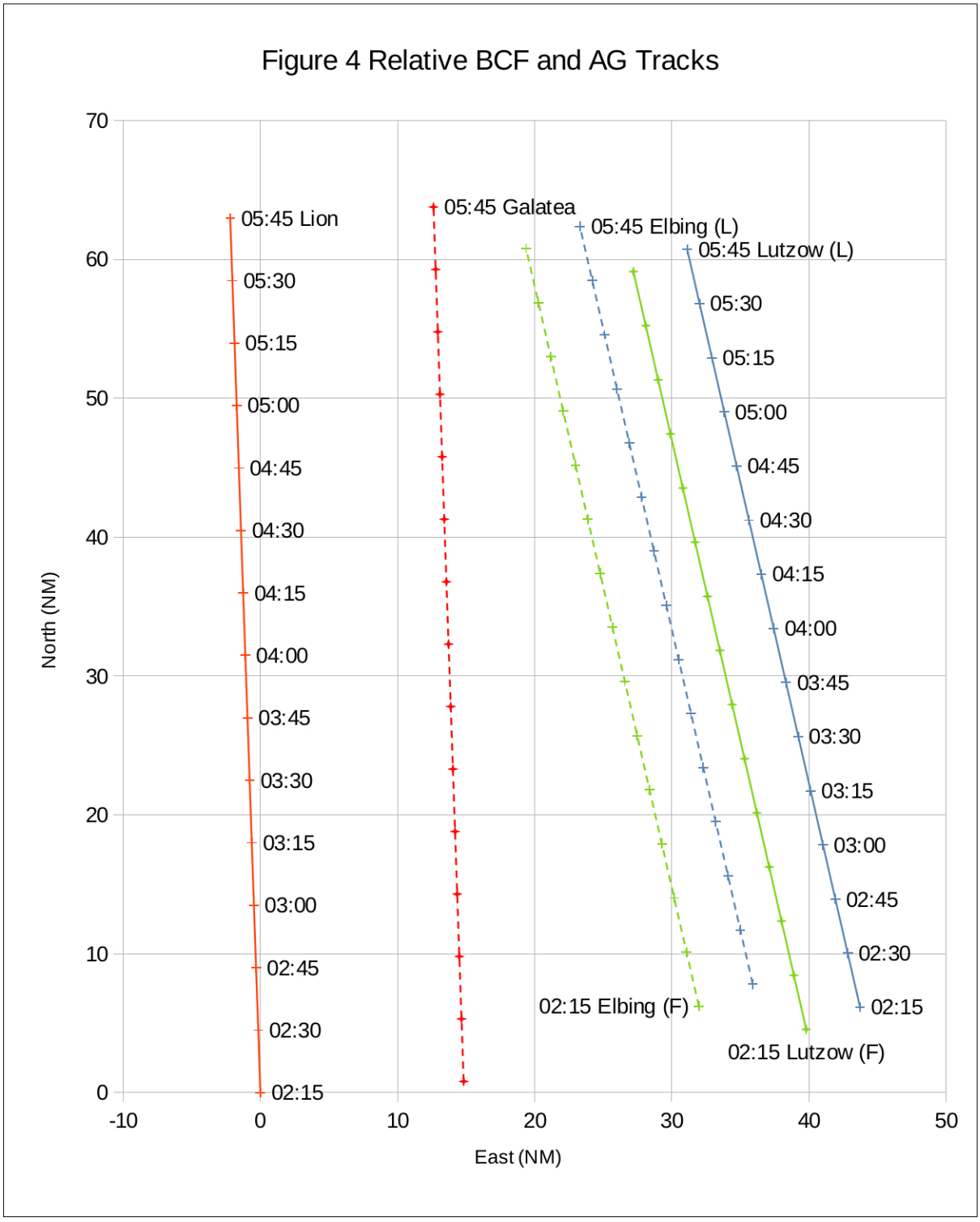

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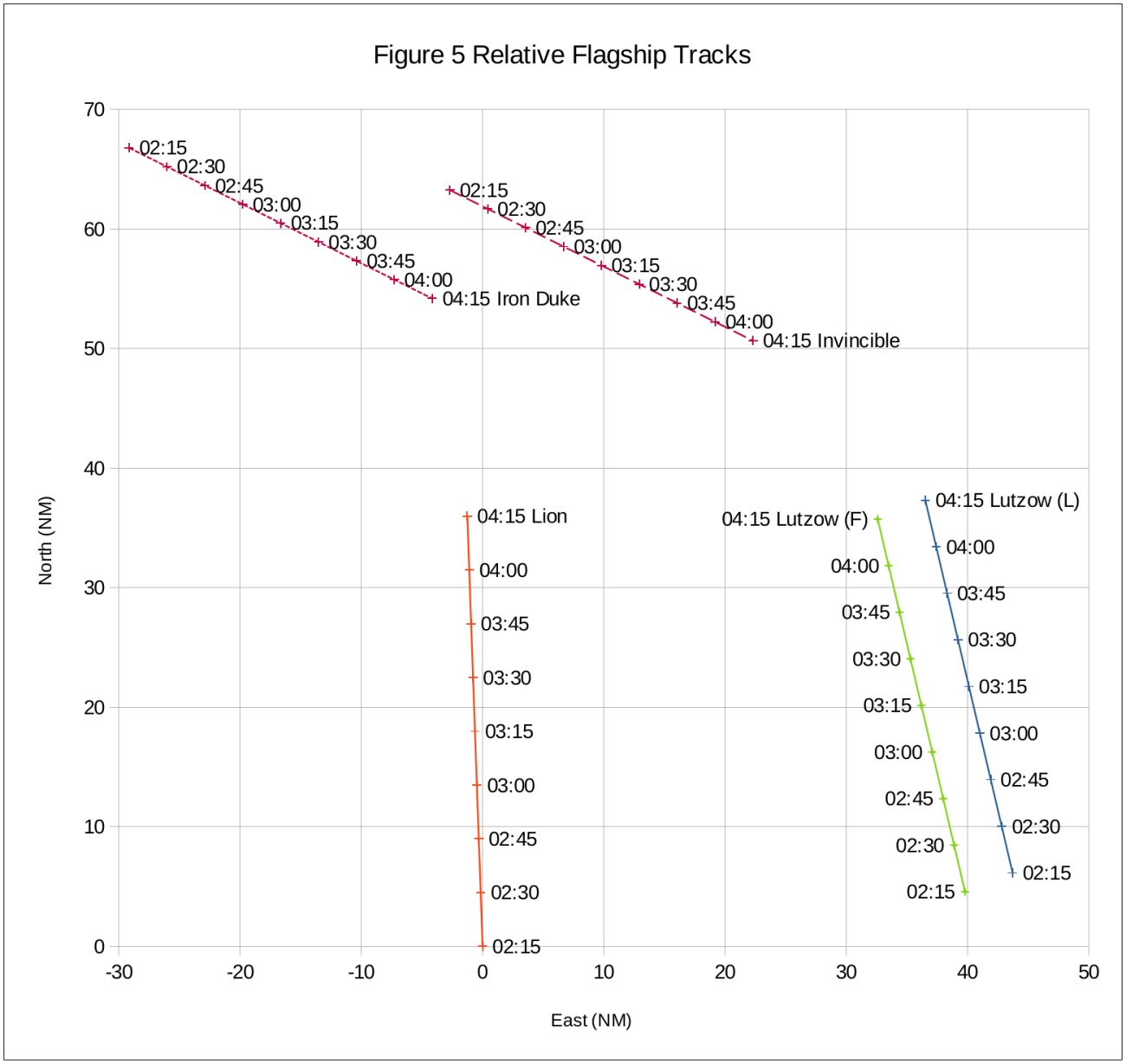

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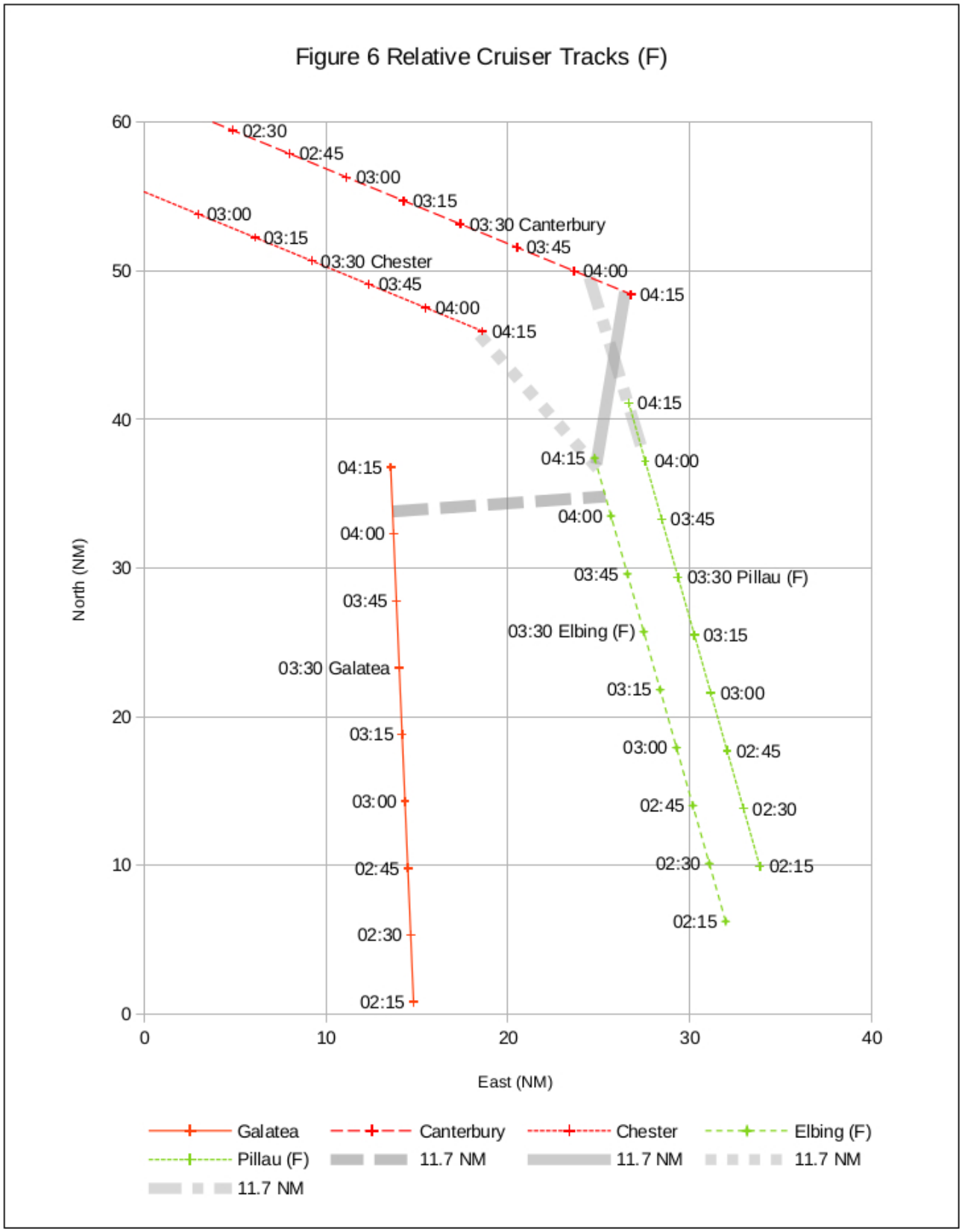

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