Supporting Online File for:

A relative-motion method for parsing spatio-temporal behaviour of dyads using GPS relocation data

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1. Dyadic behaviour analysis

For the dyadic behaviour classification, the procedure (Algorithm 1) is similar to the individual behaviour classification presented in the main text. The difference lies in the fact that we consider the simultaneous individual behaviour, and therefore we have a unique list to keep track of the dyadic behavioural types. This list, indicated by M_D, is composed of n 5-dimensional vectors, initially populated with zeros. The procedure is the same as for the individual classification up to the pair distance calculation. If this distance is below our maximum threshold for considering dyadic interactions, then the function f_{cd} is used to categorise the dyadic behaviour in terms of the angles diffA and diffB and the necessary classification input (i.e. circle segmentation) which we assume implicitly here for the sake of a compact presentation. The update function will then update the list M_D, according to the dyadic behavioural type and the corresponding distance interval.

Algorithm 1: Dyadic behaviour classification

```
Input T_A, T_B, I
M_D = list()
for i in {1, ..., n} do
    M_D[i] = v_0(5)
I_AB = T_A ∩_F T_B
for t in I_AB do
    headA = f(A(t), A(t + 1)), headB = f(B(t), B(t + 1))
    dirAB = f(A(t), B(t)), dirBA = f(B(t), A(t))
    diffA = |headA - dirAB|, diffB = |headB - dirBA|
    d_AB = d(A(t), B(t))
    if ∃i : d_AB ∈ I_i then
        m_D = f_cd(diffA,diffB)
        M_D[i] = u(m_D, M_D[i])
return M_D
```

The statistical analysis for the dyadic behaviour, presented in Algorithm 2, requires the list of n vectors M_{D} as input and uses the entries corresponding to the behaviours of interest for the calculation of the confidence intervals related to each I_i. In this example, we assume these entries are the first four ones, with the fifth one corresponding to the classification "other". In the algorithm, we use the function `MultinomCI` as for the R package `DescTools`, providing a vector v of entries representing the number of occurrences of each behavioural type and the various parameters needed to calculate the confidence interval for each of the four behaviours of interest. The outcome of this calculation is a 4×2 matrix, with lower (first column) and upper (second column) bounds of each interval. Note that, since we are using the Goodman method, we require all values in vector v to be at or above 5 to be considered in the statistical analysis. In the table providing the results we indicate with $*$ the cases for which this assumption is not satisfied. Once the confidence interval is calculated, if its lower bound CI_l is above 0.25 or if its upper bound CI_u is below 0.25, the analysis will return that the result for the distance interval and the behaviour under consideration is statistically significant. Otherwise, the result will not be labelled as statistically significant. We indicate the disjunction with |, in the same way as in the R syntax.

Algorithm 2: Dyadic behaviour statistical analysis

```
Input M_D
for i in {1,...,n} do
    v = c(M_D[i][1], M_D[i][2], M_D[i][3], M_D[i][4])
    m = MultinomCI(v, conf.level = 0.95, method = "goodman")
    for j in {1,...,4} do
        CI_l = m[j,1]
        CI_u = m[j,2]
        if ∃k : v[k] < 5 then
            return *
        else
            if (CI_l > 0.25 | CI_u < 0.25) then
                return statistically significant
            else
                return not statistically significant
```

Note that it is possible to consider also different statistical analysis to evaluate *statistically significant* results in our method. In particular, a χ^2 goodness-of-fit test can be used to compare the observed distribution of occurrences with an expected probability distribution, assuming random movement behaviour. Using a similar syntax as R and the R package `stats`, we run the `chisq.test` providing as input the vector `v` (counts of occurrences of the four behaviour under examination) and a vector of equal probabilities.

$$\texttt{chisq.test(v, p = c(}\frac{1}{4}, \frac{1}{4}, \frac{1}{4}, \frac{1}{4}\texttt{))}$$

The p-value returned by the test will be used to classify if the results are statistically significant and additional analysis can be done by observing the residuals. We provide an example of this analysis for the dyadic behaviour using the simulated data in Section 4.3.

2. Extended analysis

For the extended analysis (Algorithm 3), we extract eight behavioural types, by considering also the absolute heading difference and the relative speed. We set the list M_F to keep track of the counts. After the calculation of the usual angles, we evaluate also the heading difference diffH, the pair distance d_{AB}, the individual speed s_A and s_B (as ratio between the distance Δl and time interval Δt) and the proportion of the two individual speeds s_p. If the pair distance d_{AB} lies within a chosen distance interval I_i, then the function f_{cf} classify the pair behavioural type considering all the necessary inputs (here we consider circle segmentation, heading difference and relative speed classification implicitly) and the function u subsequently updates the vector count.

Algorithm 3: Extended analysis

```
Input 𝒯_A, 𝒯_B, ℐ
M_F = list()
for i in {1, ..., n} do
    M_F[i] = v_0(8)
I_AB = T_A ∩_F T_B
for t in I_AB do
    headA = f(A(t), A(t+1)), headB = f(B(t), B(t+1))
    dirAB = f(A(t), B(t)), dirBA = f(B(t), A(t))
    diffA = |headA - dirAB|, diffB = |headB - dirBA|
    diffH = |headA - headB|
    d_AB = d(A(t), B(t))
    s_A = d(A(t), A(t+1)) / Δt_A, s_B = d(B(t), B(t+1)) / Δt_B
    s_p = s_A / s_B
    if ∃i : d_AB ∈ I_i then
        m_F = f_cf(diffA, diffB, diffH, s_p)
        M_F[i] = u(m_F, M_F[i])
return M_F
```

Note that the relative speed classification depends on the speed proportion limits p_l and p_u, $p_l < p_u$: given two individuals A and B, the speed proportion limits p_l and p_u are defined such that if the speed proportion s_p (of A with respect to B) is above p_u, then speed of A is considered *greater* than speed of B. If s_p lies between p_l and p_u, then the speed is considered *similar*, while if the proportion is below p_l, then the speed of B is considered *greater* than the speed of A. Note that the heading difference classification depends on the threshold value θ: in the context of individual absolute headings, we classify a dyad as having *a similar heading* if the absolute value of the heading difference is below θ or above $360^\circ - \theta$, while we classify it as having *the opposite heading* if the difference lies between $180^\circ - \theta$ and $180^\circ + \theta$. We classify all the other cases as *other*.

2.1. Extended analysis: behaviours of interest

Table 1 combines the information related to the classified dyadic movement modes, relative speed and individual heading analysis. In the last column of the table, we provide a description of behaviours of interest, used in Section 7.4 of the main paper, including the heading difference classification. Note that we do not distinguish among behaviours of type 3 in the table, but only present examples of the case 3(A,B).

Note that we considered speed and heading difference in the analysis to extract meaningful behaviours (e.g. following, side by side). However, given all the possible combinations, some resulting behaviours might not be meaningful. For example, "both individuals approaching, similar speed, similar heading" is not a possible behaviour, since both individual cannot be moving towards each other and have similar absolute headings.

3. Simulated data

In this section, we describe the relative-motion, biased random-walk (RM-BRW) models implemented in Numerus Model Builder (NMB) (Getz et al., 2018) and used to generate simulated data. We provide the description of the movement model for individual A of pair (A,B), since the behaviour of individual B is the same as the one of A, just with a different direction (B approaching/retreating from A instead of A approaching/retreating from B).

Given the initial position (x_0, y_0) of individual A, the location coordinates are updated as follows:

$$
\begin{aligned}
x_{t+1} &= x_t + s_t \cos \theta_t \\
y_{t+1} &= y_t + s_t \sin \theta_t
\end{aligned}
$$

where s_t is the step length and θ_t is the absolute heading. The step length is drawn from the uniform distribution:

$$
s_t \sim \text{UNIFORM}(s_{\min}, s_{\max})
$$

while the absolute heading is drawn from different distributions, which are described later.

Table 1: Behaviours of interest extracted via the extended analysis.

Modes	Dyadic behaviour	Speed analysis	Description
1a	Both individuals approach each other	Similar	With opposite individual heading, A and B approaching at a similar speed
1b	Both individuals approach each other	A faster than B	
1c	Both individuals approach each other	B faster than A	
2a	Both individuals retreat from each other	Similar	
2b	Both individuals retreat from each other	A faster than B	
2c	Both individuals retreat from each other	B faster than A	
3a	One individual (A) approaches while the other individual (B) retreats	Similar	With similar individual heading, A following B
3b	One individual (A) approaches while the other individual (B) retreats	A faster than B	With similar individual heading, A chasing B
3c	One individual approaches (A) while the other individual (B) retreats	B faster than A	With similar individual heading, B escaping from A
4a	One individual (A) moves orthogonally, the other (B) approaches	Similar	
4b	One individual (A) moves orthogonally, the other (B) approaches	A faster than B	
4c	One individual (A) moves orthogonally, the other (B) approaches	B faster than A	
5a	One individual (A) moves orthogonally, the other (B) retreats	Similar	
5b	One individual (A) moves orthogonally, the other (B) retreats	A faster than B	
5c	One individual (A) moves orthogonally, the other (B) retreats	B faster than A	
6a	Both individuals move orthogonally	Similar	With similar individual heading, side by side movement
6b	Both individuals move orthogonally	A faster than B	
6c	Both individuals move orthogonally	B faster than A	

3.1. Distance-dependent behaviour

In the first model, these distributions are distance-dependent with noise introduced using the coefficient $\rho \in [0,1]$ and attracting and repulsing circles of radii d_R and d_A (Fig. 1):

$$\theta_{t+1} \sim \begin{cases} \text{UNIFORM}(\theta_{A\to B} - (1-\rho)\frac{\pi}{2}, \theta_{A\to B} + (1-\rho)\frac{\pi}{2}) & \text{if case 1} \\ \text{UNIFORM}(-\theta_{A\to B} - (1-\rho)\frac{\pi}{2}, -\theta_{A\to B} + (1-\rho)\frac{\pi}{2}) & \text{if case 2} \\ \text{UNIFORM}(-\pi, \pi) & \text{otherwise} \end{cases}$$

where $\theta_{A\to B}$ is the heading direction from $A(t)$ to $B(t)$, $\rho \in [0,1]$ and:

- case 1: $d_R < d_{AB} < d_A$ and UNIFORM(0,1) $< p_{\text{eff}}$
- case 2: $d_{AB} < d_R$ and UNIFORM(0,1) $< p_{\text{eff}}$

The first case represents approach: the individuals are at a distance between the repulsion distance d_R and the attraction distance d_A, while the second case represents repulsion. These behaviours happen with probability p_{eff}, otherwise the movement is random.

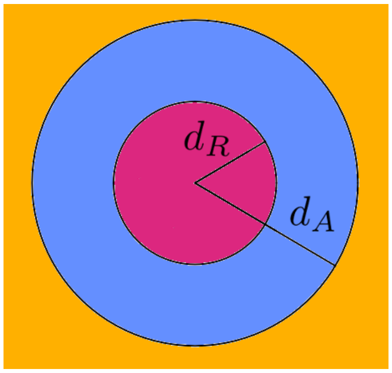

Figure 1: Area of repulsion (red), attraction (blue) and indifference (light orange), depending on d_R and d_A, around one individual. This figure helps illustrate the distance-dependent behaviour described in the model and then captured by our method.

3.2. Time-dependent behaviour

In the second model, the distributions used to drawn θ_{t+1} are a function of time. Given the period ω and the functions f_1 and f_2:

$$f_1(t) = \sin\left(\frac{2\pi t}{\omega}\right)$$

$$f_2(t) = \sin\left(\frac{2\pi t}{\frac{\omega}{2}}\right)$$

the value of the absolute heading is drawn as follow:

$$\theta_{t+1} \sim \begin{cases} \text{UNIFORM}(\theta_{A\to B} - (1-\rho)\frac{\pi}{2}, \theta_{A\to B} + (1-\rho)\frac{\pi}{2}) & \text{if case 1} \\ \text{UNIFORM}(-\theta_{A\to B} - (1-\rho)\frac{\pi}{2}, -\theta_{A\to B} + (1-\rho)\frac{\pi}{2}) & \text{if case 2} \\ \text{UNIFORM}(-\pi, \pi) & \text{otherwise} \end{cases}$$

where:

- case 1: $f_1(t) > 0$ and $f_2(t) > 0$
- case 2: $f_1(t) > 0$ and $f_2(t) < 0$

The first case represents A approaching B, the second case A retreating from B while the third case is a random walk, without a preferred direction. In Fig. 2 we show the values of functions f_1 and f_2, used to control the timing of the various movement behaviours. Note that the choice of parameters (Table 2) was arbitrary. Other values can be selected, depending on what aspects of the model are being evaluated or tested. In both models, individuals A and B were at a distance equal to 60 units at time 0.

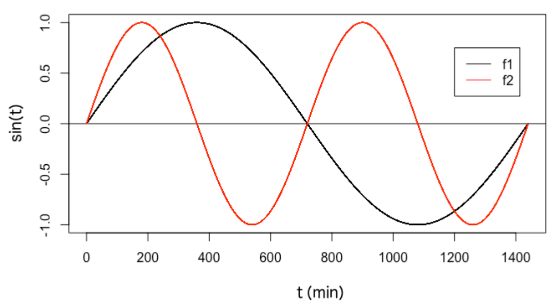

Figure 2: One period of f_1 (black) and 2 periods of f_2 (red). The values of these functions, in particular their sign, are used in the model to govern the time-dependent approach/retreat/indifferent movement behaviours.

Table 2: Parameters used in the simulations

Name	$s_{\min}$	$s_{\max}$	ω	ρ	d_A	d_R	p_{eff}
Value	5	6	1440	0.5	60	30	0.5

4. Results: simulated data

In the results reported here, we used the Euclidean distance to calculate the dyadic distance in units and we scaled the coordinates to be able to use the function `bearing` from the R package `geosphere` to calculate the various angles.

4.1. Individual behaviour analysis

In Fig. 3 we show the results of the individual behaviour analysis for individual B and we provide the analysis results for both individual A and individual B in Tables 3 and 4 respectively.

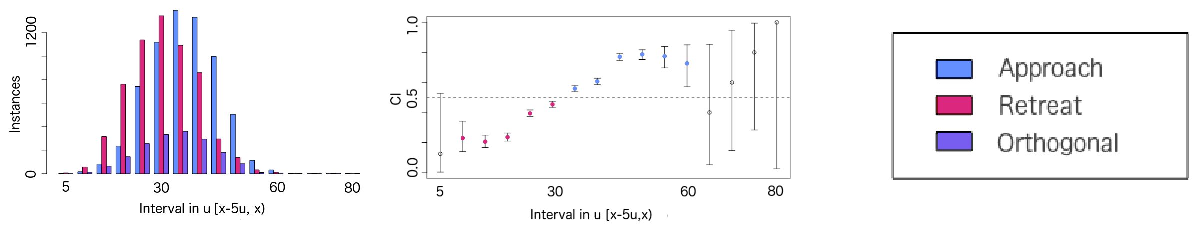

Figure 3: Barplot for individual B (left). Estimated confidence intervals (CI) for individual B, coloured if statistically significant result (centre) according to the legend (right).

Table 3: Results of the individual analysis for individual A. We report the results grouped by distance intervals, providing the total number of approach and retreat behaviours and only the number of approaches. We then show the bounds of the confidence interval (CI) and check the results that are statistically significant at the 95% level, indicating either approach or retreat.

Distance interval (units)	# Total	# Approach	Lower CI	Upper CI	Approach	Retreat
[0,5)	11	4	0.1093	0.6921		
[5,10)	70	23	0.2209	0.4512		✓
[10,15)	404	82	0.1648	0.2455		✓
[15,20)	1003	229	0.2027	0.2556		✓
[20,25)	1846	760	0.3891	0.4345		✓
[25,30)	2445	1138	0.4455	0.4854		✓
[30,35)	2467	1360	0.5314	0.571	✓	
[35,40)	2184	1321	0.584	0.6254	✓	
[40,45)	1282	987	0.7459	0.7927	✓	
[45,50)	633	494	0.7461	0.8121	✓	
[50,55)	139	116	0.7621	0.8921	✓	
[55,60)	39	33	0.6947	0.9414	✓	
[60,65)	6	4	0.2228	0.9567		
[65,70)	8	4	0.157	0.843		
[70,75)	9	3	0.0749	0.7007		
[75,80)	1	1	0.025	1		

Table 4: Results of the individual analysis for individual B. We report the results grouped by distance intervals, providing the total number of approach and retreat behaviours and only the number of approaches. We then show the bounds of the confidence interval (CI) and check the results that are statistically significant at the 95% level, indicating either approach or retreat.

Distance interval (units)	# Total	# Approach	Lower CI	Upper CI	Approach	Retreat
[0,5)	8	1	0.0032	0.5265		
[5,10)	74	17	0.1399	0.3421		✓
[10,15)	398	82	0.1674	0.2491		✓
[15,20)	997	235	0.2097	0.2633		✓
[20,25)	1881	742	0.3723	0.417		✓
[25,30)	2463	1119	0.4345	0.4742		✓
[30,35)	2481	1388	0.5397	0.5791	✓	
[35,40)	2191	1331	0.5867	0.628	✓	
[40,45)	1294	998	0.7474	0.7939	✓	
[45,50)	642	505	0.7529	0.8177	✓	
[50,55)	146	113	0.6975	0.839	✓	
[55,60)	44	32	0.5721	0.8504	✓	
[60,65)	5	2	0.0527	0.8534		
[65,70)	5	3	0.1466	0.9473		
[70,75)	5	4	0.2836	0.9949		
[75,80)	1	1	0.025	1		

4.2. Dyadic behaviour analysis

In Table 5 we present the results of the dyadic behaviour analysis. The entry *Total* refers to the total counts of the four behaviours of interest, shown separately in the entry *Count*. We indicate behaviours of type 3(A,B) and 3(B,A) using the numbers 3 and 4 respectively. In the last column the symbol ✓ indicates the statistically significant results (above 0.25) and for these cases we also added the behavioural type description, coloured with the corresponding colour. We indicate with $*$ cases for which not every count was at least 5 and therefore we did not perform the statistical analysis.

Table 5: Dyadic behaviour results

Pair	Distance interval (units)	Total	Count	Type	Lower CI	Upper CI	Sign. diff. (above)
A and B	[0,5)	7	0	1	0	0.5275	*
A and B		7	3	2	0.1049	0.8276	*
A and B		7	3	3	0.1049	0.8276	*
A and B		7	1	4	0.0149	0.6476	*
A and B	[5,10)	60	5	1	0.026	0.2367	
A and B		60	30	2	0.3303	0.6697	✓Both retreat
A and B		60	16	3	0.141	0.4461	
A and B		60	9	4	0.0626	0.3181	
A and B	[10,15)	347	17	1	0.0254	0.0925	
A and B		347	224	2	0.5713	0.7134	✓Both retreat
A and B		347	54	3	0.1089	0.2175	
A and B		347	52	4	0.104	0.2111	
A and B	[15,20)	880	53	1	0.0414	0.0868	
A and B		880	530	2	0.5554	0.6473	✓Both retreat
A and B		880	142	3	0.1297	0.199	
A and B		880	155	4	0.1431	0.2148	
A and B	[20,25)	1628	385	1	0.2083	0.2671	
A and B		1628	696	2	0.3937	0.4621	✓Both retreat
A and B		1628	278	3	0.1463	0.1984	
A and B		1628	269	4	0.1411	0.1926	
A and B	[25,30)	2148	612	1	0.2585	0.3129	✓Both approach
A and B		2148	801	2	0.3442	0.4025	✓Both retreat
A and B		2148	377	3	0.1538	0.1996	
A and B		2148	358	4	0.1454	0.1903	
A and B	[30,35)	2143	861	1	0.3726	0.4317	✓Both approach
A and B		2143	608	2	0.2573	0.3117	✓Both retreat
A and B		2143	334	3	0.1352	0.179	
A and B		2143	340	4	0.1378	0.182	
A and B	[35,40)	1924	833	1	0.4017	0.4647	✓Both approach
A and B		1924	422	2	0.1941	0.2468	
A and B		1924	329	3	0.1483	0.1963	
A and B		1924	340	4	0.1537	0.2023	
A and B	[40,45)	1125	683	1	0.5658	0.6469	✓Both approach
A and B		1125	79	2	0.0518	0.0946	
A and B		1125	175	3	0.1277	0.1881	
A and B		1125	188	4	0.1383	0.2005	
A and B	[45,50)	558	337	1	0.545	0.66	✓Both approach
A and B		558	20	2	0.0195	0.065	
A and B		558	92	3	0.1256	0.2134	
A and B		558	109	4	0.1528	0.2463	
A and B	[50,55)	132	85	1	0.5224	0.7494	*
A and B		132	4	2	0.0083	0.1048	*
A and B		132	26	3	0.1184	0.3094	*
A and B		132	17	4	0.0677	0.2314	*
A and B	[55,60)	35	22	1	0.3973	0.8129	*
A and B		35	1	2	0.0029	0.2263	*
A and B		35	8	3	0.092	0.4642	*
A and B		35	4	4	0.0316	0.3378	*
A and B	[60,65)	5	1	1	0.021	0.7449	*
A and B		5	1	2	0.021	0.7449	*
A and B		5	2	3	0.0736	0.8484	*
A and B		5	1	4	0.021	0.7449	*
A and B	[65,70)	5	1	1	0.021	0.7449	*
A and B		5	0	2	0	0.6098	*
A and B		5	2	3	0.0736	0.8484	*
A and B		5	2	4	0.0736	0.8484	*
A and B	[70,75)	5	0	1	0	0.6098	*
A and B		5	0	2	0	0.6098	*
A and B		5	1	3	0.021	0.7449	*
A and B		5	4	4	0.2551	0.979	*
A and B	[75,80)	1	1	1	0.1134	1	*
A and B		1	0	2	0	0.8866	*
A and B		1	0	3	0	0.8866	*
A and B		1	0	4	0	0.8866	*

4.3. χ^2 goodness-of-fit test

As already introduced in the main paper, a χ^2 goodness-of-fit test could also be used to evaluate if our observed distribution of behavioural types is significantly different from random. To provide an example, we performed the dyadic behaviour analysis in the R platform using the simulated data. Intervals n.1, 13-16 ([0,5), [60,65), [65, 70), [70, 75) and [75,80) respectively) had the following warning (due to low counts as input):

```
In chisq.test(v, p = c(1/4, 1/4, 1/4, 1/4)) : Chi-squared approximation may be incorrect
```

where the vector `v` represents the 4 entries in the column Count, for each distance interval. For this reason, we do not evaluate the significance (p-value < 0.05) for the intervals n.1, 13-16 but only report the symbol $*$ in the significance column of Table 6. Note that in the significance column we report statistically significant results by providing the symbol ✓ in the first row of the section corresponding to the considered observed distribution of behavioural types.

In Table 6 we also report the residuals. In particular, positive residuals mean that the observed occurrences were higher than the expected value while negative residuals correspond to a lower number of occurrences than the expected value. Evaluating the sign of the residuals and their meaning can be used for both the individual and the dyadic behaviour analysis.

In addition, the absolute values of the residuals can be used to evaluate the contribution of each entry to the χ^2-test statistic. We show these cases in the last column, providing the name of behavioural type of major contribution coloured with the corresponding colour, while we insert the symbol $*$ for intervals n.1, 13-16. Note that the analysis of the absolute value of the residuals can provide information of interest when studying at least 3 possible behaviours, since in the analysis of only two behaviours (e.g. approach/retreat) the residuals will present the same absolute value.

Table 6: Dyadic behaviour χ^2-test results

Pair	Distance interval (units)	Total	Count	Type	p-value	Sign. diff.	residuals	Highest contribution
A and B	[0,5)	7	0	1	0.28	*	-1.3229	*
A and B		7	3	2			0.9449	*
A and B		7	3	3			0.9449	*
A and B		7	1	4			-0.5669	*
A and B	[5,10)	60	5	1	2.3429×10^{-5}	✓	-2.582	
A and B		60	30	2			3.873	Both retreat
A and B		60	16	3			0.2582	
A and B		60	9	4			-1.5492	
A and B	[10,15)	347	17	1	1.2682×10^{-64}	✓	-7.4888	
A and B		347	224	2			14.7359	Both retreat
A and B		347	54	3			-3.5162	
A and B		347	52	4			-3.731	
A and B	[15,20)	880	53	1	5.4818×10^{-132}	✓	-11.2591	
A and B		880	530	2			20.9002	Both retreat
A and B		880	142	3			-5.2588	
A and B		880	155	4			-4.3823	
A and B	[20,25)	1628	385	1	1.9023×10^{-63}	✓	-1.0905	
A and B		1628	696	2			14.3252	Both retreat
A and B		1628	278	3			-6.3943	
A and B		1628	269	4			-6.8404	
A and B	[25,30)	2148	612	1	2.1606×10^{-53}	✓	3.2365	
A and B		2148	801	2			11.3924	Both retreat
A and B		2148	377	3			-6.9045	
A and B		2148	358	4			-7.7244	
A and B	[30,35)	2143	861	1	1.4344×10^{-76}	✓	14.0519	Both approach
A and B		2143	608	2			3.1215	
A and B		2143	334	3			-8.7163	
A and B		2143	340	4			-8.4571	
A and B	[35,40)	1924	833	1	1.8379×10^{-76}	✓	16.0498	Both approach
A and B		1924	422	2			-2.6902	
A and B		1924	329	3			-6.9306	
A and B		1924	340	4			-6.429	
A and B	[40,45)	1125	683	1	5.2945×10^{-171}	✓	23.9557	Both approach
A and B		1125	79	2			-12.0599	
A and B		1125	175	3			-6.3355	
A and B		1125	188	4			-5.5604	
A and B	[45,50)	558	337	1	1.9960×10^{-87}	✓	16.7217	Both approach
A and B		558	20	2			-10.1177	
A and B		558	92	3			-4.0217	
A and B		558	109	4			-2.5823	
A and B	[50,55)	132	85	1	4.0294×10^{-25}	✓	9.052	Both approach
A and B		132	4	2			-5.0483	
A and B		132	26	3			-1.2185	
A and B		132	17	4			-2.7852	
A and B	[55,60)	35	22	1	1.6983×10^{-6}	✓	4.4793	Both approach
A and B		35	1	2			-2.62	
A and B		35	8	3			-0.2535	
A and B		35	4	4			-1.6058	
A and B	[60,65)	5	1	1	0.90	*	-0.2236	*
A and B		5	1	2			-0.2236	*
A and B		5	2	3			0.6708	*
A and B		5	1	4			-0.2236	*
A and B	[65,70)	5	1	1	0.53	*	-0.2236	*
A and B		5	0	2			-1.118	*
A and B		5	2	3			0.6708	*
A and B		5	2	4			0.6708	*
A and B	[70,75)	5	0	1	0.035	*	-1.118	*
A and B		5	0	2			-1.118	*
A and B		5	1	3			-0.2236	*
A and B		5	4	4			2.4597	*
A and B	[75,80)	1	1	1	0.39	*	1.5	*
A and B		1	0	2			-0.5	*
A and B		1	0	3			-0.5	*
A and B		1	0	4			-0.5	*

4.4. Results for time-dependent RM-BRW model

In this section we show the results of the individual behaviour classification obtained by subdividing our 10-day simulation data depending on the time of the day (first quarter, second quarter and second half of the day), considering dyadic distance below 4000 units (maximum distance: 3933 units). We start by showing the overall classification in Fig. 4, where we observe a balanced distribution of approach and retreat behaviours. Also in this case, we report the results of the classification only for individual A given the similarities of the behaviours of individual A and individual B.

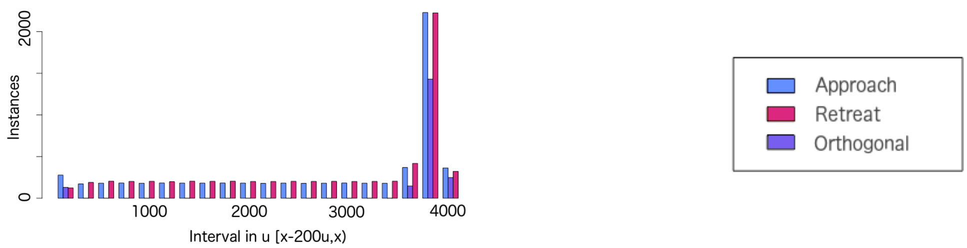

Figure 4: Results of individual behaviour classification for individual A, for the time-dependent RM-BRW model

In Fig. 5 we show the classification results related to the first quarter of the day (first row), to the second quarter of the day (second row) and to the second half of the day (third row). As expected, we observe that in the first quarter of the day the individual mostly shows approach behaviour (in blue) while in the second quarter of the day it shows mostly retreat behaviour (in red). In the second half of the day, when the individuals move independently, we observe a balanced mixture of the different behavioural types, without a prevalent one.

In Fig. 6 we depict the results of the dyadic behaviour classification, divided depending on the time of the day. Also in this case, the classification captures the different dyadic behaviour (both approaching, both retreating) for the first 2 quarters of the day, while the second half presents the various dyadic behavioural types.

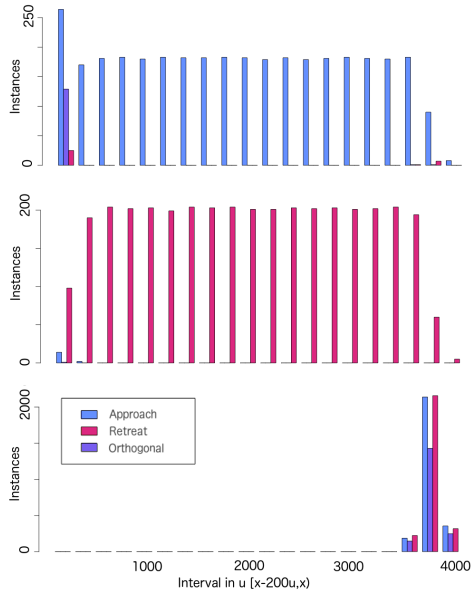

Figure 5: Results of individual behaviour classification for individual A, for the time-dependent RM-BRW model, for different times of the day. First row: first quarter of the day, second row: second quarter of the day, third row: second half of the day with legend.

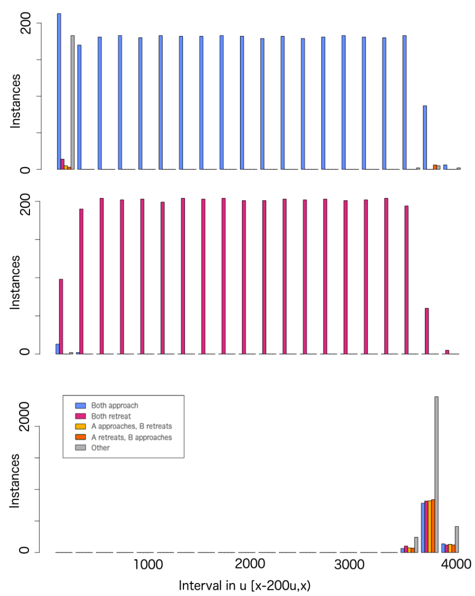

Figure 6: Results of dyadic behaviour classification for individual A and B, for the time-dependent RM-BRW model, for different times of the day. From the top: first quarter of the day, second quarter of the day, second half of the day with legend.

5. Results: empirical data

In Fig. 7 we show the time line of the data collection for each individual and each different data collection frequency. We do not specify the individual names since we focus on showing the data collection time ranges.

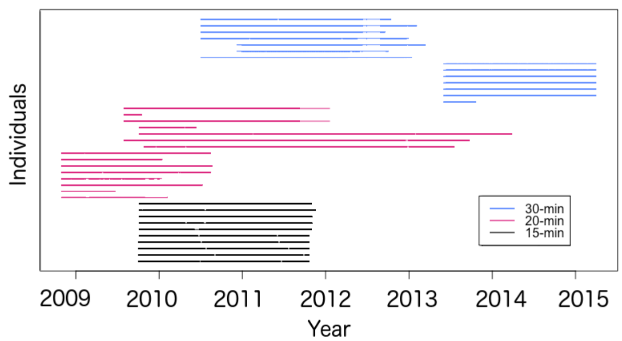

Figure 7: Time line of data collection for each individual and for each different frequency.

We now present information from previous work where these data were used, to share more details regarding the data.

- *Information from (Tsalyuk et al., 2019) on 20-min data*: we collected data from 15 elephants with GPS/GSM platform collars (Africa Wildlife Tracking, Pretoria, South Africa), eight female individuals and seven male individuals. Collaring was performed in the central part of Etosha, around Okaukuejo station. Darting and collaring procedures were performed by veterinarians from the Namibian Ministry of Environment and Tourism in compliance with the University of California Berkeley animal care and use protocol (#R217-0511B). Elephants were collared during two periods, October 2008 and July 2009; data were collected for 2.2 months to 4.6 yr (October 2008–March 2014). Location information was recorded in time intervals alternating between 1 min and 19 min. GPS collar accuracy was 3 m, as was confirmed in the field.

- *Information from (Seidel, 2019) on 20-min data*: Before analysis, this trajectory was regularised using the adehabitatLT package such that only the first and third fix of each set remained, thereby resulting in relocations every 20 minutes. [...] Regularization was performed using the R function `regularize` (from R package `stmove`) and an expected fix rate of 20 minutes – eliminating every other fix in order to standardise the interval to 20 minutes for future analysis.

- *Information from (Polansky et al., 2015) on 15-min and 30-min data*: Global Positioning System (GPS) satellite and Global Systems for Mobile Communications (GSM) collars: (GSM, 15 min sampling intervals, GPS satellite, 30 min sampling intervals), with a spatial resolution to about 3 m^2. Fitting and removal of collars were conducted by veterinarians from the Namibian Ministry of Environment

Table 7: Information regarding 15-min frequency data (all male individuals)

Individual	Total points	15-min	Percentage with different time interval	Period (yyyy-mm-dd)
1	68450	68396	0.076	2009-10-03 - 2011-10-19
2	68409	68356	0.075	2009-10-03 - 2011-10-19
3	67044	65996	1.560	2009-10-03 - 2011-10-19
4	68445	68406	0.054	2009-10-03 - 2011-10-19
5	68573	68532	0.057	2009-10-04 - 2011-10-19
6	68567	68483	0.120	2009-10-04 - 2011-11-01
7	69185	69122	0.088	2009-10-04 - 2011-11-02
8	71465	71415	0.067	2009-10-04 - 2011-11-02
9	70756	70348	0.574	2009-10-05 - 2011-11-17
10	72690	72676	0.017	2009-10-05 - 2011-11-01

and Tourism and in accordance with their best-practice principles. The collared elephants were located in the eastern area of Etosha National Park.

In addition, we removed relocation data in the area of the Okaukuejo station (we believe caused by the GPS collar retrievement) since these data were not representing actual individual movement and therefore we did not want to include them in the analysis. We provide a table for each frequency of data collection (Tables 7-9) before our data cleaning. These tables provide the total number of collected data points and the period of data collection. In addition, they provide the percentage of data points not at the given frequency (15-, 20- or 30-min). For the 15-min frequency data, the most common frequency different than 15-min was 30-min. For the 20-min data, it was 40-min, while for 30-min data it was 1-hour.

5.1. Dyadic behaviour analysis: female-male dyad

In Table 10 we present the results of the dyadic behaviour analysis for the pair of interest. As before, we indicate behaviours of type 3(A,B) and 3(B,A) with numbers 3 and 4. Statistically significant results (above 0.25) are marked using the symbol ✓. Letter A represents the female while letter B represents the male.

5.2. Seasonality

In Tables 11-13 we present the results of the dyadic analysis of the pair of interest looking at data collected during hot-wet, cold-dry and hot-dry season respectively.

Table 8: Information regarding 20-min frequency data

Individual	Sex	Total points	20-min	Percentage with different time interval	Period (yyyy-mm-dd)
1	M	25639	25622	0.059	2008-10-30 - 2010-02-07
2	F	16987	16973	0.071	2008-10-30 - 2009-06-23
3	M	44285	44144	0.314	2008-10-30 - 2010-07-10
4	M	19964	19773	0.947	2008-10-30 - 2010-01-13
5	M	45153	45069	0.182	2008-10-30 - 2010-08-16
6	F	47140	46961	0.375	2008-10-30 - 2010-08-21
7	F	31729	31719	0.025	2008-10-30 - 2010-01-14
8	F	46842	46801	0.083	2008-10-30 - 2010-08-15
9	F	93762	93589	0.182	2009-10-27 - 2013-07-16
10	F	105245	105088	0.147	2009-07-30 - 2013-09-23
11	F	113627	113505	0.106	2009-10-06 - 2014-03-27
12	F	17514	17497	0.086	2009-10-06 - 2010-06-12
13	M	55326	55286	0.069	2009-07-30 - 2012-01-20
14	M	5629	5622	0.089	2009-07-30 - 2009-10-17
15	M	55134	54983	0.270	2009-07-30 - 2012-01-20

Table 9: Information regarding 30-min frequency data (all female individuals)

Individual	Total points	30-min	Percentage with different time interval	Period (yyyy-mm-dd)
1	5657	5173	8.520	2013-06-01 - 2013-10-20
2	28297	26246	7.241	2013-06-01 - 2015-04-02
3	28322	26040	8.050	2013-06-01 - 2015-04-02
4	29145	27665	5.071	2013-06-01 - 2015-04-02
5	28446	26704	6.117	2013-06-01 - 2015-04-02
6	28734	27041	5.885	2013-06-01 - 2015-04-02
7	28269	26245	7.153	2013-06-01 - 2015-04-02
8	34274	32676	4.657	2010-07-01 - 2013-01-12
9	23008	21265	7.567	2010-12-07 - 2012-10-02
10	32341	30586	5.420	2010-12-07 - 2013-03-14
11	33137	30859	6.868	2010-07-01 - 2012-12-29
12	31002	29228	5.716	2010-07-01 - 2012-09-18
13	37577	35722	4.931	2010-07-01 - 2013-02-04
14	31440	29091	7.465	2010-07-01 - 2012-10-14

Table 10: Results of the dyadic behaviour analysis for pair of interest

Pair	Distance interval (units)	Total	Count	Type	Lower CI	Upper CI	Sign. diff. (above)
A and B	[0,50)	485	49	1	0.0689	0.1458	
A and B		485	26	2	0.0315	0.0899	
A and B		485	185	3	0.3221	0.4445	✓
A and B		485	225	4	0.4017	0.5273	✓
A and B	[50,100)	522	27	1	0.0306	0.086	
A and B		522	41	2	0.0515	0.118	
A and B		522	207	3	0.3386	0.4575	✓
A and B		522	247	4	0.4129	0.5342	✓
A and B	[100,200)	857	80	1	0.0691	0.1249	
A and B		857	78	2	0.0671	0.1223	
A and B		857	328	3	0.3376	0.43	✓
A and B		857	371	4	0.3864	0.4806	✓
A and B	[200,500)	1700	230	1	0.1138	0.1602	
A and B		1700	208	2	0.1018	0.1463	
A and B		1700	527	3	0.2796	0.3422	✓
A and B		1700	735	4	0.3991	0.4662	✓
A and B	[500,1000)	1369	222	1	0.1362	0.1919	
A and B		1369	214	2	0.1308	0.1857	
A and B		1369	276	3	0.173	0.2336	
A and B		1369	657	4	0.4424	0.5177	✓
A and B	[1000,2000)	1064	211	1	0.1664	0.2346	
A and B		1064	187	2	0.1455	0.2107	
A and B		1064	176	3	0.136	0.1997	
A and B		1064	490	4	0.4183	0.5034	✓
A and B	[2000,3000)	742	143	1	0.1555	0.2363	
A and B		742	170	2	0.1889	0.2749	
A and B		742	153	3	0.1678	0.2507	
A and B		742	276	4	0.3239	0.4227	✓
A and B	[3000,5000)	997	216	1	0.1825	0.2553	
A and B		997	232	2	0.1975	0.2721	
A and B		997	280	3	0.2429	0.3222	
A and B		997	269	4	0.2324	0.3108	
A and B	[5000,10000)	2144	559	1	0.2351	0.2881	
A and B		2144	512	2	0.214	0.2655	
A and B		2144	517	3	0.2163	0.2679	
A and B		2144	556	4	0.2338	0.2866	

Table 11: Hot-wet season: results

Pair	Distance interval (units)	Total	Count	Type	Lower CI	Upper CI	Sign. diff. (above)
A and B	[0,50)	82	6	1	0.025	0.1956	
A and B		82	7	2	0.0315	0.2114	
A and B		82	28	3	0.2147	0.4958	
A and B		82	41	4	0.3525	0.6475	✓
A and B	[50,100)	89	9	1	0.0418	0.2248	
A and B		89	8	2	0.0352	0.2107	
A and B		89	30	3	0.2153	0.4852	
A and B		89	42	4	0.3323	0.616	✓
A and B	[100,200)	186	24	1	0.075	0.2129	
A and B		186	25	2	0.0791	0.2192	
A and B		186	54	3	0.2072	0.3903	
A and B		186	83	4	0.3486	0.5482	✓
A and B	[200,500)	469	67	1	0.1035	0.1939	
A and B		469	53	2	0.0783	0.1604	
A and B		469	156	3	0.275	0.3957	✓
A and B		469	193	4	0.3499	0.476	✓
A and B	[500,1000)	632	118	1	0.1473	0.2338	
A and B		632	102	2	0.1247	0.2064	
A and B		632	131	3	0.1659	0.2558	
A and B		632	281	4	0.3904	0.5002	✓
A and B	[1000,2000)	576	118	1	0.1619	0.2557	
A and B		576	106	2	0.1432	0.2333	
A and B		576	85	3	0.111	0.1936	
A and B		576	267	4	0.4063	0.5217	✓
A and B	[2000,3000)	377	84	1	0.1689	0.288	
A and B		377	82	2	0.1642	0.2823	
A and B		377	59	3	0.1112	0.2157	
A and B		377	152	4	0.3352	0.4751	✓
A and B	[3000,5000)	529	117	1	0.175	0.2755	
A and B		529	111	2	0.1647	0.2634	
A and B		529	136	3	0.2078	0.3135	
A and B		529	165	4	0.2587	0.3706	✓
A and B	[5000,10000)	769	186	1	0.2014	0.2875	
A and B		769	200	2	0.2184	0.3066	
A and B		769	181	3	0.1954	0.2807	
A and B		769	202	4	0.2209	0.3093	

Table 12: Cold-dry season: results

Pair	Distance interval (units)	Total	Count	Type	Lower CI	Upper CI	Sign. diff. (above)
A and B	[0,50)	6	0	1	0	0.5657	*
A and B		6	0	2	0	0.5657	*
A and B		6	4	3	0.2055	0.9393	*
A and B		6	2	4	0.0607	0.7945	*
A and B	[50,100)	6	0	1	0	0.5657	*
A and B		6	0	2	0	0.5657	*
A and B		6	3	3	0.1239	0.8761	*
A and B		6	3	4	0.1239	0.8761	*
A and B	[100,200)	14	1	1	0.0074	0.4425	*
A and B		14	2	2	0.0254	0.5162	*
A and B		14	3	3	0.0506	0.5827	*
A and B		14	8	4	0.2485	0.8431	*
A and B	[200,500)	36	5	1	0.0437	0.3629	*
A and B		36	2	2	0.0098	0.2599	*
A and B		36	17	3	0.2663	0.6881	*
A and B		36	12	4	0.1618	0.5644	*
A and B	[500,1000)	30	8	1	0.1082	0.5216	*
A and B		30	8	2	0.1082	0.5216	*
A and B		30	4	3	0.037	0.3812	*
A and B		30	10	4	0.1507	0.5848	*
A and B	[1000,2000)	62	16	1	0.1363	0.434	
A and B		62	17	2	0.1481	0.4508	
A and B		62	21	3	0.1974	0.5161	
A and B		62	8	4	0.051	0.2902	
A and B	[2000,3000)	80	13	1	0.0785	0.3066	
A and B		80	21	2	0.1507	0.4166	
A and B		80	32	3	0.2625	0.5553	✓
A and B		80	14	4	0.0869	0.3209	
A and B	[3000,5000)	197	38	1	0.1267	0.2826	
A and B		197	66	2	0.2489	0.4337	
A and B		197	62	3	0.2308	0.4128	
A and B		197	31	4	0.0981	0.2428	
A and B	[5000,10000)	719	193	1	0.2249	0.3169	
A and B		719	176	2	0.2029	0.2922	
A and B		719	196	3	0.2288	0.3213	
A and B		719	154	4	0.1746	0.2599	

Table 13: Hot-dry season: results

Pair	Distance interval (units)	Total	Count	Type	Lower CI	Upper CI	Sign. diff. (above)
A and B	[0,50)	397	43	1	0.072	0.1597	
A and B		397	19	2	0.0257	0.0875	
A and B		397	153	3	0.3199	0.4553	✓
A and B		397	182	4	0.39	0.5285	✓
A and B	[50,100)	427	18	1	0.0222	0.0786	
A and B		427	33	2	0.0483	0.1215	
A and B		427	174	3	0.3433	0.4751	✓
A and B		427	202	4	0.4066	0.5405	✓
A and B	[100,200)	657	55	1	0.0582	0.119	
A and B		657	51	2	0.0532	0.112	
A and B		657	271	3	0.3601	0.4669	✓
A and B		657	280	4	0.3734	0.4807	✓
A and B	[200,500)	1195	158	1	0.1072	0.162	
A and B		1195	153	2	0.1034	0.1575	
A and B		1195	354	3	0.2607	0.3344	✓
A and B		1195	530	4	0.4038	0.4839	✓
A and B	[500,1000)	707	96	1	0.1037	0.1758	
A and B		707	104	2	0.1137	0.1882	
A and B		707	141	3	0.1608	0.2446	
A and B		707	366	4	0.4652	0.5697	✓
A and B	[1000,2000)	426	77	1	0.1345	0.2385	
A and B		426	64	2	0.1082	0.2049	
A and B		426	70	3	0.1203	0.2205	
A and B		426	215	4	0.4375	0.5717	✓
A and B	[2000,3000)	285	46	1	0.1097	0.2312	
A and B		285	67	2	0.1725	0.3118	
A and B		285	62	3	0.1573	0.2929	
A and B		285	110	4	0.3094	0.4686	✓
A and B	[3000,5000)	271	61	1	0.1625	0.3031	
A and B		271	55	2	0.1434	0.2791	
A and B		271	82	3	0.231	0.3852	
A and B		271	73	4	0.2013	0.3504	
A and B	[5000,10000)	656	180	1	0.2286	0.3255	
A and B		656	136	2	0.1666	0.2549	
A and B		656	140	3	0.1722	0.2614	
A and B		656	200	4	0.2572	0.3572	✓

6. Following behaviour: sign test

We consider the *following* behaviours of female and male (type b and e of the extended analysis respectively), for each dyadic distance interval below 1 km, creating the two vectors `f_foll` and `m_foll`. We then perform the sign test using the function `SignTest` from the R package `DescTools` to evaluate if the following behaviours of the female were significantly less than the ones of the male. Note that we assume independence among the counts across distance intervals. We run the following R function:

```
SignTest(x = f_foll, y = m_foll, alternative = "less")
```

The p-value of the test was 0.03125, indicating a significant difference (p-value < 0.05) among the two behaviour distributions, showing that the female follows the male statistically significantly less than the male follows the female for dyadic distance intervals below 1 km.

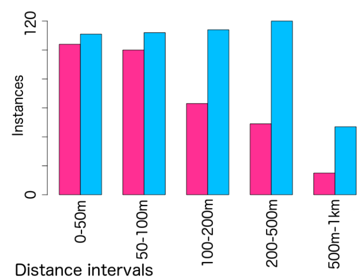

Figure 8: *Following* behaviour distribution for female (pink) and male (blue)

Table 14: Following behaviour - distribution of occurrences per gender and per distance interval

Interval	[0m-50m)	[50m,100m)	[100m,200m)	[200m,500m)	[500m,1km)
Female	104	100	63	49	15
Male	111	112	114	120	47

7. Sensitivity analysis: circle segmentation

In Fig. 9 we present seven different circle segmentations that we use in our sensitivity analysis. In particular, the width of approach and retreat segments (still of identical width) for the various classifications is as follows:

- (a) 30 degrees
- (b) 45 degrees
- (c) 60 degrees
- (d) 90 degrees
- (e) 108 degrees
- (f) 135 degrees
- (g) 150 degrees

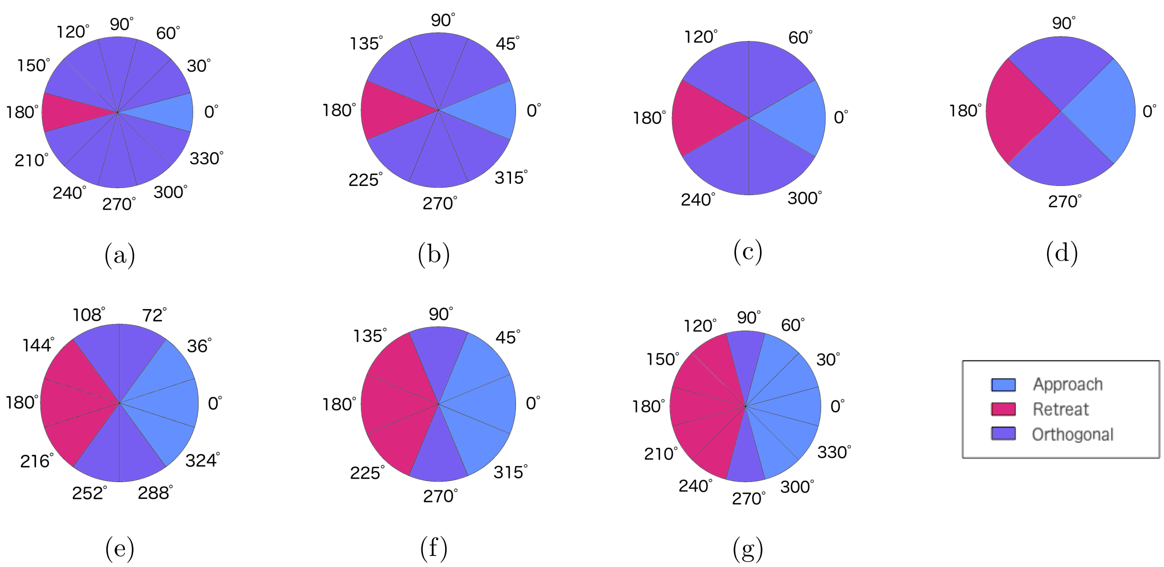

Figure 9: Circle segmentations and approach/retreat/orthogonal behaviour classifications, with legend

7.1. Individual behaviour analysis: simulated data

The individual behaviour analysis considers the occurrences of approach and retreat behaviours. We report the results of the analysis only for individual A given the similarities of the behaviours of individual A and individual B. We report the barplots in Fig. 10 and the statistical analysis with the CI in Fig. 11. As reported in the main text, in our sensitivity analysis we observe that the results do not present major variations. The proportion among the two behaviours of interest (approach and retreat) does not vary substantially. However, we observe that the width of CI tends to decrease with the increase of the width of the approach/retreat segments, since we might consider more cases. Because the estimated intervals are smaller, we might observe an increase in the results that are classified as statistically significant. Note that in Fig. 11 the missing CIs correspond to the cases where both approach and retreat counts were equal to 0 (for cases a and b, of small approach/retreat segments).

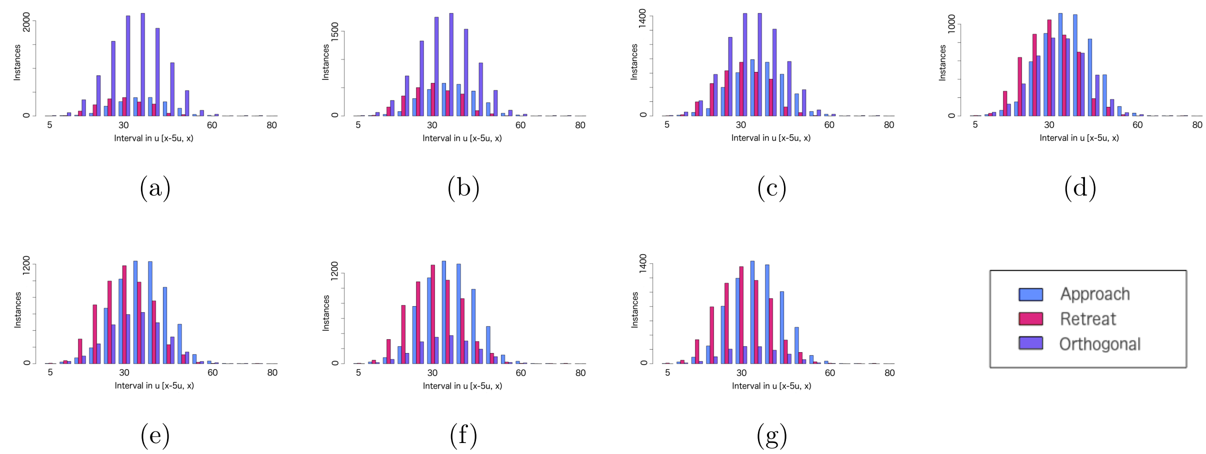

Figure 10: Barplots for individual A corresponding to the circle segmentation a-g with legend

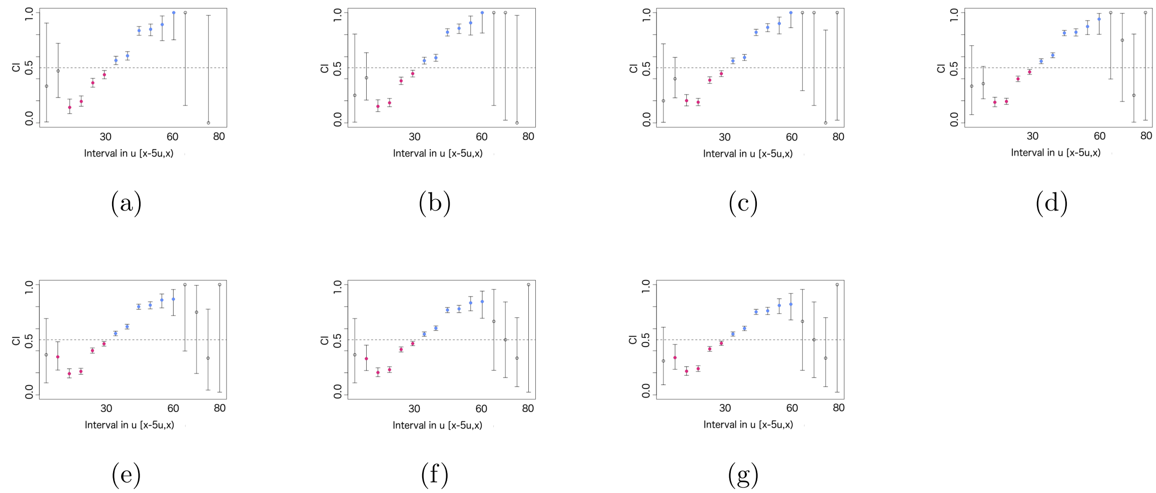

Figure 11: CI analysis for individual A corresponding to the circle segmentation a-g

7.2. Individual behaviour analysis: empirical data

Also in the individual behaviour analysis of the empirical data the results do not vary substantially among the various cases under study in our sensitivity analysis. In Fig. 12 we show the results of the statistical analysis for the female, which shows mostly retreat behaviours in each scenario, while Fig. 13 reports the results for the analysis of male behaviour, showing mostly approach behaviours for each different setting.

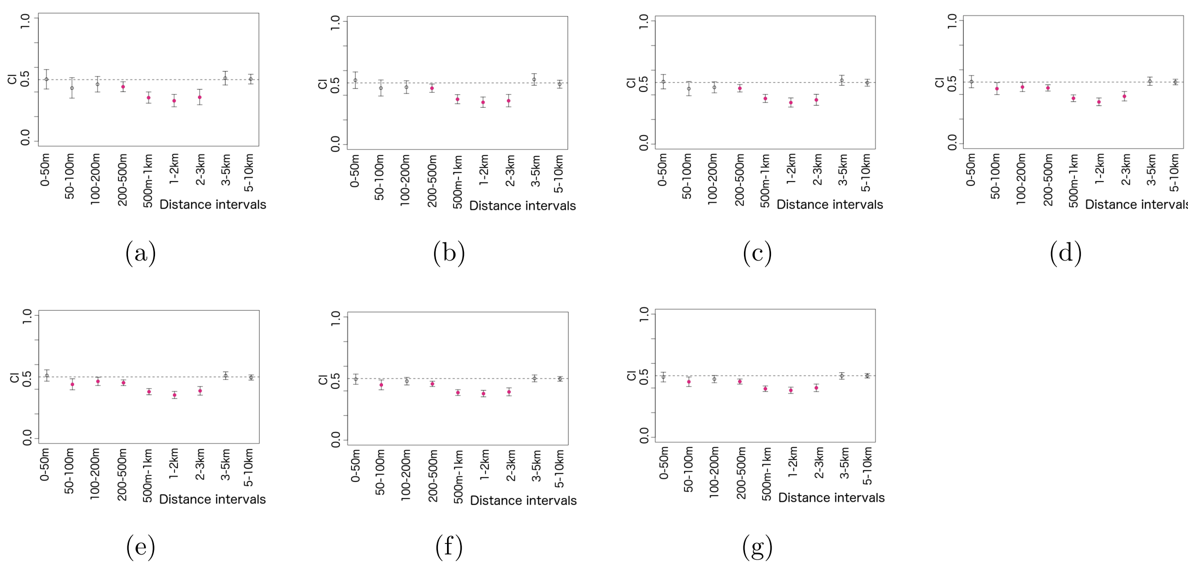

Figure 12: CI analysis (female) corresponding to the circle segmentation a-g

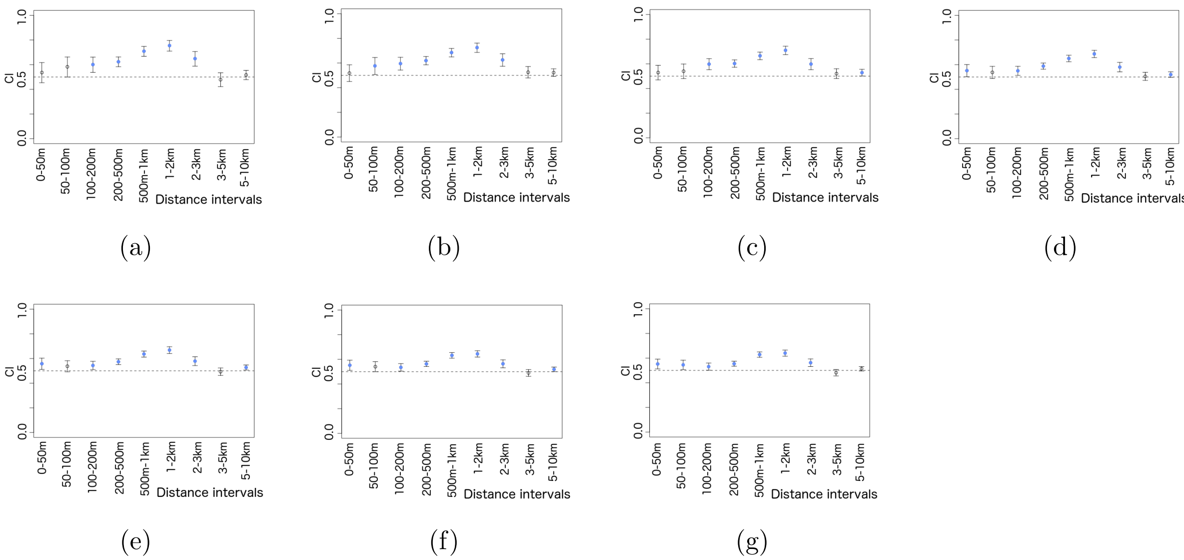

Figure 13: CI analysis (male) corresponding to the circle segmentation a-g

8. Sensitivity analysis: distance intervals

In Figs 14-15 we report the results of the individual behaviour analysis using the empirical data (female and male respectively) for different sets $\mathcal{I}$ of distance intervals and with the same set up as in the main text. In particular, we start with the partition (a) presented in the main text (we provide the intervals in meters) followed by a coarser partition (b). We then evaluate the results using a finer partition (c) and conclude with a partition (d) that present a finer scale for shorter distances and a coarser scale for larger distances.

- $(a) : \mathcal{I} = \{[0, 50), [50, 100), [100, 200), [200, 500), [500, 1000), [1000, 2000), [2000, 5000), [5000, 10000)\}$
- $(b) : \mathcal{I} = \{[0, 200), [200, 500), [500, 1000), [1000, 5000), [5000, 10000)\}$
- $(c) : \mathcal{I} = \{[0, 50), [50, 100), [100, 150), [150, 200), [200, 350), [350, 500), [500, 750), [750, 1000), [1000, 2000), [2000, 3000), [3000, 4000), [4000, 5000), [5000, 6000), [6000, 7000), [7000, 8000), [8000, 9000), [9000, 10000)\}$
- $(d) : \mathcal{I} = \{[0, 25), [25, 50), [50, 75), [75, 100), [100, 200), [200, 500), [500, 1000), [1000, 10000)\}$

We observe that the distribution of statistically significant results does not change substantially. However, for case (d), we observe that a finer partition reveals that the female approaches statistically significant more often at very short distances, which is an additional insight on the behaviour of the pair of interest. We are able to gain this additional insight since the pair of interest presents many instances at close quarters, and therefore enough information is provided for the statistical analysis to be performed and to extract these results. Note that the choice of distance intervals will depend also on the research questions and on the species under examination.

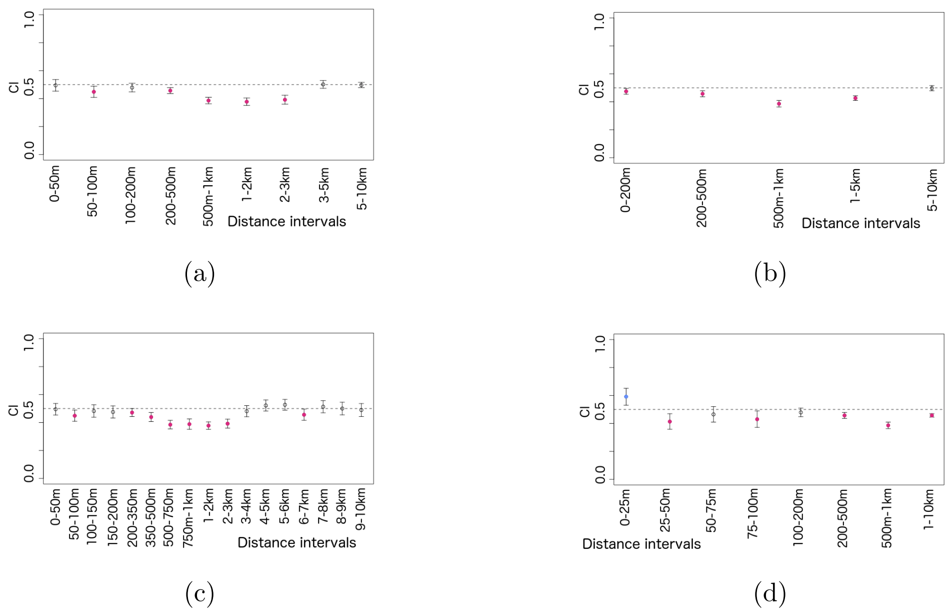

Figure 14: CI analysis (female) corresponding to the distance interval set a-d

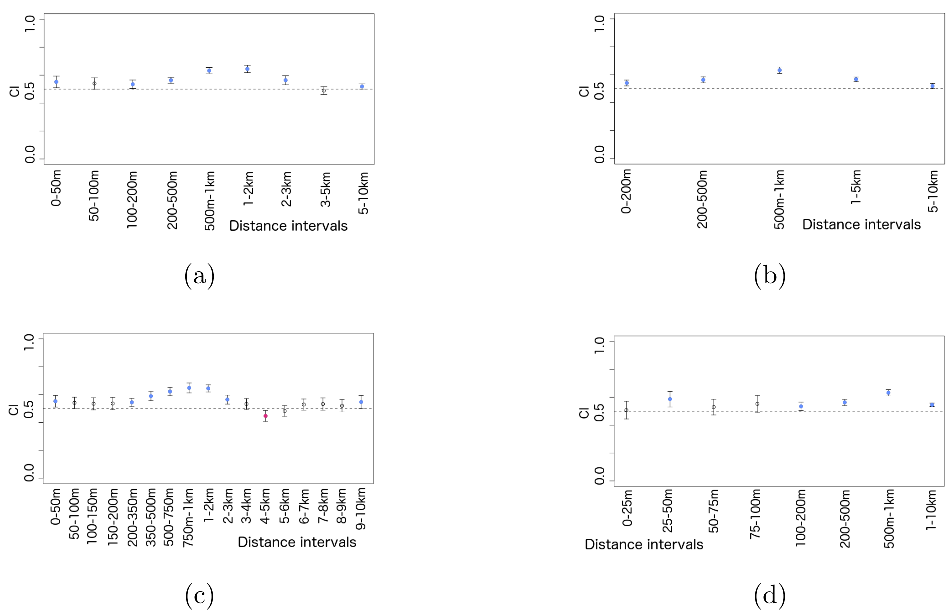

Figure 15: CI analysis (male) corresponding to the distance interval set a-d

9. Sensitivity analysis: heading difference

In Fig. 16 we report the results of the extended analysis for different values of the parameter θ and with the same set up as in the main text. In particular, θ = 5, 10, 15, 20, 25 degrees for cases a-e respectively.

We observe an increase in the number of cases considered with the increase of the value of θ, since we are relaxing the condition on the absolute heading difference and therefore considering more cases. However, we observe that the distribution of various behaviours of interest does not change substantially. In particular, we performed the sign test for the five different cases and obtained the same results for all scenarios (the female follows the male statistically significantly less than the male follows the female for dyadic distance intervals below 1 km). Fig. 17 shows the *following* behaviour distribution for female and male, for dyadic distance intervals below 1 km.

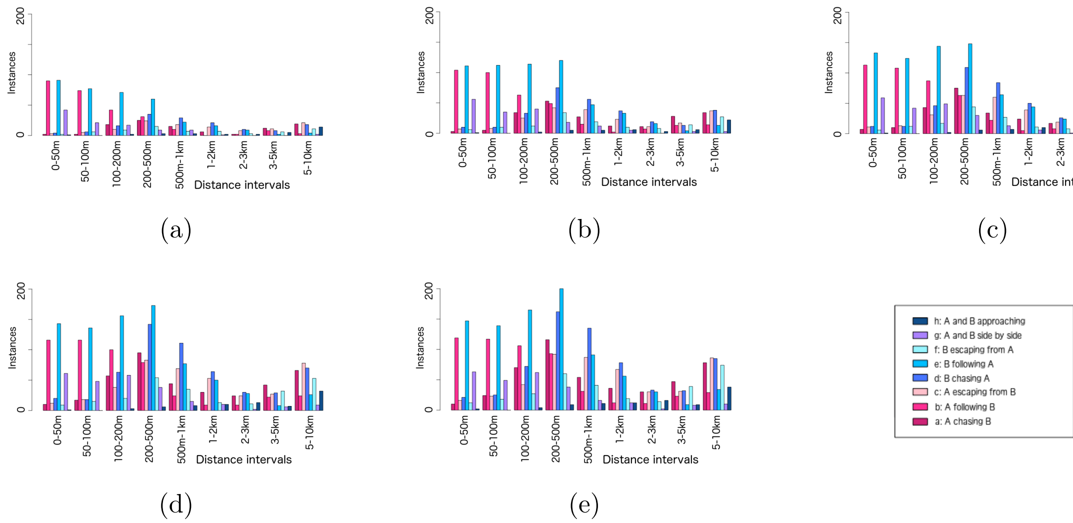

Figure 16: Extended analysis results for various values of the parameter θ, for cases a-e with legend

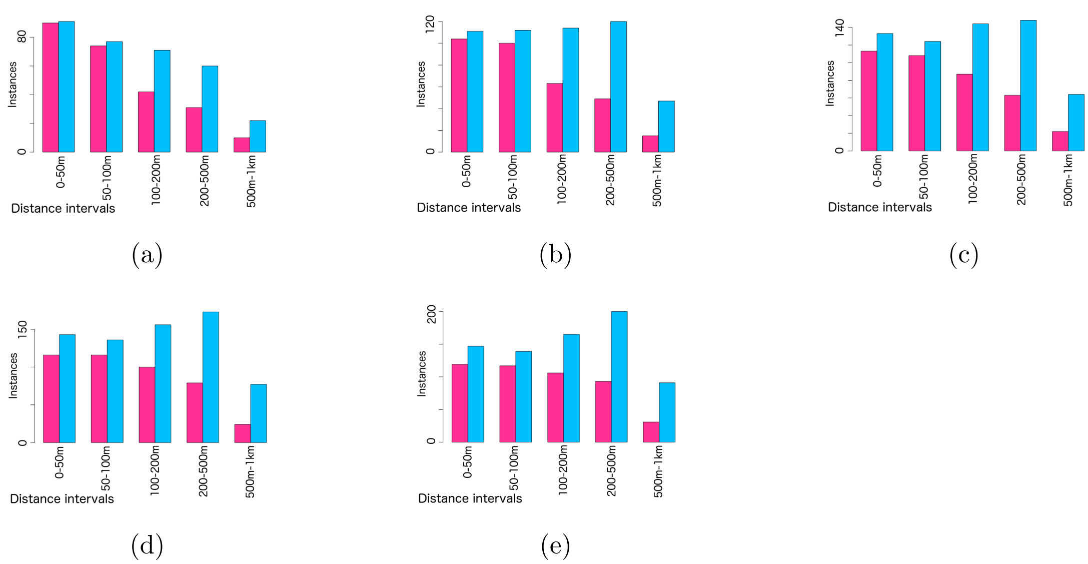

Figure 17: *Following* behaviour distribution for female (pink) and male (blue) for cases a-e

10. Sensitivity analysis: speed classification

In Figs. 18-19 we present the results of the extended analysis for different parameters for speed classification and the same set up as the main text. In particular, for cases a-d we considered different values for the interval $[s_l, s_u]$: $[\frac{4}{5}, \frac{5}{4}], [\frac{2}{3}, \frac{3}{2}], [\frac{1}{2}, 2], [\frac{1}{3}, 3]$ respectively. We observe that with a wider interval $[s_l, s_u]$ we consider more cases of type g and h: these cases only consider the case of *similar* speed, and therefore wider intervals will include more cases. On the other hand, for cases a-f we simply redistribute the classification. We also observe an increase of cases b and e as the interval gets wider, since those two cases consider *similar speed*: wider intervals result in more cases of behaviours classified with *similar speed*. Note that in Fig. 18 we present the proportion for each behaviours a-f, since changing the speed classification simply redistributes the behavioural types. Looking at behaviour g and h in Fig. 19, we observe a similar trend in each scenarios: the *walking side by side* occurrences decrease with the increase of the dyadic distance, while the number of occurrences of the behaviour *approaching at similar speed* increases.

In addition, we perform the sign test also for the various scenarios and obtain the same results for each setting (the female follows the male statistically significantly less than the male follows the female for dyadic distance intervals below 1 km). In Fig. 20 we show the *following* behaviour distribution for male and female, for dyadic distance intervals below 1 km.

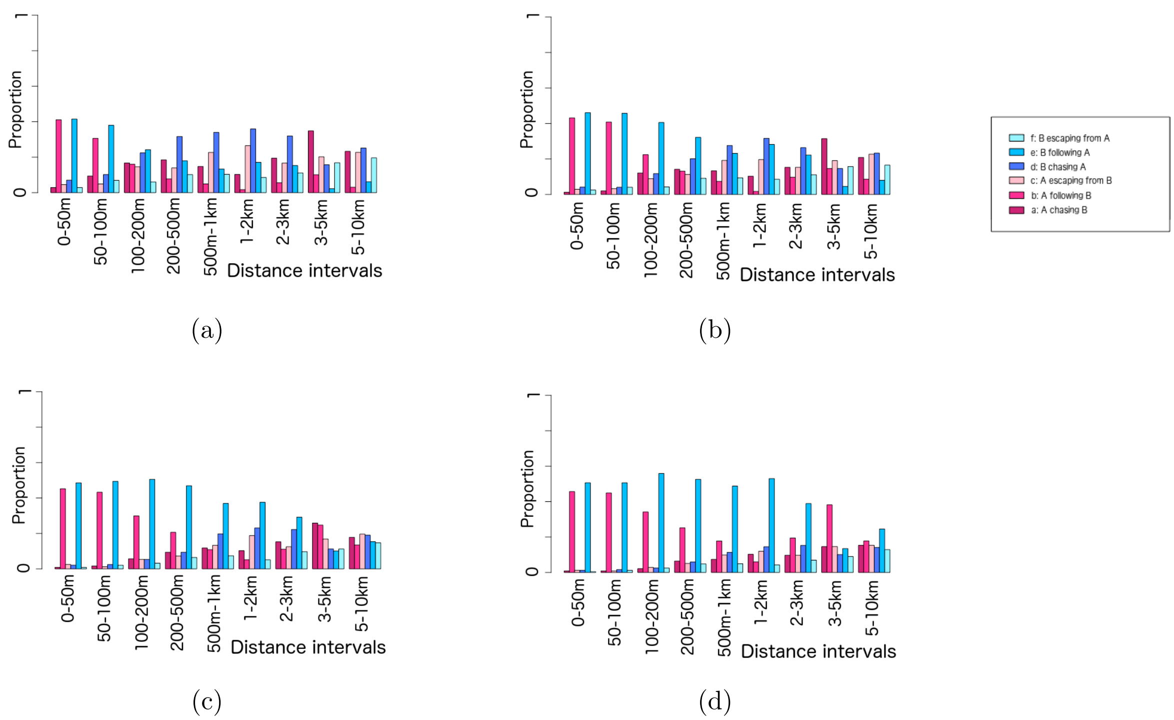

Figure 18: Extended analysis results for speed classification analysis, cases a-d, for proportion of behaviours of interest a-f, with legend

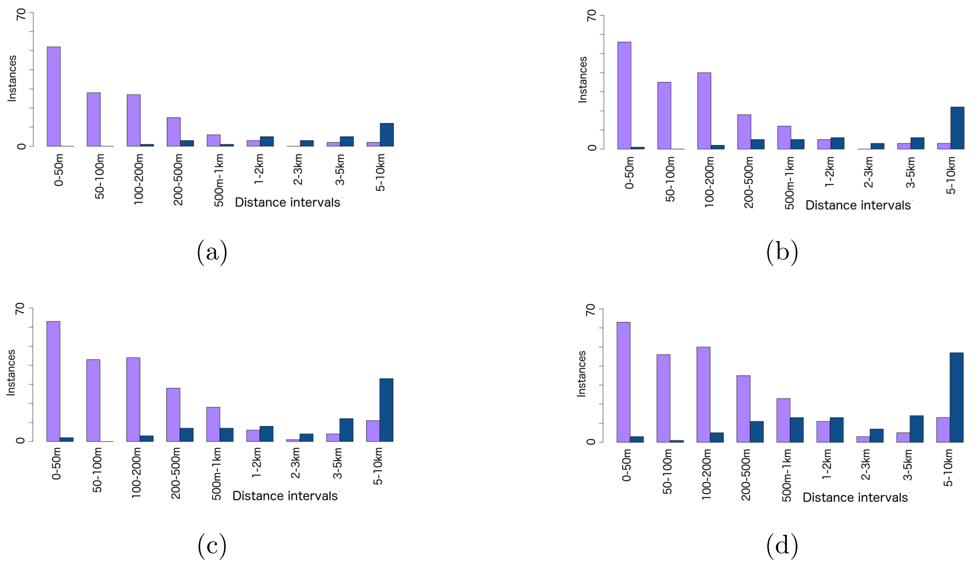

Figure 19: Extended analysis results for speed classification analysis, cases a-d, for behaviours of interest g (purple) and h (blue)

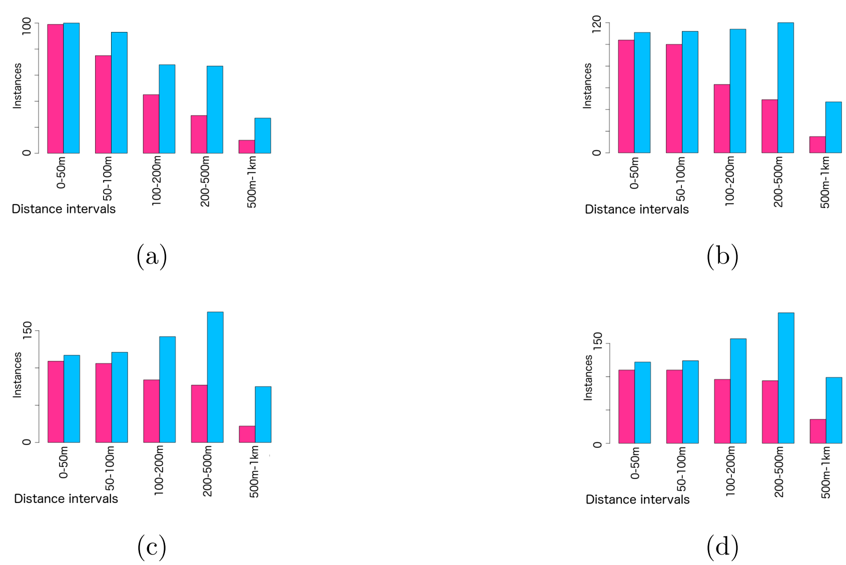

Figure 20: *Following* behaviour distribution for female (pink) and male (blue) for cases a-d

11. All pairs of interest

Also in this case, we indicate behaviours of type 3(A,B) and 3(B,A) with numbers 3 and 4. In Tables 15-20 we show the percentage of dyads for which the results were statistically significant (below and above 0.25), for each distance interval. We also illustrate the results depending on the gender of the individuals in the pair, for the 20-min frequency. The data collected at this frequency were the only one providing both male and female individual time series.

Table 15: Percentage of dyads (15-min frequency data) for which the results were statistically significant (below and above 0.25), for each distance interval.

Distance interval (m)	Type 1 (below)	Type 1 (above)	Type 2 (below)	Type 2 (above)	Type 3 (below)	Type 3 (above)	Type 4 (below)	Type 4 (above)
[0,50)	29	12	65	0	0	53	0	53
[0,50)	29	12	65	0	0	47	0	47
[50,100)	35	0	35	0	0	35	0	35
[100,200)	29	0	47	0	0	35	0	29
[200,500)	53	0	47	0	0	53	0	41
[500,1000)	29	0	12	0	0	35	0	24
[1000,2000)	18	0	6	0	0	41	12	24
[2000,3000)	18	0	0	6	6	12	0	18
[3000,5000)	0	0	6	6	12	12	6	6
[5000,10000)	0	12	29	12	6	24	29	12

Table 16: Percentage of dyads (20-min frequency data) for which the results were statistically significant (below and above 0.25), for each distance interval.

Distance interval (m)	Type 1 (below)	Type 1 (above)	Type 2 (below)	Type 2 (above)	Type 3 (below)	Type 3 (above)	Type 4 (below)	Type 4 (above)
[0,50)	48	0	65	0	0	48	0	61
[50,100)	39	0	52	0	0	48	0	43
[100,200)	52	0	48	0	0	43	0	48
[200,500)	70	0	65	0	0	61	4	43
[500,1000)	43	0	30	0	4	39	9	48
[1000,2000)	43	0	30	0	9	39	4	17
[2000,3000)	13	0	9	0	4	17	9	26
[3000,5000)	4	0	9	0	9	4	9	30
[5000,10000)	13	4	0	17	4	17	13	9

Table 17: Percentage of dyads (30-min frequency data) for which the results were statistically significant (below and above 0.25), for each distance interval.

Distance interval (m)	Type 1 (below)	Type 1 (above)	Type 2 (below)	Type 2 (above)	Type 3 (below)	Type 3 (above)	Type 4 (below)	Type 4 (above)
[0,50)	15	0	15	0	0	8	0	15
[50,100)	23	0	31	0	0	31	0	15
[100,200)	38	0	38	0	0	38	0	38
[200,500)	69	0	46	0	0	62	0	62
[500,1000)	69	0	54	0	0	77	0	46
[1000,2000)	31	0	38	0	8	38	0	46
[2000,3000)	0	0	15	0	0	15	8	31
[3000,5000)	0	0	0	0	15	0	0	8
[5000,10000)	0	23	38	0	0	8	0	15

Table 18: Percentage of dyads (20-min frequency data, male-male dyads) for which the results were statistically significant (below and above 0.25), for each distance interval.

Distance interval (m)	Type 1 (below)	Type 1 (above)	Type 2 (below)	Type 2 (above)	Type 3 (below)	Type 3 (above)	Type 4 (below)	Type 4 (above)
[0,50)	45	0	82	0	0	45	0	73
[50,100)	27	0	55	0	0	45	0	36
[100,200)	45	0	36	0	0	18	0	45
[200,500)	73	0	55	0	0	73	9	18
[500,1000)	36	0	9	0	0	55	18	36
[1000,2000)	27	0	9	0	0	45	9	0
[2000,3000)	0	0	0	0	0	9	9	9
[3000,5000)	0	0	0	0	9	0	9	18
[5000,10000)	9	9	0	9	0	36	18	0

Table 19: Percentage of dyads (20-min frequency data, male-female dyads) for which the results were statistically significant (below and above 0.25), for each distance interval.

Distance interval (m)	Type 1 (below)	Type 1 (above)	Type 2 (below)	Type 2 (above)	Type 3 (below)	Type 3 (above)	Type 4 (below)	Type 4 (above)
[0,50)	80	0	80	0	0	80	0	80
[50,100)	80	0	80	0	0	80	0	80
[100,200)	100	0	100	0	0	100	0	80
[200,500)	80	0	100	0	0	100	0	40
[500,1000)	80	0	80	0	0	100	20	0
[1000,2000)	80	0	80	0	0	100	40	0
[2000,3000)	40	0	0	0	0	100	40	0
[3000,5000)	20	0	0	0	0	40	20	0
[5000,10000)	0	0	0	0	0	40	20	0

Table 20: Percentage of dyads (20-min frequency data, female-female dyads) for which the results were statistically significant (below and above 0.25), for each distance interval.

Distance interval (m)	Type 1 (below)	Type 1 (above)	Type 2 (below)	Type 2 (above)	Type 3 (below)	Type 3 (above)	Type 4 (below)	Type 4 (above)
[0,50)	29	0	29	0	0	29	0	29
[50,100)	29	0	29	0	0	29	0	29
[100,200)	29	0	29	0	0	43	0	29
[200,500)	57	0	57	0	0	43	0	57
[500,1000)	29	0	29	0	0	29	0	43
[1000,2000)	43	0	29	0	0	43	0	0
[2000,3000)	14	0	29	0	0	29	0	14
[3000,5000)	0	0	29	0	14	14	0	43
[5000,10000)	29	0	0	43	0	0	14	0

11.1. 15-min pairs

In this section (Tables 21-29) we provide the results of the pair behaviour statistical analysis for the pairs of interest, for data collected at a 15-min frequency.

Table 21: Left: results for pair (1,2). Right: results for pair (1,3)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
1 and 2	[0,50)	77	19	1	0.1372	0.403	
1 and 2		77	7	2	0.0335	0.2237	✓
1 and 2		77	20	3	0.1469	0.4168	
1 and 2		77	31	4	0.2624	0.5607	✓
1 and 2	[50,100)	25	3	1	0.0279	0.3931	*
1 and 2		25	2	2	0.0141	0.3459	*
1 and 2		25	9	3	0.1567	0.6299	*
1 and 2		25	11	4	0.2116	0.6969	*
1 and 2	[100,200)	60	12	1	0.0945	0.3747	
1 and 2		60	11	2	0.0835	0.3562	
1 and 2		60	21	3	0.2045	0.5301	
1 and 2		60	16	4	0.141	0.4461	
1 and 2	[200,500)	87	13	1	0.072	0.2847	
1 and 2		87	13	2	0.072	0.2847	
1 and 2		87	47	3	0.3938	0.68	✓
1 and 2		87	14	4	0.0797	0.298	
1 and 2	[500,1000)	125	24	1	0.1129	0.3074	
1 and 2		125	33	2	0.1701	0.3857	
1 and 2		125	23	3	0.1068	0.2984	
1 and 2		125	45	4	0.2515	0.485	✓
1 and 2	[1000,2000)	251	50	1	0.1383	0.2783	
1 and 2		251	74	2	0.2215	0.3805	
1 and 2		251	55	3	0.1552	0.3	
1 and 2		251	72	4	0.2144	0.3721	
1 and 2	[2000,3000)	410	77	1	0.1399	0.2474	✓
1 and 2		410	98	2	0.1854	0.3024	
1 and 2		410	107	3	0.2052	0.3257	
1 and 2		410	128	4	0.2522	0.3792	✓
1 and 2	[3000,5000)	1095	246	1	0.1914	0.2618	
1 and 2		1095	249	2	0.194	0.2647	
1 and 2		1095	266	3	0.2086	0.2809	
1 and 2		1095	334	4	0.2676	0.3452	✓
1 and 2	[5000,10000)	3838	965	1	0.2324	0.2715	
1 and 2		3838	970	2	0.2336	0.2728	
1 and 2		3838	939	3	0.2258	0.2646	
1 and 2		3838	964	4	0.2321	0.2712	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
1 and 3	[0,50)	393	102	1	0.2028	0.3256	
1 and 3		393	28	2	0.0427	0.1165	✓
1 and 3		393	126	3	0.2588	0.3894	✓
1 and 3		393	137	4	0.2849	0.4182	✓
1 and 3	[50,100)	132	19	1	0.0785	0.2492	✓
1 and 3		132	10	2	0.0326	0.1664	✓
1 and 3		132	45	3	0.2374	0.4622	
1 and 3		132	58	4	0.3254	0.5602	✓
1 and 3	[100,200)	183	34	1	0.1189	0.2784	
1 and 3		183	33	2	0.1145	0.2723	
1 and 3		183	60	3	0.2397	0.4302	
1 and 3		183	56	4	0.2204	0.4076	
1 and 3	[200,500)	343	56	1	0.1151	0.2264	✓
1 and 3		343	60	2	0.125	0.2393	✓
1 and 3		343	145	3	0.3507	0.4982	✓
1 and 3		343	82	4	0.181	0.3088	
1 and 3	[500,1000)	576	99	1	0.1324	0.2201	✓
1 and 3		576	127	2	0.1761	0.2723	
1 and 3		576	203	3	0.2991	0.4097	✓
1 and 3		576	147	4	0.2079	0.309	
1 and 3	[1000,2000)	1255	256	1	0.1741	0.2376	✓
1 and 3		1255	273	2	0.1868	0.2518	
1 and 3		1255	365	3	0.2564	0.3279	✓
1 and 3		1255	361	4	0.2533	0.3246	✓
1 and 3	[2000,3000)	1579	375	1	0.2089	0.2687	
1 and 3		1579	365	2	0.2029	0.2621	
1 and 3		1579	430	3	0.2422	0.3047	
1 and 3		1579	409	4	0.2294	0.291	
1 and 3	[3000,5000)	2833	719	1	0.2316	0.2773	
1 and 3		2833	701	2	0.2255	0.2708	
1 and 3		2833	769	3	0.2487	0.2954	
1 and 3		2833	644	4	0.2061	0.2501	
1 and 3	[5000,10000)	7976	1931	1	0.2289	0.2558	
1 and 3		7976	1977	2	0.2346	0.2616	
1 and 3		7976	2106	3	0.2505	0.2781	✓
1 and 3		7976	1962	4	0.2328	0.2597	

Table 22: Left: results for pair (1,4). Right: results for pair (1,5)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
1 and 4	[0,50)	164	58	1	0.2581	0.4625	✓
1 and 4		164	11	2	0.0299	0.1436	✓
1 and 4		164	44	3	0.1838	0.3739	
1 and 4		164	51	4	0.2205	0.4187	
1 and 4	[50,100)	61	11	1	0.0821	0.3512	
1 and 4		61	8	2	0.0518	0.2943	
1 and 4		61	26	3	0.2677	0.6015	✓
1 and 4		61	16	4	0.1386	0.44	
1 and 4	[100,200)	116	17	1	0.0773	0.2605	
1 and 4		116	22	2	0.1088	0.3097	
1 and 4		116	35	3	0.1982	0.4302	
1 and 4		116	42	4	0.2497	0.4918	
1 and 4	[200,500)	147	31	1	0.1327	0.3183	
1 and 4		147	31	2	0.1327	0.3183	
1 and 4		147	35	3	0.1547	0.3479	
1 and 4		147	50	4	0.2415	0.455	
1 and 4	[500,1000)	136	26	1	0.1148	0.3011	
1 and 4		136	26	2	0.1148	0.3011	
1 and 4		136	44	3	0.2236	0.4426	
1 and 4		136	40	4	0.1985	0.4121	
1 and 4	[1000,2000)	283	79	1	0.2113	0.3589	
1 and 4		283	67	2	0.1738	0.3139	
1 and 4		283	55	3	0.1372	0.2679	
1 and 4		283	82	4	0.2208	0.37	
1 and 4	[2000,3000)	572	124	1	0.1726	0.2686	
1 and 4		572	149	2	0.2127	0.3148	
1 and 4		572	179	3	0.2616	0.3693	✓
1 and 4		572	120	4	0.1663	0.2611	
1 and 4	[3000,5000)	1585	367	1	0.2033	0.2624	
1 and 4		1585	428	2	0.24	0.3023	
1 and 4		1585	470	3	0.2655	0.3295	✓
1 and 4		1585	320	4	0.1752	0.2315	✓
1 and 4	[5000,10000)	4880	1164	1	0.2219	0.256	
1 and 4		4880	1412	2	0.2715	0.3078	✓
1 and 4		4880	1194	3	0.2279	0.2623	
1 and 4		4880	1110	4	0.2111	0.2447	✓

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
1 and 5	[0,50)	1047	165	1	0.1287	0.1916	✓
1 and 5		1047	57	2	0.0379	0.0775	✓
1 and 5		1047	463	3	0.3999	0.4854	✓
1 and 5		1047	362	4	0.3059	0.3878	✓
1 and 5	[50,100)	410	40	1	0.0638	0.1464	✓
1 and 5		410	27	2	0.0391	0.1089	✓
1 and 5		410	211	3	0.446	0.5827	✓
1 and 5		410	132	4	0.2613	0.3893	✓
1 and 5	[100,200)	517	66	1	0.0921	0.1743	✓
1 and 5		517	37	2	0.0459	0.11	✓
1 and 5		517	265	3	0.4514	0.5734	✓
1 and 5		517	149	4	0.236	0.3467	
1 and 5	[200,500)	862	137	1	0.1272	0.1968	✓
1 and 5		862	118	2	0.1074	0.1729	✓
1 and 5		862	365	3	0.3773	0.471	✓
1 and 5		862	242	4	0.2401	0.3254	
1 and 5	[500,1000)	819	137	1	0.134	0.2068	✓
1 and 5		819	148	2	0.1462	0.2213	✓
1 and 5		819	289	3	0.3078	0.4007	✓
1 and 5		819	245	4	0.2565	0.3456	✓
1 and 5	[1000,2000)	1340	292	1	0.1881	0.251	
1 and 5		1340	268	2	0.1712	0.2322	✓
1 and 5		1340	382	3	0.2519	0.3207	✓
1 and 5		1340	398	4	0.2634	0.333	✓
1 and 5	[2000,3000)	1282	246	1	0.163	0.2245	✓
1 and 5		1282	297	2	0.2004	0.2662	
1 and 5		1282	363	3	0.2494	0.3196	
1 and 5		1282	376	4	0.2591	0.33	✓
1 and 5	[3000,5000)	2394	587	1	0.2215	0.2706	
1 and 5		2394	599	2	0.2263	0.2757	
1 and 5		2394	623	3	0.236	0.2861	
1 and 5		2394	585	4	0.2207	0.2697	
1 and 5	[5000,10000)	5457	1396	1	0.2397	0.2727	
1 and 5		5457	1174	2	0.2	0.2311	✓
1 and 5		5457	1496	3	0.2576	0.2913	✓
1 and 5		5457	1391	4	0.2388	0.2717	

Table 23: Left: results for pair (2,3). Right: results for pair (2,4)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
2 and 3	[0,50)	780	113	1	0.1132	0.1836	✓
2 and 3		780	57	2	0.051	0.1036	✓
2 and 3		780	252	3	0.2782	0.3714	✓
2 and 3		780	358	4	0.4097	0.509	✓
2 and 3	[50,100)	532	61	1	0.0815	0.159	✓
2 and 3		532	41	2	0.0505	0.1159	✓
2 and 3		532	193	3	0.3069	0.4227	✓
2 and 3		532	237	4	0.3865	0.5061	✓
2 and 3	[100,200)	544	57	1	0.0735	0.1473	✓
2 and 3		544	49	2	0.0613	0.1304	✓
2 and 3		544	212	3	0.3332	0.4493	✓
2 and 3		544	226	4	0.358	0.4753	✓
2 and 3	[200,500)	516	95	1	0.1412	0.2364	✓
2 and 3		516	85	2	0.1241	0.2153	✓
2 and 3		516	207	3	0.3428	0.4625	✓
2 and 3		516	129	4	0.2007	0.3068	
2 and 3	[500,1000)	384	82	1	0.1611	0.2774	
2 and 3		384	102	2	0.2077	0.3328	
2 and 3		384	106	3	0.2172	0.3438	
2 and 3		384	94	4	0.1889	0.3108	
2 and 3	[1000,2000)	728	158	1	0.1774	0.2626	
2 and 3		728	190	2	0.2182	0.3089	
2 and 3		728	199	3	0.2298	0.3218	
2 and 3		728	181	4	0.2067	0.2959	
2 and 3	[2000,3000)	642	148	1	0.1875	0.2801	
2 and 3		642	173	2	0.2235	0.321	
2 and 3		642	162	3	0.2076	0.303	
2 and 3		642	159	4	0.2033	0.2981	
2 and 3	[3000,5000)	1450	371	1	0.2252	0.2891	
2 and 3		1450	395	2	0.241	0.3063	
2 and 3		1450	285	3	0.169	0.2273	✓
2 and 3		1450	399	4	0.2437	0.3091	
2 and 3	[5000,10000)	5017	1284	1	0.2391	0.2735	
2 and 3		5017	1257	2	0.2338	0.268	
2 and 3		5017	1178	3	0.2185	0.2519	
2 and 3		5017	1298	4	0.2418	0.2764	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
2 and 4	[0,50)	348	32	1	0.0572	0.1447	✓
2 and 4		348	33	2	0.0594	0.148	✓
2 and 4		348	112	3	0.2564	0.3951	✓
2 and 4		348	171	4	0.4175	0.5657	✓
2 and 4	[50,100)	252	19	1	0.0406	0.1357	✓
2 and 4		252	21	2	0.0463	0.1454	✓
2 and 4		252	66	3	0.1925	0.3457	
2 and 4		252	146	4	0.4913	0.6626	✓
2 and 4	[100,200)	282	40	1	0.0934	0.2096	✓
2 and 4		282	27	2	0.0571	0.1562	✓
2 and 4		282	81	3	0.2185	0.3675	
2 and 4		282	134	4	0.3938	0.5579	✓
2 and 4	[200,500)	392	66	1	0.1221	0.2276	✓
2 and 4		392	59	2	0.1069	0.2078	✓
2 and 4		392	95	3	0.1873	0.3075	
2 and 4		392	172	4	0.3706	0.5094	✓
2 and 4	[500,1000)	288	65	1	0.1646	0.3013	
2 and 4		288	61	2	0.1526	0.2863	
2 and 4		288	78	3	0.2044	0.3494	
2 and 4		288	84	4	0.2231	0.3713	
2 and 4	[1000,2000)	363	84	1	0.1756	0.2985	
2 and 4		363	98	2	0.2102	0.3394	
2 and 4		363	125	3	0.2786	0.4167	✓
2 and 4		363	56	4	0.1086	0.2145	✓
2 and 4	[2000,3000)	427	100	1	0.182	0.2959	
2 and 4		427	102	2	0.1862	0.3009	
2 and 4		427	127	3	0.2397	0.3625	
2 and 4		427	98	4	0.1778	0.291	
2 and 4	[3000,5000)	1125	258	1	0.1962	0.2662	
2 and 4		1125	298	2	0.2298	0.3032	
2 and 4		1125	256	3	0.1946	0.2643	
2 and 4		1125	313	4	0.2425	0.317	
2 and 4	[5000,10000)	4291	1080	1	0.2336	0.2707	
2 and 4		4291	1080	2	0.2336	0.2707	
2 and 4		4291	1013	3	0.2184	0.2547	
2 and 4		4291	1118	4	0.2423	0.2797	

Table 24: Left: results for pair (3,4). Right: results for pair (3,5)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
3 and 4	[0,50)	155	51	1	0.234	0.4405	
3 and 4		155	6	2	0.0131	0.1086	✓
3 and 4		155	48	3	0.2171	0.4205	
3 and 4		155	50	4	0.2283	0.4339	
3 and 4	[50,100)	46	5	1	0.034	0.297	
3 and 4		46	6	2	0.045	0.3232	
3 and 4		46	19	3	0.2376	0.6137	
3 and 4		46	16	4	0.1871	0.5528	
3 and 4	[100,200)	85	13	1	0.0737	0.2906	
3 and 4		85	7	2	0.0303	0.2047	✓
3 and 4		85	30	3	0.2261	0.5045	
3 and 4		85	35	4	0.2762	0.5622	✓
3 and 4	[200,500)	128	24	1	0.1101	0.3008	
3 and 4		128	24	2	0.1101	0.3008	
3 and 4		128	32	3	0.1595	0.3692	
3 and 4		128	48	4	0.2658	0.4985	✓
3 and 4	[500,1000)	248	44	1	0.1198	0.2548	
3 and 4		248	64	2	0.1886	0.3423	
3 and 4		248	49	3	0.1366	0.277	
3 and 4		248	91	4	0.2867	0.4553	✓
3 and 4	[1000,2000)	600	122	1	0.1614	0.2529	
3 and 4		600	144	2	0.1948	0.2919	
3 and 4		600	149	3	0.2025	0.3007	
3 and 4		600	185	4	0.2584	0.3632	✓
3 and 4	[2000,3000)	710	166	1	0.1924	0.281	
3 and 4		710	196	2	0.2318	0.3252	
3 and 4		710	144	3	0.164	0.2481	✓
3 and 4		710	204	4	0.2424	0.3369	
3 and 4	[3000,5000)	1741	438	1	0.2237	0.2817	
3 and 4		1741	436	2	0.2226	0.2805	
3 and 4		1741	434	3	0.2215	0.2793	
3 and 4		1741	433	4	0.2209	0.2787	
3 and 4	[5000,10000)	6053	1589	1	0.247	0.2786	
3 and 4		6053	1515	2	0.2351	0.2662	
3 and 4		6053	1549	3	0.2405	0.2719	
3 and 4		6053	1400	4	0.2165	0.2468	✓

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
3 and 5	[0,50)	194	73	1	0.2856	0.4765	✓
3 and 5		194	17	2	0.0457	0.1615	✓
3 and 5		194	41	3	0.1414	0.3036	
3 and 5		194	63	4	0.2391	0.4239	
3 and 5	[50,100)	47	15	1	0.167	0.5228	*
3 and 5		47	3	2	0.0147	0.2373	*
3 and 5		47	12	3	0.1219	0.4585	*
3 and 5		47	17	4	0.1989	0.5639	*
3 and 5	[100,200)	75	19	1	0.141	0.4122	
3 and 5		75	11	2	0.0663	0.2937	
3 and 5		75	17	3	0.1213	0.3836	
3 and 5		75	28	4	0.2362	0.5343	
3 and 5	[200,500)	119	14	1	0.0578	0.2246	✓
3 and 5		119	19	2	0.0873	0.274	
3 and 5		119	45	3	0.265	0.5063	✓
3 and 5		119	41	4	0.2358	0.4725	
3 and 5	[500,1000)	258	49	1	0.1312	0.2669	
3 and 5		258	54	2	0.1476	0.2881	
3 and 5		258	75	3	0.2188	0.375	
3 and 5		258	80	4	0.2362	0.3952	
3 and 5	[1000,2000)	598	116	1	0.1528	0.243	✓
3 and 5		598	134	2	0.1801	0.2751	
3 and 5		598	125	3	0.1664	0.2591	
3 and 5		598	223	4	0.3196	0.4295	✓
3 and 5	[2000,3000)	811	169	1	0.1714	0.2509	
3 and 5		811	213	2	0.2219	0.308	
3 and 5		811	223	3	0.2334	0.3208	
3 and 5		811	206	4	0.2138	0.2989	
3 and 5	[3000,5000)	1921	492	1	0.2293	0.2849	
3 and 5		1921	516	2	0.2413	0.2978	
3 and 5		1921	412	3	0.1895	0.2418	✓
3 and 5		1921	501	4	0.2338	0.2897	
3 and 5	[5000,10000)	4552	1161	1	0.2374	0.2735	
3 and 5		4552	1241	2	0.2546	0.2915	✓
3 and 5		4552	1075	3	0.219	0.2542	
3 and 5		4552	1075	4	0.219	0.2542	

Table 25: Left: results for pair (6,7). Right: results for pair (6,8)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
6 and 7	[0,50)	712	93	1	0.0993	0.17	✓
6 and 7		712	38	2	0.0343	0.0821	✓
6 and 7		712	301	3	0.3721	0.4751	✓
6 and 7		712	280	4	0.3435	0.4453	✓
6 and 7	[50,100)	488	59	1	0.0855	0.1682	✓
6 and 7		488	34	2	0.0438	0.1091	✓
6 and 7		488	165	3	0.2812	0.4001	✓
6 and 7		488	230	4	0.4091	0.5344	✓
6 and 7	[100,200)	489	67	1	0.0992	0.1862	✓
6 and 7		489	67	2	0.0992	0.1862	✓
6 and 7		489	154	3	0.2595	0.3762	✓
6 and 7		489	201	4	0.3507	0.4742	✓
6 and 7	[200,500)	567	102	1	0.1392	0.2292	✓
6 and 7		567	81	2	0.1066	0.1888	✓
6 and 7		567	163	3	0.2375	0.3432	
6 and 7		567	221	4	0.3344	0.4482	✓
6 and 7	[500,1000)	479	103	1	0.1674	0.2719	
6 and 7		479	120	2	0.1995	0.3096	
6 and 7		479	161	3	0.2788	0.3987	✓
6 and 7		479	95	4	0.1524	0.2539	
6 and 7	[1000,2000)	1374	314	1	0.1985	0.2617	
6 and 7		1374	312	2	0.1971	0.2602	
6 and 7		1374	391	3	0.2518	0.3197	✓
6 and 7		1374	357	4	0.2282	0.2942	
6 and 7	[2000,3000)	1726	390	1	0.1991	0.2553	
6 and 7		1726	410	2	0.2101	0.2673	
6 and 7		1726	434	3	0.2234	0.2817	
6 and 7		1726	492	4	0.2557	0.3163	✓
6 and 7	[3000,5000)	3092	833	1	0.2477	0.2923	
6 and 7		3092	751	2	0.222	0.2651	
6 and 7		3092	746	3	0.2204	0.2634	
6 and 7		3092	762	4	0.2254	0.2687	
6 and 7	[5000,10000)	6021	1558	1	0.2433	0.2748	
6 and 7		6021	1405	2	0.2185	0.2489	✓
6 and 7		6021	1444	3	0.2248	0.2555	
6 and 7		6021	1614	4	0.2524	0.2843	✓

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
6 and 8	[0,50)	32	8	1	0.1011	0.4971	
6 and 8		32	5	2	0.0493	0.3982	
6 and 8		32	14	3	0.2296	0.6699	
6 and 8		32	5	4	0.0493	0.3982	
6 and 8	[50,100)	26	9	1	0.1503	0.6132	*
6 and 8		26	3	2	0.0268	0.3817	*
6 and 8		26	11	3	0.2027	0.679	*
6 and 8		26	3	4	0.0268	0.3817	*
6 and 8	[100,200)	35	9	1	0.1096	0.4934	
6 and 8		35	8	2	0.092	0.4642	
6 and 8		35	6	3	0.0596	0.4032	
6 and 8		35	12	4	0.1667	0.5763	
6 and 8	[200,500)	98	26	1	0.1614	0.4039	
6 and 8		98	19	2	0.1067	0.3263	
6 and 8		98	27	3	0.1695	0.4146	
6 and 8		98	26	4	0.1614	0.4039	
6 and 8	[500,1000)	215	46	1	0.1465	0.3014	
6 and 8		215	48	2	0.1544	0.3116	
6 and 8		215	66	3	0.2271	0.4004	
6 and 8		215	55	4	0.1822	0.3465	
6 and 8	[1000,2000)	460	96	1	0.1608	0.2663	
6 and 8		460	131	2	0.2299	0.3468	
6 and 8		460	138	3	0.244	0.3627	
6 and 8		460	95	4	0.1589	0.264	
6 and 8	[2000,3000)	785	185	1	0.1961	0.2805	
6 and 8		785	198	2	0.2115	0.2979	
6 and 8		785	228	3	0.2474	0.3376	
6 and 8		785	174	4	0.1831	0.2657	
6 and 8	[3000,5000)	1804	449	1	0.2216	0.2784	
6 and 8		1804	441	2	0.2173	0.2738	
6 and 8		1804	421	3	0.2067	0.2623	
6 and 8		1804	493	4	0.245	0.3035	
6 and 8	[5000,10000)	6333	1513	1	0.2243	0.2542	
6 and 8		6333	1592	2	0.2365	0.2669	
6 and 8		6333	1576	3	0.234	0.2643	
6 and 8		6333	1652	4	0.2457	0.2766	

Table 26: Left: results for pair (6,9). Right: results for pair (6,10)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
6 and 9	[0,50)	51	12	1	0.1119	0.429	*
6 and 9		51	2	2	0.0069	0.194	*
6 and 9		51	12	3	0.1119	0.429	*
6 and 9		51	25	4	0.3093	0.6737	*
6 and 9	[50,100)	17	3	1	0.0414	0.5153	*
6 and 9		17	2	2	0.0208	0.4553	*
6 and 9		17	5	3	0.0952	0.6227	*
6 and 9		17	7	4	0.162	0.7171	*
6 and 9	[100,200)	65	9	1	0.0576	0.2969	
6 and 9		65	11	2	0.0769	0.3326	
6 and 9		65	22	3	0.1998	0.5118	
6 and 9		65	23	4	0.2121	0.527	
6 and 9	[200,500)	182	27	1	0.0893	0.2364	✓
6 and 9		182	38	2	0.1374	0.3041	
6 and 9		182	55	3	0.2168	0.4039	
6 and 9		182	62	4	0.2508	0.4436	✓
6 and 9	[500,1000)	378	67	1	0.129	0.2385	✓
6 and 9		378	95	2	0.1944	0.3183	
6 and 9		378	116	3	0.245	0.3765	
6 and 9		378	100	4	0.2064	0.3323	
6 and 9	[1000,2000)	1024	237	1	0.1967	0.2702	
6 and 9		1024	243	2	0.2022	0.2764	
6 and 9		1024	266	3	0.2234	0.2998	
6 and 9		1024	278	4	0.2345	0.312	
6 and 9	[2000,3000)	1256	276	1	0.1889	0.2541	
6 and 9		1256	283	2	0.1941	0.2599	
6 and 9		1256	342	3	0.2387	0.3087	
6 and 9		1256	355	4	0.2486	0.3194	
6 and 9	[3000,5000)	2940	785	1	0.2448	0.2904	
6 and 9		2940	730	2	0.2267	0.2712	
6 and 9		2940	745	3	0.2317	0.2765	
6 and 9		2940	680	4	0.2103	0.2537	
6 and 9	[5000,10000)	8171	2236	1	0.2601	0.2876	✓
6 and 9		8171	1884	2	0.2178	0.2439	✓
6 and 9		8171	1940	3	0.2245	0.2508	
6 and 9		8171	2111	4	0.2451	0.2721	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
6 and 10	[0,50)	113	22	1	0.1118	0.3171	
6 and 10		113	18	2	0.0857	0.277	
6 and 10		113	52	3	0.336	0.5895	✓
6 and 10		113	21	4	0.1052	0.3072	
6 and 10	[50,100)	91	13	1	0.0687	0.2735	
6 and 10		91	12	2	0.0615	0.2605	
6 and 10		91	45	3	0.3543	0.6355	✓
6 and 10		91	21	4	0.1317	0.3724	
6 and 10	[100,200)	96	18	1	0.1014	0.3207	
6 and 10		96	14	2	0.0721	0.2729	
6 and 10		96	43	3	0.3153	0.5883	✓
6 and 10		96	21	4	0.1245	0.3553	
6 and 10	[200,500)	296	61	1	0.1483	0.279	
6 and 10		296	46	2	0.1055	0.223	✓
6 and 10		296	125	3	0.3451	0.5035	✓
6 and 10		296	64	4	0.1571	0.2899	
6 and 10	[500,1000)	451	97	1	0.1661	0.2738	
6 and 10		451	95	2	0.1621	0.269	
6 and 10		451	157	3	0.2885	0.4129	✓
6 and 10		451	102	4	0.176	0.2856	
6 and 10	[1000,2000)	1126	282	1	0.2162	0.2882	
6 and 10		1126	292	2	0.2246	0.2974	
6 and 10		1126	290	3	0.2229	0.2956	
6 and 10		1126	262	4	0.1994	0.2697	
6 and 10	[2000,3000)	1415	360	1	0.2235	0.2881	
6 and 10		1415	389	2	0.243	0.3093	
6 and 10		1415	335	3	0.2067	0.2697	
6 and 10		1415	331	4	0.204	0.2668	
6 and 10	[3000,5000)	3649	975	1	0.2472	0.2882	
6 and 10		3649	833	2	0.2095	0.2483	✓
6 and 10		3649	916	3	0.2315	0.2716	
6 and 10		3649	925	4	0.2339	0.2741	
6 and 10	[5000,10000)	8987	2412	1	0.2555	0.2817	✓
6 and 10		8987	2128	2	0.2245	0.2495	✓
6 and 10		8987	2369	3	0.2508	0.2768	✓
6 and 10		8987	2078	4	0.219	0.2439	✓

Table 27: Left: results for pair (7,8). Right: results for pair (7,9)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
7 and 8	[0,50)	512	64	1	0.0897	0.1716	✓
7 and 8		512	44	2	0.0572	0.1271	✓
7 and 8		512	210	3	0.3512	0.4718	✓
7 and 8		512	194	4	0.3212	0.4402	✓
7 and 8	[50,100)	395	61	1	0.1104	0.2119	✓
7 and 8		395	39	2	0.0642	0.1488	✓
7 and 8		395	180	3	0.3872	0.5259	✓
7 and 8		395	115	4	0.2318	0.3586	
7 and 8	[100,200)	409	68	1	0.1212	0.2239	✓
7 and 8		409	53	2	0.09	0.183	✓
7 and 8		409	168	3	0.345	0.4798	✓
7 and 8		409	120	4	0.2348	0.3597	
7 and 8	[200,500)	643	125	1	0.1546	0.2416	✓
7 and 8		643	101	2	0.1211	0.2013	✓
7 and 8		643	222	3	0.295	0.3992	✓
7 and 8		643	195	4	0.2552	0.3561	✓
7 and 8	[500,1000)	916	187	1	0.1695	0.2438	✓
7 and 8		916	181	2	0.1634	0.2369	✓
7 and 8		916	289	3	0.2743	0.3598	✓
7 and 8		916	259	4	0.2431	0.326	
7 and 8	[1000,2000)	1752	413	1	0.2086	0.2652	
7 and 8		1752	404	2	0.2037	0.2599	
7 and 8		1752	479	3	0.2447	0.3041	
7 and 8		1752	456	4	0.2321	0.2906	
7 and 8	[2000,3000)	1767	436	1	0.2192	0.2765	
7 and 8		1767	453	2	0.2284	0.2864	
7 and 8		1767	420	3	0.2106	0.2671	
7 and 8		1767	458	4	0.2312	0.2894	
7 and 8	[3000,5000)	4009	974	1	0.2245	0.2624	
7 and 8		4009	1069	2	0.2476	0.2866	
7 and 8		4009	938	3	0.2158	0.2532	
7 and 8		4009	1028	4	0.2376	0.2762	
7 and 8	[5000,10000)	9591	2466	1	0.2448	0.2698	
7 and 8		9591	2389	2	0.237	0.2616	
7 and 8		9591	2089	3	0.2063	0.2298	✓
7 and 8		9591	2647	4	0.2634	0.2889	✓

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
7 and 9	[0,50)	102	20	1	0.1096	0.3258	
7 and 9		102	5	2	0.0152	0.147	✓
7 and 9		102	35	3	0.2272	0.4814	
7 and 9		102	42	4	0.2866	0.5495	✓
7 and 9	[50,100)	75	10	1	0.0579	0.2779	
7 and 9		75	9	2	0.0498	0.2619	
7 and 9		75	19	3	0.141	0.4122	
7 and 9		75	37	4	0.3404	0.6475	✓
7 and 9	[100,200)	73	9	1	0.0512	0.2682	
7 and 9		73	7	2	0.0354	0.2345	✓
7 and 9		73	22	3	0.1766	0.4646	
7 and 9		73	35	4	0.3261	0.6368	✓
7 and 9	[200,500)	200	27	1	0.0811	0.2164	✓
7 and 9		200	27	2	0.0811	0.2164	✓
7 and 9		200	74	3	0.2811	0.4686	✓
7 and 9		200	72	4	0.272	0.4585	✓
7 and 9	[500,1000)	373	75	1	0.1495	0.2649	
7 and 9		373	92	2	0.1899	0.3138	
7 and 9		373	98	3	0.2044	0.3308	
7 and 9		373	108	4	0.2287	0.359	
7 and 9	[1000,2000)	823	204	1	0.2083	0.2922	
7 and 9		823	176	2	0.1767	0.2564	
7 and 9		823	221	3	0.2277	0.3137	
7 and 9		823	222	4	0.2288	0.315	
7 and 9	[2000,3000)	1198	283	1	0.2037	0.2722	
7 and 9		1198	271	2	0.1943	0.2617	
7 and 9		1198	317	3	0.2306	0.3017	
7 and 9		1198	327	4	0.2385	0.3103	
7 and 9	[3000,5000)	2800	693	1	0.2254	0.271	
7 and 9		2800	702	2	0.2285	0.2743	
7 and 9		2800	748	3	0.2444	0.2911	
7 and 9		2800	657	4	0.213	0.2578	
7 and 9	[5000,10000)	7627	1896	1	0.235	0.2627	
7 and 9		7627	1824	2	0.2258	0.2531	
7 and 9		7627	1944	3	0.2412	0.2691	
7 and 9		7627	1963	4	0.2436	0.2716	

Table 28: Left: results for pair (7,10). Right: results for pair (8,9)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
7 and 10	[0,50)	30	7	1	0.0884	0.4885	*
7 and 10		30	3	2	0.0232	0.3421	*
7 and 10		30	6	3	0.0699	0.4541	*
7 and 10		30	14	4	0.2467	0.7005	*
7 and 10	[50,100)	28	6	1	0.0751	0.4782	*
7 and 10		28	3	2	0.0249	0.3609	*
7 and 10		28	9	3	0.1388	0.582	*
7 and 10		28	10	4	0.1623	0.6143	*
7 and 10	[100,200)	22	6	1	0.0966	0.568	*
7 and 10		22	3	2	0.0318	0.4316	*
7 and 10		22	10	3	0.2113	0.7217	*
7 and 10		22	3	4	0.0318	0.4316	*
7 and 10	[200,500)	106	20	1	0.1053	0.3148	
7 and 10		106	21	2	0.1124	0.3253	
7 and 10		106	47	3	0.317	0.5775	✓
7 and 10		106	18	4	0.0915	0.2934	
7 and 10	[500,1000)	240	50	1	0.1448	0.2902	
7 and 10		240	67	2	0.2062	0.3661	
7 and 10		240	74	3	0.2321	0.3966	
7 and 10		240	49	4	0.1413	0.2857	
7 and 10	[1000,2000)	515	91	1	0.1347	0.2284	✓
7 and 10		515	127	2	0.1976	0.3032	
7 and 10		515	164	3	0.2641	0.3782	✓
7 and 10		515	133	4	0.2082	0.3155	
7 and 10	[2000,3000)	937	203	1	0.1815	0.2565	
7 and 10		937	223	2	0.2014	0.279	
7 and 10		937	307	3	0.2864	0.3718	✓
7 and 10		937	204	4	0.1824	0.2577	
7 and 10	[3000,5000)	2464	579	1	0.212	0.2597	
7 and 10		2464	583	2	0.2135	0.2614	
7 and 10		2464	723	3	0.2685	0.3197	✓
7 and 10		2464	579	4	0.212	0.2597	
7 and 10	[5000,10000)	8433	2060	1	0.2314	0.2576	
7 and 10		8433	2121	2	0.2385	0.2649	
7 and 10		8433	2205	3	0.2483	0.2751	
7 and 10		8433	2047	4	0.2299	0.256	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
8 and 9	[0,50)	26	7	1	0.1028	0.5424	*
8 and 9		26	1	2	0.004	0.2863	*
8 and 9		26	9	3	0.1503	0.6132	*
8 and 9		26	9	4	0.1503	0.6132	*
8 and 9	[50,100)	22	3	1	0.0318	0.4316	*
8 and 9		22	1	2	0.0047	0.3245	*
8 and 9		22	7	3	0.1227	0.609	*
8 and 9		22	11	4	0.244	0.756	*
8 and 9	[100,200)	26	4	1	0.0428	0.4249	*
8 and 9		26	1	2	0.004	0.2863	*
8 and 9		26	12	3	0.2306	0.7102	*
8 and 9		26	9	4	0.1503	0.6132	*
8 and 9	[200,500)	88	15	1	0.0866	0.308	
8 and 9		88	13	2	0.0711	0.2818	
8 and 9		88	21	3	0.1364	0.3835	
8 and 9		88	39	4	0.3059	0.5898	✓
8 and 9	[500,1000)	236	40	1	0.1121	0.2481	✓
8 and 9		236	51	2	0.151	0.2994	
8 and 9		236	59	3	0.1801	0.3359	
8 and 9		236	86	4	0.2825	0.455	✓
8 and 9	[1000,2000)	479	94	1	0.1506	0.2517	
8 and 9		479	114	2	0.1881	0.2963	
8 and 9		479	152	3	0.2612	0.3793	✓
8 and 9		479	119	4	0.1976	0.3074	
8 and 9	[2000,3000)	595	115	1	0.1521	0.2424	✓
8 and 9		595	184	2	0.259	0.3644	✓
8 and 9		595	173	3	0.2417	0.3452	
8 and 9		595	123	4	0.1643	0.2568	
8 and 9	[3000,5000)	1666	400	1	0.2121	0.2705	
8 and 9		1666	488	2	0.2628	0.325	✓
8 and 9		1666	405	3	0.215	0.2736	
8 and 9		1666	373	4	0.1967	0.2537	
8 and 9	[5000,10000)	7888	1944	1	0.2331	0.2603	
8 and 9		7888	2065	2	0.2482	0.2759	
8 and 9		7888	2026	3	0.2433	0.2708	
8 and 9		7888	1853	4	0.2218	0.2485	✓

Table 29: Results for pair (9,10)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
9 and 10	[0,50)	69	10	1	0.0631	0.299	
9 and 10		69	9	2	0.0542	0.2818	
9 and 10		69	39	3	0.4003	0.7168	✓
9 and 10		69	11	4	0.0723	0.3159	
9 and 10	[50,100)	52	12	1	0.1096	0.4222	
9 and 10		52	9	2	0.0725	0.359	
9 and 10		52	20	3	0.2232	0.5762	
9 and 10		52	11	4	0.0969	0.4016	
9 and 10	[100,200)	92	20	1	0.122	0.357	
9 and 10		92	10	2	0.047	0.2317	✓
9 and 10		92	44	3	0.3402	0.6197	✓
9 and 10		92	18	4	0.106	0.333	
9 and 10	[200,500)	272	59	1	0.1555	0.2941	
9 and 10		272	52	2	0.1335	0.2661	
9 and 10		272	85	3	0.2401	0.3954	
9 and 10		272	76	4	0.2103	0.3608	
9 and 10	[500,1000)	676	144	1	0.1724	0.2602	
9 and 10		676	156	2	0.1887	0.279	
9 and 10		676	222	3	0.2801	0.3806	✓
9 and 10		676	154	4	0.186	0.2759	
9 and 10	[1000,2000)	1694	381	1	0.1979	0.2545	
9 and 10		1694	406	2	0.2119	0.2698	
9 and 10		1694	544	3	0.2903	0.3536	✓
9 and 10		1694	363	4	0.1878	0.2434	✓
9 and 10	[2000,3000)	2233	591	1	0.2394	0.2916	
9 and 10		2233	502	2	0.2011	0.2504	
9 and 10		2233	595	3	0.2412	0.2934	
9 and 10		2233	545	4	0.2196	0.2703	
9 and 10	[3000,5000)	4775	1227	1	0.2397	0.275	
9 and 10		4775	1123	2	0.2185	0.2528	
9 and 10		4775	1253	3	0.245	0.2806	
9 and 10		4775	1172	4	0.2285	0.2633	
9 and 10	[5000,10000)	11216	2911	1	0.2481	0.2713	
9 and 10		11216	2666	2	0.2266	0.2491	✓
9 and 10		11216	2995	3	0.2555	0.2789	✓
9 and 10		11216	2644	4	0.2247	0.2471	✓

11.2. 20-min pairs

In this section (Tables 30-41) we provide the results of the pair behaviour statistical analysis for the pairs of interest, for data collected at a 20-min frequency.

Table 30: Left: results for pair (1,3). Right: results for pair (1,4)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
1 and 3	[0,50)	324	51	1	0.109	0.2219	✓
1 and 3		324	23	2	0.0404	0.1218	✓
1 and 3		324	136	3	0.3459	0.4974	✓
1 and 3		324	114	4	0.282	0.4287	✓
1 and 3	[50,100)	121	19	1	0.0858	0.2698	
1 and 3		121	8	2	0.0258	0.1591	✓
1 and 3		121	58	3	0.3575	0.6036	✓
1 and 3		121	36	4	0.1965	0.4231	
1 and 3	[100,200)	96	11	1	0.0515	0.2357	✓
1 and 3		96	8	2	0.0326	0.1968	✓
1 and 3		96	44	3	0.3247	0.5982	✓
1 and 3		96	33	4	0.2247	0.4864	
1 and 3	[200,500)	172	28	1	0.0991	0.2558	
1 and 3		172	25	2	0.0857	0.2358	✓
1 and 3		172	62	3	0.2663	0.4668	✓
1 and 3		172	57	4	0.2403	0.4371	
1 and 3	[500,1000)	261	60	1	0.1656	0.3099	
1 and 3		261	46	2	0.12	0.2513	
1 and 3		261	65	3	0.1822	0.3304	
1 and 3		261	90	4	0.2682	0.4305	✓
1 and 3	[1000,2000)	576	122	1	0.1682	0.2631	
1 and 3		576	117	2	0.1604	0.2538	
1 and 3		576	167	3	0.2402	0.3453	
1 and 3		576	170	4	0.245	0.3507	
1 and 3	[2000,3000)	677	176	1	0.2158	0.3096	
1 and 3		677	189	2	0.2337	0.3297	
1 and 3		677	157	3	0.1898	0.2802	
1 and 3		677	155	4	0.1871	0.277	
1 and 3	[3000,5000)	1657	378	1	0.2006	0.2582	
1 and 3		1657	423	2	0.2265	0.2863	
1 and 3		1657	444	3	0.2387	0.2994	
1 and 3		1657	412	4	0.2202	0.2795	
1 and 3	[5000,10000)	2650	600	1	0.2045	0.2499	✓
1 and 3		2650	717	2	0.2471	0.2953	
1 and 3		2650	738	3	0.2548	0.3035	✓
1 and 3		2650	595	4	0.2027	0.248	✓

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
1 and 4	[0,50)	171	35	1	0.1323	0.3029	
1 and 4		171	12	2	0.0324	0.1456	✓
1 and 4		171	58	3	0.247	0.4454	
1 and 4		171	66	4	0.2891	0.4928	✓
1 and 4	[50,100)	123	21	1	0.0964	0.2844	
1 and 4		123	7	2	0.0209	0.1459	✓
1 and 4		123	38	3	0.2068	0.4339	
1 and 4		123	57	4	0.3437	0.5875	✓
1 and 4	[100,200)	113	14	1	0.061	0.2355	✓
1 and 4		113	17	2	0.0794	0.2667	
1 and 4		113	30	3	0.1673	0.394	
1 and 4		113	52	4	0.336	0.5895	✓
1 and 4	[200,500)	133	19	1	0.0779	0.2475	✓
1 and 4		133	27	2	0.1233	0.3157	
1 and 4		133	40	3	0.2032	0.4204	
1 and 4		133	47	4	0.2486	0.4744	
1 and 4	[500,1000)	228	44	1	0.1306	0.2757	
1 and 4		228	45	2	0.1343	0.2805	
1 and 4		228	50	3	0.1527	0.3045	
1 and 4		228	89	4	0.3051	0.4829	✓
1 and 4	[1000,2000)	433	111	1	0.2024	0.319	
1 and 4		433	86	2	0.1506	0.2573	
1 and 4		433	124	3	0.2299	0.3505	
1 and 4		433	112	4	0.2045	0.3214	
1 and 4	[2000,3000)	224	49	1	0.1517	0.3047	
1 and 4		224	63	2	0.2057	0.3715	
1 and 4		224	64	3	0.2097	0.3762	
1 and 4		224	48	4	0.148	0.2999	
1 and 4	[3000,5000)	773	206	1	0.2245	0.3131	
1 and 4		773	188	2	0.2028	0.2888	
1 and 4		773	206	3	0.2245	0.3131	
1 and 4		773	173	4	0.1848	0.2684	
1 and 4	[5000,10000)	1255	336	1	0.2343	0.304	
1 and 4		1255	317	2	0.2199	0.2883	
1 and 4		1255	322	3	0.2237	0.2925	
1 and 4		1255	280	4	0.192	0.2576	

Table 31: Left: results for pair (1,5). Right: results for pair (1,14)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
1 and 5	[0,50)	155	23	1	0.0856	0.245	✓
1 and 5		155	17	2	0.0574	0.1994	✓
1 and 5		155	43	3	0.1894	0.3868	
1 and 5		155	72	4	0.3569	0.5755	✓
1 and 5	[50,100)	105	24	1	0.1353	0.3595	
1 and 5		105	10	2	0.0411	0.2055	✓
1 and 5		105	37	3	0.2365	0.4888	
1 and 5		105	34	4	0.2123	0.4598	
1 and 5	[100,200)	107	18	1	0.0906	0.291	
1 and 5		107	15	2	0.0708	0.2585	
1 and 5		107	30	3	0.1772	0.4135	
1 and 5		107	44	4	0.2887	0.5458	✓
1 and 5	[200,500)	170	22	1	0.0735	0.2179	✓
1 and 5		170	28	2	0.1003	0.2586	
1 and 5		170	55	3	0.2329	0.4297	
1 and 5		170	65	4	0.2855	0.4895	✓
1 and 5	[500,1000)	211	41	1	0.1297	0.2808	
1 and 5		211	46	2	0.1494	0.3068	
1 and 5		211	37	3	0.1142	0.2597	
1 and 5		211	87	4	0.3224	0.5085	✓
1 and 5	[1000,2000)	424	90	1	0.1622	0.2727	
1 and 5		424	106	2	0.1961	0.313	
1 and 5		424	122	3	0.2306	0.3526	
1 and 5		424	106	4	0.1961	0.313	
1 and 5	[2000,3000)	375	98	1	0.2032	0.3292	
1 and 5		375	88	2	0.1793	0.3009	
1 and 5		375	86	3	0.1745	0.2952	
1 and 5		375	103	4	0.2153	0.3432	
1 and 5	[3000,5000)	924	259	1	0.241	0.3233	
1 and 5		924	210	2	0.1911	0.268	
1 and 5		924	247	3	0.2287	0.3098	
1 and 5		924	208	4	0.1891	0.2657	
1 and 5	[5000,10000)	1544	427	1	0.2459	0.3094	
1 and 5		1544	371	2	0.2112	0.2719	
1 and 5		1544	402	3	0.2304	0.2927	
1 and 5		1544	344	4	0.1946	0.2538	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
1 and 14	[0,50)	176	38	1	0.1423	0.3137	
1 and 14		176	12	2	0.0314	0.1417	✓
1 and 14		176	59	3	0.2446	0.4398	
1 and 14		176	67	4	0.2855	0.486	✓
1 and 14	[50,100)	131	10	1	0.0328	0.1676	✓
1 and 14		131	5	2	0.0118	0.1165	✓
1 and 14		131	66	3	0.385	0.6222	✓
1 and 14		131	50	4	0.2729	0.5038	✓
1 and 14	[100,200)	101	10	1	0.0427	0.2129	✓
1 and 14		101	6	2	0.0202	0.1619	✓
1 and 14		101	36	3	0.238	0.4955	
1 and 14		101	49	4	0.3523	0.6202	✓
1 and 14	[200,500)	170	23	1	0.0778	0.2248	✓
1 and 14		170	24	2	0.0823	0.2316	✓
1 and 14		170	67	3	0.2962	0.5013	✓
1 and 14		170	56	4	0.2381	0.4357	
1 and 14	[500,1000)	124	16	1	0.0665	0.2356	✓
1 and 14		124	22	2	0.1016	0.2915	
1 and 14		124	54	3	0.3185	0.5601	✓
1 and 14		124	32	4	0.1649	0.3799	
1 and 14	[1000,2000)	278	51	1	0.1275	0.2567	
1 and 14		278	66	2	0.1739	0.3153	
1 and 14		278	108	3	0.3109	0.4722	✓
1 and 14		278	53	4	0.1336	0.2646	
1 and 14	[2000,3000)	272	65	1	0.1746	0.3179	
1 and 14		272	63	2	0.1682	0.31	
1 and 14		272	84	3	0.2368	0.3916	
1 and 14		272	60	4	0.1587	0.2981	
1 and 14	[3000,5000)	366	88	1	0.1838	0.3079	
1 and 14		366	87	2	0.1814	0.305	
1 and 14		366	97	3	0.2059	0.3339	
1 and 14		366	94	4	0.1985	0.3253	
1 and 14	[5000,10000)	900	191	1	0.1767	0.2527	
1 and 14		900	234	2	0.2213	0.3028	
1 and 14		900	264	3	0.2528	0.3374	✓
1 and 14		900	211	4	0.1974	0.2761	

Table 32: Left: results for pair (3,15). Right: results for pair (4,5)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
3 and 15	[0,50)	61	9	1	0.0615	0.3136	
3 and 15		61	5	2	0.0255	0.2334	✓
3 and 15		61	21	3	0.2009	0.523	
3 and 15		61	26	4	0.2677	0.6015	✓
3 and 15	[50,100)	37	3	1	0.0187	0.2895	*
3 and 15		37	5	2	0.0425	0.3551	*
3 and 15		37	14	3	0.196	0.6032	*
3 and 15		37	15	4	0.2162	0.6276	*
3 and 15	[100,200)	49	6	1	0.0422	0.3066	*
3 and 15		49	1	2	0.0021	0.1706	*
3 and 15		49	23	3	0.2885	0.6587	*
3 and 15		49	19	4	0.2218	0.5846	*
3 and 15	[200,500)	132	25	1	0.1125	0.301	
3 and 15		132	23	2	0.1009	0.284	
3 and 15		132	46	3	0.244	0.4699	
3 and 15		132	38	4	0.192	0.4074	
3 and 15	[500,1000)	240	37	1	0.1	0.2301	✓
3 and 15		240	49	2	0.1413	0.2857	
3 and 15		240	72	3	0.2247	0.3879	
3 and 15		240	82	4	0.2623	0.431	✓
3 and 15	[1000,2000)	539	123	1	0.1818	0.2824	
3 and 15		539	105	2	0.1516	0.2467	✓
3 and 15		539	166	3	0.2555	0.366	✓
3 and 15		539	145	4	0.2192	0.3254	
3 and 15	[2000,3000)	542	145	1	0.218	0.3237	
3 and 15		542	152	2	0.2299	0.3372	
3 and 15		542	143	3	0.2145	0.3198	
3 and 15		542	102	4	0.1458	0.2394	✓
3 and 15	[3000,5000)	1356	332	1	0.2137	0.2789	
3 and 15		1356	349	2	0.2256	0.2919	
3 and 15		1356	361	3	0.2341	0.301	
3 and 15		1356	314	4	0.2011	0.2651	
3 and 15	[5000,10000)	3446	862	1	0.2301	0.2713	
3 and 15		3446	834	2	0.2222	0.263	
3 and 15		3446	959	3	0.2575	0.3001	✓
3 and 15		3446	791	4	0.2101	0.2502	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
4 and 5	[0,50)	2398	258	1	0.0912	0.1266	✓
4 and 5		2398	163	2	0.055	0.0838	✓
4 and 5		2398	659	3	0.2501	0.301	✓
4 and 5		2398	1318	4	0.5211	0.5778	✓
4 and 5	[50,100)	1414	141	1	0.0796	0.1242	✓
4 and 5		1414	98	2	0.0527	0.0907	✓
4 and 5		1414	456	3	0.2888	0.3581	✓
4 and 5		1414	719	4	0.4714	0.5455	✓
4 and 5	[100,200)	1000	120	1	0.0942	0.1517	✓
4 and 5		1000	105	2	0.0809	0.1352	✓
4 and 5		1000	282	3	0.244	0.3233	
4 and 5		1000	493	4	0.449	0.5371	✓
4 and 5	[200,500)	634	114	1	0.1412	0.2263	✓
4 and 5		634	69	2	0.0789	0.1483	✓
4 and 5		634	200	3	0.2664	0.369	✓
4 and 5		634	251	4	0.3432	0.4511	✓
4 and 5	[500,1000)	294	60	1	0.1464	0.277	
4 and 5		294	47	2	0.109	0.2283	✓
4 and 5		294	99	3	0.2648	0.4171	✓
4 and 5		294	88	4	0.2306	0.3784	
4 and 5	[1000,2000)	495	139	1	0.2281	0.3403	
4 and 5		495	111	2	0.1764	0.2807	
4 and 5		495	115	3	0.1837	0.2893	
4 and 5		495	130	4	0.2113	0.3213	
4 and 5	[2000,3000)	313	93	1	0.2306	0.3736	
4 and 5		313	74	2	0.1762	0.3095	
4 and 5		313	60	3	0.1373	0.2611	
4 and 5		313	86	4	0.2104	0.3501	
4 and 5	[3000,5000)	665	167	1	0.2072	0.3008	
4 and 5		665	184	2	0.231	0.3276	
4 and 5		665	134	3	0.1616	0.2483	✓
4 and 5		665	180	4	0.2254	0.3213	
4 and 5	[5000,10000)	1503	381	1	0.2235	0.2861	
4 and 5		1503	348	2	0.2026	0.2633	
4 and 5		1503	371	3	0.2171	0.2792	
4 and 5		1503	403	4	0.2374	0.3012	

Table 33: Left: results for pair (5,8). Right: results for pair (5,13)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
5 and 8	[0,50)	36	4	1	0.0307	0.3302	*
5 and 8		36	0	2	0	0.1784	*
5 and 8		36	13	3	0.1815	0.5902	*
5 and 8		36	19	4	0.3119	0.7337	*
5 and 8	[50,100)	35	3	1	0.0198	0.3028	*
5 and 8		35	2	2	0.01	0.2659	*
5 and 8		35	23	3	0.4237	0.8333	*
5 and 8		35	7	4	0.0753	0.4342	*
5 and 8	[100,200)	75	6	1	0.0274	0.2119	✓
5 and 8		75	5	2	0.0207	0.1944	✓
5 and 8		75	50	3	0.5053	0.7966	✓
5 and 8		75	14	4	0.0929	0.3395	
5 and 8	[200,500)	106	19	1	0.0984	0.3042	
5 and 8		106	13	2	0.0588	0.2383	✓
5 and 8		106	55	3	0.3866	0.6485	✓
5 and 8		106	19	4	0.0984	0.3042	
5 and 8	[500,1000)	124	25	1	0.12	0.3186	
5 and 8		124	22	2	0.1016	0.2915	
5 and 8		124	56	3	0.3333	0.5757	✓
5 and 8		124	21	4	0.0956	0.2824	
5 and 8	[1000,2000)	258	61	1	0.1709	0.3174	
5 and 8		258	54	2	0.1476	0.2881	
5 and 8		258	85	3	0.2537	0.4152	✓
5 and 8		258	58	4	0.1609	0.3049	
5 and 8	[2000,3000)	265	61	1	0.1663	0.3096	
5 and 8		265	56	2	0.15	0.2892	
5 and 8		265	106	3	0.3199	0.4858	✓
5 and 8		265	42	4	0.1057	0.2309	✓
5 and 8	[3000,5000)	599	156	1	0.2136	0.3134	
5 and 8		599	171	2	0.2369	0.3396	
5 and 8		599	156	3	0.2136	0.3134	
5 and 8		599	116	4	0.1526	0.2426	✓
5 and 8	[5000,10000)	2344	565	1	0.2172	0.2666	
5 and 8		2344	630	2	0.244	0.2951	
5 and 8		2344	540	3	0.207	0.2556	
5 and 8		2344	609	4	0.2353	0.2859	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
5 and 13	[0,50)	48	5	1	0.0326	0.2866	*
5 and 13		48	3	2	0.0144	0.2331	*
5 and 13		48	28	3	0.3868	0.7565	*
5 and 13		48	12	4	0.1192	0.4508	*
5 and 13	[50,100)	53	10	1	0.0828	0.3745	
5 and 13		53	8	2	0.0599	0.3317	
5 and 13		53	23	3	0.2646	0.6203	✓
5 and 13		53	12	4	0.1075	0.4157	
5 and 13	[100,200)	41	11	1	0.1243	0.4865	
5 and 13		41	6	2	0.0506	0.3553	
5 and 13		41	19	3	0.2697	0.6689	✓
5 and 13		41	5	4	0.0382	0.3267	
5 and 13	[200,500)	103	13	1	0.0605	0.2446	✓
5 and 13		103	21	2	0.1158	0.3338	
5 and 13		103	48	3	0.3359	0.6009	✓
5 and 13		103	21	4	0.1158	0.3338	
5 and 13	[500,1000)	124	31	1	0.1584	0.3713	
5 and 13		124	26	2	0.1263	0.3275	
5 and 13		124	52	3	0.3039	0.5444	✓
5 and 13		124	15	4	0.0609	0.226	✓
5 and 13	[1000,2000)	221	55	1	0.1771	0.3378	
5 and 13		221	47	2	0.1462	0.2987	
5 and 13		221	65	3	0.2167	0.3856	
5 and 13		221	54	4	0.1732	0.333	
5 and 13	[2000,3000)	209	53	1	0.1794	0.3455	
5 and 13		209	56	2	0.1918	0.3608	
5 and 13		209	41	3	0.1309	0.2833	
5 and 13		209	59	4	0.2043	0.376	
5 and 13	[3000,5000)	466	139	1	0.2428	0.3605	
5 and 13		466	101	2	0.1683	0.2745	
5 and 13		466	112	3	0.1896	0.2997	
5 and 13		466	114	4	0.1935	0.3042	
5 and 13	[5000,10000)	1442	343	1	0.208	0.2706	
5 and 13		1442	408	2	0.251	0.3172	✓
5 and 13		1442	363	3	0.2212	0.285	
5 and 13		1442	328	4	0.1981	0.2597	

Table 34: Left: results for pair (5,14). Right: results for pair (5,15)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
5 and 14	[0,50)	87	17	1	0.1039	0.3371	
5 and 14		87	8	2	0.0361	0.2151	✓
5 and 14		87	42	3	0.3407	0.6276	✓
5 and 14		87	20	4	0.1293	0.375	
5 and 14	[50,100)	36	7	1	0.0731	0.4247	*
5 and 14		36	3	2	0.0193	0.296	*
5 and 14		36	17	3	0.2663	0.6881	*
5 and 14		36	9	4	0.1064	0.4828	*
5 and 14	[100,200)	49	4	1	0.0225	0.2559	*
5 and 14		49	2	2	0.0072	0.2008	*
5 and 14		49	34	3	0.4942	0.8402	*
5 and 14		49	9	4	0.0771	0.3772	*
5 and 14	[200,500)	90	18	1	0.1084	0.3395	
5 and 14		90	13	2	0.0695	0.2762	
5 and 14		90	43	3	0.3384	0.6208	✓
5 and 14		90	16	4	0.0924	0.3146	
5 and 14	[500,1000)	99	19	1	0.1056	0.3233	
5 and 14		99	21	2	0.1206	0.3457	
5 and 14		99	49	3	0.3601	0.6306	✓
5 and 14		99	10	4	0.0436	0.2168	✓
5 and 14	[1000,2000)	278	58	1	0.1489	0.2843	
5 and 14		278	59	2	0.152	0.2882	
5 and 14		278	110	3	0.3176	0.4794	✓
5 and 14		278	51	4	0.1275	0.2567	
5 and 14	[2000,3000)	308	56	1	0.1285	0.2509	
5 and 14		308	68	2	0.1621	0.2933	
5 and 14		308	80	3	0.1965	0.3349	
5 and 14		308	104	4	0.2672	0.4162	✓
5 and 14	[3000,5000)	571	131	1	0.1841	0.2821	
5 and 14		571	152	2	0.2179	0.3208	
5 and 14		571	115	3	0.1587	0.2522	
5 and 14		571	173	4	0.2522	0.3591	✓
5 and 14	[5000,10000)	1231	334	1	0.2374	0.3081	
5 and 14		1231	311	2	0.2197	0.2887	
5 and 14		1231	288	3	0.202	0.2693	
5 and 14		1231	298	4	0.2096	0.2778	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
5 and 15	[0,50)	95	10	1	0.0455	0.225	✓
5 and 15		95	8	2	0.033	0.1986	✓
5 and 15		95	63	3	0.5199	0.7816	✓
5 and 15		95	14	4	0.0728	0.2755	
5 and 15	[50,100)	63	4	1	0.0174	0.2059	*
5 and 15		63	11	2	0.0794	0.3416	*
5 and 15		63	40	3	0.4594	0.7807	*
5 and 15		63	8	4	0.0501	0.2862	*
5 and 15	[100,200)	94	4	1	0.0116	0.1437	*
5 and 15		94	11	2	0.0526	0.2402	*
5 and 15		94	64	3	0.5371	0.7969	*
5 and 15		94	15	4	0.0809	0.2905	*
5 and 15	[200,500)	124	11	1	0.0397	0.1865	✓
5 and 15		124	13	2	0.0501	0.2064	✓
5 and 15		124	87	3	0.5776	0.8017	✓
5 and 15		124	13	4	0.0501	0.2064	✓
5 and 15	[500,1000)	150	23	1	0.0885	0.2525	
5 and 15		150	30	2	0.1246	0.3051	
5 and 15		150	70	3	0.3573	0.5793	✓
5 and 15		150	27	4	0.1089	0.2828	
5 and 15	[1000,2000)	178	27	1	0.0913	0.2413	✓
5 and 15		178	53	2	0.2121	0.4004	
5 and 15		178	70	3	0.2975	0.498	✓
5 and 15		178	28	4	0.0957	0.2478	✓
5 and 15	[2000,3000)	187	38	1	0.1336	0.2966	
5 and 15		187	44	2	0.1603	0.3315	
5 and 15		187	51	3	0.1922	0.3715	
5 and 15		187	54	4	0.2061	0.3884	
5 and 15	[3000,5000)	386	97	1	0.1949	0.3175	
5 and 15		386	80	2	0.1557	0.2705	
5 and 15		386	116	3	0.2398	0.3692	
5 and 15		386	93	4	0.1856	0.3065	
5 and 15	[5000,10000)	1507	358	1	0.2083	0.2695	
5 and 15		1507	358	2	0.2083	0.2695	
5 and 15		1507	370	3	0.2159	0.2778	
5 and 15		1507	421	4	0.2483	0.3127	

Table 35: Left: results for pair (6,8). Right: results for pair (6,13)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
6 and 8	[0,50)	316	52	1	0.1145	0.2308	✓
6 and 8		316	35	2	0.0705	0.1698	✓
6 and 8		316	111	3	0.2806	0.4291	✓
6 and 8		316	118	4	0.3013	0.4517	✓
6 and 8	[50,100)	330	26	1	0.0464	0.1307	✓
6 and 8		330	27	2	0.0487	0.1343	✓
6 and 8		330	131	3	0.3249	0.4738	✓
6 and 8		330	146	4	0.3682	0.5193	✓
6 and 8	[100,200)	821	79	1	0.0711	0.1289	✓
6 and 8		821	101	2	0.0945	0.1587	✓
6 and 8		821	291	3	0.3093	0.4023	✓
6 and 8		821	350	4	0.379	0.475	✓
6 and 8	[200,500)	2326	291	1	0.1072	0.1455	✓
6 and 8		2326	317	2	0.1176	0.1574	✓
6 and 8		2326	769	3	0.3039	0.3584	✓
6 and 8		2326	949	4	0.3799	0.4367	✓
6 and 8	[500,1000)	2508	417	1	0.1465	0.1881	✓
6 and 8		2508	381	2	0.133	0.173	✓
6 and 8		2508	831	3	0.3056	0.3581	✓
6 and 8		2508	879	4	0.3243	0.3775	✓
6 and 8	[1000,2000)	2200	433	1	0.1742	0.2216	✓
6 and 8		2200	439	2	0.1768	0.2244	✓
6 and 8		2200	722	3	0.3008	0.3567	✓
6 and 8		2200	606	4	0.2497	0.3028	
6 and 8	[2000,3000)	1288	271	1	0.1804	0.2439	✓
6 and 8		1288	275	2	0.1834	0.2471	✓
6 and 8		1288	379	3	0.2601	0.3309	✓
6 and 8		1288	363	4	0.2482	0.3181	
6 and 8	[3000,5000)	1663	399	1	0.2119	0.2704	
6 and 8		1663	378	2	0.1999	0.2573	
6 and 8		1663	467	3	0.2511	0.3126	✓
6 and 8		1663	419	4	0.2234	0.2828	
6 and 8	[5000,10000)	2706	687	1	0.2312	0.278	
6 and 8		2706	634	2	0.2123	0.2578	
6 and 8		2706	705	3	0.2377	0.2848	
6 and 8		2706	680	4	0.2287	0.2753	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
6 and 13	[0,50)	364	38	1	0.0676	0.1578	✓
6 and 13		364	15	2	0.0205	0.0812	✓
6 and 13		364	144	3	0.3269	0.4687	✓
6 and 13		364	167	4	0.3874	0.5319	✓
6 and 13	[50,100)	299	33	1	0.0693	0.1713	✓
6 and 13		299	19	2	0.0342	0.1151	✓
6 and 13		299	101	3	0.2663	0.4175	✓
6 and 13		299	146	4	0.4088	0.5684	✓
6 and 13	[100,200)	557	71	1	0.0931	0.1722	✓
6 and 13		557	62	2	0.0793	0.1541	✓
6 and 13		557	180	3	0.2705	0.3807	✓
6 and 13		557	244	4	0.3806	0.4973	✓
6 and 13	[200,500)	1079	161	1	0.1214	0.1821	✓
6 and 13		1079	121	2	0.088	0.1418	✓
6 and 13		1079	268	3	0.2135	0.2869	
6 and 13		1079	529	4	0.4479	0.5327	✓
6 and 13	[500,1000)	724	112	1	0.1208	0.1959	✓
6 and 13		724	102	2	0.1086	0.1809	✓
6 and 13		724	182	3	0.2091	0.2989	
6 and 13		724	328	4	0.4021	0.505	✓
6 and 13	[1000,2000)	629	122	1	0.1538	0.2417	✓
6 and 13		629	114	2	0.1423	0.228	✓
6 and 13		629	159	3	0.2076	0.3041	
6 and 13		629	234	4	0.32	0.4272	✓
6 and 13	[2000,3000)	416	90	1	0.1654	0.2777	
6 and 13		416	84	2	0.1526	0.2622	
6 and 13		416	90	3	0.1654	0.2777	
6 and 13		416	152	4	0.3024	0.4333	✓
6 and 13	[3000,5000)	539	128	1	0.1902	0.2922	
6 and 13		539	123	2	0.1818	0.2824	
6 and 13		539	108	3	0.1566	0.2527	
6 and 13		539	180	4	0.2799	0.3928	✓
6 and 13	[5000,10000)	1179	279	1	0.2038	0.2729	
6 and 13		1179	315	2	0.2328	0.3046	
6 and 13		1179	238	3	0.1712	0.2365	✓
6 and 13		1179	347	4	0.2587	0.3327	✓

Table 36: Left: results for pair (8,9). Right: results for pair (8,10)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
8 and 9	[0,50)	3	0	1	0	0.7226	*
8 and 9		3	1	2	0.0353	0.8722	*
8 and 9		3	2	3	0.1278	0.9647	*
8 and 9		3	0	4	0	0.7226	*
8 and 9	[50,100)	5	1	1	0.021	0.7449	*
8 and 9		5	1	2	0.021	0.7449	*
8 and 9		5	1	3	0.021	0.7449	*
8 and 9		5	2	4	0.0736	0.8484	*
8 and 9	[100,200)	21	0	1	0	0.2712	*
8 and 9		21	6	2	0.1015	0.5862	*
8 and 9		21	5	3	0.0762	0.542	*
8 and 9		21	10	4	0.2225	0.7428	*
8 and 9	[200,500)	161	22	1	0.0777	0.2293	✓
8 and 9		161	32	2	0.1257	0.2997	
8 and 9		161	52	3	0.2302	0.4321	
8 and 9		161	55	4	0.2466	0.4512	
8 and 9	[500,1000)	222	47	1	0.1455	0.2975	
8 and 9		222	46	2	0.1418	0.2926	
8 and 9		222	56	3	0.1801	0.3412	
8 and 9		222	73	4	0.2478	0.4215	
8 and 9	[1000,2000)	278	59	1	0.152	0.2882	
8 and 9		278	73	2	0.196	0.3421	
8 and 9		278	74	3	0.1992	0.3459	
8 and 9		278	72	4	0.1928	0.3383	
8 and 9	[2000,3000)	187	35	1	0.1206	0.2788	
8 and 9		187	44	2	0.1603	0.3315	
8 and 9		187	49	3	0.183	0.3602	
8 and 9		187	59	4	0.2295	0.4163	
8 and 9	[3000,5000)	288	76	1	0.1982	0.342	
8 and 9		288	44	2	0.1028	0.2211	✓
8 and 9		288	59	3	0.1466	0.2787	
8 and 9		288	109	4	0.3028	0.4606	✓
8 and 9	[5000,10000)	299	83	1	0.2116	0.3549	
8 and 9		299	87	2	0.2236	0.369	
8 and 9		299	60	3	0.1439	0.2727	
8 and 9		299	69	4	0.17	0.3052	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
8 and 10	[0,50)	14	1	1	0.0074	0.4425	*
8 and 10		14	2	2	0.0254	0.5162	*
8 and 10		14	1	3	0.0074	0.4425	*
8 and 10		14	10	4	0.3565	0.9186	*
8 and 10	[50,100)	10	1	1	0.0104	0.5405	*
8 and 10		10	0	2	0	0.4387	*
8 and 10		10	5	3	0.1688	0.8312	*
8 and 10		10	4	4	0.1164	0.7713	*
8 and 10	[100,200)	40	6	1	0.0519	0.3625	
8 and 10		40	7	2	0.0656	0.3907	
8 and 10		40	11	3	0.1276	0.496	
8 and 10		40	16	4	0.2176	0.6151	
8 and 10	[200,500)	188	35	1	0.1199	0.2775	
8 and 10		188	30	2	0.0988	0.2476	✓
8 and 10		188	73	3	0.2953	0.4902	✓
8 and 10		188	50	4	0.1865	0.3641	
8 and 10	[500,1000)	254	49	1	0.1333	0.2709	
8 and 10		254	49	2	0.1333	0.2709	
8 and 10		254	74	3	0.2188	0.3763	
8 and 10		254	82	4	0.2472	0.4091	
8 and 10	[1000,2000)	295	57	1	0.1372	0.2651	
8 and 10		295	57	2	0.1372	0.2651	
8 and 10		295	96	3	0.2545	0.4053	✓
8 and 10		295	85	4	0.2206	0.3666	
8 and 10	[2000,3000)	233	55	1	0.1676	0.3216	
8 and 10		233	48	2	0.1421	0.289	
8 and 10		233	64	3	0.2013	0.3627	
8 and 10		233	66	4	0.2088	0.3718	
8 and 10	[3000,5000)	327	85	1	0.1983	0.3328	
8 and 10		327	77	2	0.1765	0.3068	
8 and 10		327	57	3	0.1235	0.2404	✓
8 and 10		327	108	4	0.2623	0.4062	✓
8 and 10	[5000,10000)	469	118	1	0.2	0.3114	
8 and 10		469	149	2	0.261	0.3804	✓
8 and 10		469	111	3	0.1864	0.2956	
8 and 10		469	91	4	0.1482	0.2499	✓

Table 37: Left: results for pair (8,13). Right: results for pair (9,10)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
8 and 13	[0,50)	235	26	1	0.0655	0.1808	✓
8 and 13		235	9	2	0.0157	0.0907	✓
8 and 13		235	95	3	0.3192	0.4954	✓
8 and 13		235	105	4	0.3593	0.5377	✓
8 and 13	[50,100)	200	23	1	0.0659	0.193	✓
8 and 13		200	7	2	0.0128	0.0922	✓
8 and 13		200	77	3	0.2949	0.4838	✓
8 and 13		200	93	4	0.3696	0.563	✓
8 and 13	[100,200)	317	28	1	0.0531	0.1433	✓
8 and 13		317	26	2	0.0483	0.1358	✓
8 and 13		317	105	3	0.2622	0.4084	✓
8 and 13		317	158	4	0.4209	0.576	✓
8 and 13	[200,500)	673	88	1	0.0986	0.1714	✓
8 and 13		673	71	2	0.0768	0.1432	✓
8 and 13		673	220	3	0.2786	0.3792	✓
8 and 13		673	294	4	0.3844	0.4907	✓
8 and 13	[500,1000)	689	106	1	0.1193	0.1961	✓
8 and 13		689	111	2	0.1258	0.204	✓
8 and 13		689	186	3	0.2255	0.3196	
8 and 13		689	286	4	0.3639	0.4682	✓
8 and 13	[1000,2000)	514	95	1	0.1418	0.2373	✓
8 and 13		514	96	2	0.1435	0.2394	✓
8 and 13		514	104	3	0.1574	0.2562	
8 and 13		514	219	4	0.3667	0.4877	✓
8 and 13	[2000,3000)	327	81	1	0.1874	0.3198	
8 and 13		327	72	2	0.1631	0.2904	
8 and 13		327	53	3	0.1131	0.2268	✓
8 and 13		327	121	4	0.2992	0.4469	✓
8 and 13	[3000,5000)	409	91	1	0.1705	0.2849	
8 and 13		409	96	2	0.1814	0.2979	
8 and 13		409	84	3	0.1553	0.2665	
8 and 13		409	138	4	0.2756	0.4053	✓
8 and 13	[5000,10000)	827	184	1	0.1848	0.2654	
8 and 13		827	191	2	0.1926	0.2743	
8 and 13		827	204	3	0.2073	0.2908	
8 and 13		827	248	4	0.2574	0.3461	✓

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
9 and 10	[0,50)	4671	261	1	0.0472	0.066	✓
9 and 10		4671	187	2	0.0328	0.0489	✓
9 and 10		4671	2077	3	0.4244	0.4651	✓
9 and 10		4671	2146	4	0.4391	0.4799	✓
9 and 10	[50,100)	5707	264	1	0.0391	0.0547	✓
9 and 10		5707	282	2	0.042	0.0581	✓
9 and 10		5707	2741	3	0.4618	0.4988	✓
9 and 10		5707	2420	4	0.4059	0.4424	✓
9 and 10	[100,200)	9126	609	1	0.0598	0.0744	✓
9 and 10		9126	674	2	0.0666	0.0819	✓
9 and 10		9126	4394	3	0.4669	0.4961	✓
9 and 10		9126	3449	4	0.3639	0.3922	✓
9 and 10	[200,500)	14708	1744	1	0.1113	0.1262	✓
9 and 10		14708	1771	2	0.1131	0.1281	✓
9 and 10		14708	6407	3	0.4242	0.4471	✓
9 and 10		14708	4786	4	0.3147	0.3363	✓
9 and 10	[500,1000)	8737	1490	1	0.1596	0.1821	✓
9 and 10		8737	1407	2	0.1504	0.1723	✓
9 and 10		8737	3270	3	0.3599	0.3888	✓
9 and 10		8737	2570	4	0.2807	0.308	✓
9 and 10	[1000,2000)	4234	835	1	0.1807	0.2149	✓
9 and 10		4234	872	2	0.1891	0.2239	✓
9 and 10		4234	1396	3	0.3098	0.3502	✓
9 and 10		4234	1131	4	0.2486	0.2865	
9 and 10	[2000,3000)	1342	294	1	0.1892	0.2522	
9 and 10		1342	284	2	0.1822	0.2444	✓
9 and 10		1342	398	3	0.263	0.3325	✓
9 and 10		1342	366	4	0.2401	0.308	
9 and 10	[3000,5000)	1602	380	1	0.2088	0.2681	
9 and 10		1602	351	2	0.1916	0.2493	✓
9 and 10		1602	415	3	0.2297	0.2908	
9 and 10		1602	456	4	0.2542	0.3171	✓
9 and 10	[5000,10000)	2258	612	1	0.2457	0.2979	
9 and 10		2258	564	2	0.2252	0.2761	
9 and 10		2258	540	3	0.215	0.2651	
9 and 10		2258	542	4	0.2158	0.266	

Table 38: Left: results for pair (9,11). Right: results for pair (9,13)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
9 and 11	[0,50)	10	0	1	0	0.4387	*
9 and 11		10	2	2	0.0358	0.6274	*
9 and 11		10	5	3	0.1688	0.8312	*
9 and 11		10	3	4	0.0718	0.7037	*
9 and 11	[50,100)	12	0	1	0	0.3944	*
9 and 11		12	3	2	0.0593	0.6379	*
9 and 11		12	4	3	0.0958	0.7023	*
9 and 11		12	5	4	0.1382	0.7609	*
9 and 11	[100,200)	41	3	1	0.0169	0.2661	*
9 and 11		41	5	2	0.0382	0.3267	*
9 and 11		41	19	3	0.2697	0.6689	*
9 and 11		41	14	4	0.1754	0.5583	*
9 and 11	[200,500)	158	27	1	0.1032	0.2696	
9 and 11		158	34	2	0.1384	0.3188	
9 and 11		158	54	3	0.246	0.4525	
9 and 11		158	43	4	0.1857	0.3801	
9 and 11	[500,1000)	218	46	1	0.1444	0.2976	
9 and 11		218	47	2	0.1483	0.3026	
9 and 11		218	59	3	0.1955	0.3616	
9 and 11		218	66	4	0.2238	0.3953	
9 and 11	[1000,2000)	422	84	1	0.1504	0.2586	
9 and 11		422	107	2	0.1992	0.3169	
9 and 11		422	122	3	0.2317	0.3542	
9 and 11		422	109	4	0.2035	0.3219	
9 and 11	[2000,3000)	366	90	1	0.1887	0.3137	
9 and 11		366	93	2	0.1961	0.3224	
9 and 11		366	71	3	0.1429	0.2579	
9 and 11		366	112	4	0.2433	0.3768	
9 and 11	[3000,5000)	780	187	1	0.1997	0.2849	
9 and 11		780	207	2	0.2237	0.3117	
9 and 11		780	185	3	0.1973	0.2822	
9 and 11		780	201	4	0.2165	0.3037	
9 and 11	[5000,10000)	2520	561	1	0.2003	0.2466	✓
9 and 11		2520	710	2	0.2574	0.3074	✓
9 and 11		2520	581	3	0.208	0.2548	
9 and 11		2520	668	4	0.2413	0.2904	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
9 and 13	[0,50)	485	49	1	0.0689	0.1458	✓
9 and 13		485	26	2	0.0315	0.0899	✓
9 and 13		485	185	3	0.3221	0.4445	✓
9 and 13		485	225	4	0.4017	0.5273	✓
9 and 13	[50,100)	522	27	1	0.0306	0.086	✓
9 and 13		522	41	2	0.0515	0.118	✓
9 and 13		522	207	3	0.3386	0.4575	✓
9 and 13		522	247	4	0.4129	0.5342	✓
9 and 13	[100,200)	857	80	1	0.0691	0.1249	✓
9 and 13		857	78	2	0.0671	0.1223	✓
9 and 13		857	328	3	0.3376	0.43	✓
9 and 13		857	371	4	0.3864	0.4806	✓
9 and 13	[200,500)	1700	230	1	0.1138	0.1602	✓
9 and 13		1700	208	2	0.1018	0.1463	✓
9 and 13		1700	527	3	0.2796	0.3422	✓
9 and 13		1700	735	4	0.3991	0.4662	✓
9 and 13	[500,1000)	1369	222	1	0.1362	0.1919	✓
9 and 13		1369	214	2	0.1308	0.1857	✓
9 and 13		1369	276	3	0.173	0.2336	✓
9 and 13		1369	657	4	0.4424	0.5177	✓
9 and 13	[1000,2000)	1064	211	1	0.1664	0.2346	✓
9 and 13		1064	187	2	0.1455	0.2107	✓
9 and 13		1064	176	3	0.136	0.1997	✓
9 and 13		1064	490	4	0.4183	0.5034	✓
9 and 13	[2000,3000)	742	143	1	0.1555	0.2363	✓
9 and 13		742	170	2	0.1889	0.2749	
9 and 13		742	153	3	0.1678	0.2507	
9 and 13		742	276	4	0.3239	0.4227	✓
9 and 13	[3000,5000)	997	216	1	0.1825	0.2553	
9 and 13		997	232	2	0.1975	0.2721	
9 and 13		997	280	3	0.2429	0.3222	
9 and 13		997	269	4	0.2324	0.3108	
9 and 13	[5000,10000)	2144	559	1	0.2351	0.2881	
9 and 13		2144	512	2	0.214	0.2655	
9 and 13		2144	517	3	0.2163	0.2679	
9 and 13		2144	556	4	0.2338	0.2866	

Table 39: Left: results for pair (10,11). Right: results for pair (10,12)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
10 and 11	[0,50)	14	1	1	0.0074	0.4425	*
10 and 11		14	0	2	0	0.3582	*
10 and 11		14	6	3	0.1569	0.7515	*
10 and 11		14	7	4	0.2007	0.7993	*
10 and 11	[50,100)	25	1	1	0.0041	0.295	*
10 and 11		25	3	2	0.0279	0.3931	*
10 and 11		25	14	3	0.3031	0.7884	*
10 and 11		25	7	4	0.1071	0.5577	*
10 and 11	[100,200)	60	8	1	0.0527	0.2985	
10 and 11		60	10	2	0.0729	0.3373	
10 and 11		60	30	3	0.3303	0.6697	✓
10 and 11		60	12	4	0.0945	0.3747	
10 and 11	[200,500)	152	27	1	0.1074	0.2794	
10 and 11		152	31	2	0.1282	0.3087	
10 and 11		152	41	3	0.1822	0.3798	
10 and 11		152	53	4	0.2504	0.4617	✓
10 and 11	[500,1000)	206	38	1	0.121	0.271	
10 and 11		206	50	2	0.1696	0.3346	
10 and 11		206	42	3	0.1369	0.2925	
10 and 11		206	76	4	0.2814	0.4661	✓
10 and 11	[1000,2000)	384	80	1	0.1565	0.2718	
10 and 11		384	111	2	0.2291	0.3574	
10 and 11		384	83	3	0.1634	0.2802	
10 and 11		384	110	4	0.2267	0.3547	
10 and 11	[2000,3000)	453	93	1	0.1575	0.2631	
10 and 11		453	107	2	0.1852	0.2962	
10 and 11		453	96	3	0.1634	0.2702	
10 and 11		453	157	4	0.2872	0.4112	✓
10 and 11	[3000,5000)	936	210	1	0.1886	0.2647	
10 and 11		936	249	2	0.2277	0.3082	
10 and 11		936	234	3	0.2126	0.2915	
10 and 11		936	243	4	0.2217	0.3015	
10 and 11	[5000,10000)	2545	549	1	0.1938	0.2394	✓
10 and 11		2545	742	2	0.267	0.3173	✓
10 and 11		2545	587	3	0.2082	0.2548	
10 and 11		2545	667	4	0.2385	0.2872	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
10 and 12	[0,50)	9	0	1	0	0.4648	*
10 and 12		9	2	2	0.0399	0.6628	*
10 and 12		9	3	3	0.0802	0.7414	*
10 and 12		9	4	4	0.1305	0.81	*
10 and 12	[50,100)	21	2	1	0.0168	0.3932	*
10 and 12		21	2	2	0.0168	0.3932	*
10 and 12		21	10	3	0.2225	0.7428	*
10 and 12		21	7	4	0.1289	0.6282	*
10 and 12	[100,200)	46	1	1	0.0022	0.1801	*
10 and 12		46	5	2	0.034	0.297	*
10 and 12		46	24	3	0.3282	0.709	*
10 and 12		46	16	4	0.1871	0.5528	*
10 and 12	[200,500)	133	17	1	0.0672	0.2298	✓
10 and 12		133	19	2	0.0779	0.2475	✓
10 and 12		133	47	3	0.2486	0.4744	
10 and 12		133	50	4	0.2685	0.4971	✓
10 and 12	[500,1000)	124	19	1	0.0837	0.2639	
10 and 12		124	35	2	0.1848	0.4055	
10 and 12		124	36	3	0.1915	0.414	
10 and 12		124	34	4	0.1781	0.397	
10 and 12	[1000,2000)	210	29	1	0.0845	0.2177	✓
10 and 12		210	59	2	0.2033	0.3743	
10 and 12		210	68	3	0.2413	0.419	
10 and 12		210	54	4	0.1826	0.3491	
10 and 12	[2000,3000)	188	35	1	0.1199	0.2775	
10 and 12		188	48	2	0.1774	0.3527	
10 and 12		188	61	3	0.2377	0.4253	
10 and 12		188	44	4	0.1594	0.3299	
10 and 12	[3000,5000)	351	67	1	0.1392	0.256	
10 and 12		351	85	2	0.1843	0.3113	
10 and 12		351	98	3	0.2176	0.3504	
10 and 12		351	101	4	0.2254	0.3593	
10 and 12	[5000,10000)	416	106	1	0.2	0.3187	
10 and 12		416	118	2	0.2263	0.349	
10 and 12		416	106	3	0.2	0.3187	
10 and 12		416	86	4	0.1569	0.2674	

Table 40: Left: results for pair (10,13). Right: results for pair (13,15)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
10 and 13	[0,50)	613	48	1	0.053	0.1142	✓
10 and 13		613	31	2	0.031	0.0815	✓
10 and 13		613	278	3	0.3982	0.51	✓
10 and 13		613	256	4	0.3633	0.474	✓
10 and 13	[50,100)	550	28	1	0.0304	0.084	✓
10 and 13		550	32	2	0.036	0.0928	✓
10 and 13		550	245	3	0.3874	0.5051	✓
10 and 13		550	245	4	0.3874	0.5051	✓
10 and 13	[100,200)	952	78	1	0.0604	0.1103	✓
10 and 13		952	81	2	0.0631	0.1139	✓
10 and 13		952	368	3	0.3435	0.4314	✓
10 and 13		952	425	4	0.402	0.4917	✓
10 and 13	[200,500)	1827	218	1	0.0997	0.1422	✓
10 and 13		1827	231	2	0.1063	0.1498	✓
10 and 13		1827	497	3	0.2439	0.3021	
10 and 13		1827	881	4	0.4497	0.5149	✓
10 and 13	[500,1000)	1645	239	1	0.1227	0.1713	✓
10 and 13		1645	259	2	0.134	0.1842	✓
10 and 13		1645	399	3	0.2143	0.2733	
10 and 13		1645	748	4	0.4207	0.4892	✓
10 and 13	[1000,2000)	1417	278	1	0.1684	0.2273	✓
10 and 13		1417	269	2	0.1624	0.2206	✓
10 and 13		1417	269	3	0.1624	0.2206	✓
10 and 13		1417	601	4	0.3879	0.4612	✓
10 and 13	[2000,3000)	980	174	1	0.146	0.2142	✓
10 and 13		980	213	2	0.1828	0.2563	
10 and 13		980	231	3	0.2	0.2756	
10 and 13		980	362	4	0.3275	0.4134	✓
10 and 13	[3000,5000)	1358	285	1	0.1807	0.2424	✓
10 and 13		1358	335	2	0.2155	0.2808	
10 and 13		1358	380	3	0.2471	0.3151	
10 and 13		1358	358	4	0.2316	0.2983	
10 and 13	[5000,10000)	2605	680	1	0.2377	0.2858	
10 and 13		2605	619	2	0.2151	0.2617	
10 and 13		2605	662	3	0.231	0.2787	
10 and 13		2605	644	4	0.2244	0.2716	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
13 and 15	[0,50)	289	32	1	0.069	0.1729	✓
13 and 15		289	24	2	0.0479	0.1401	✓
13 and 15		289	101	3	0.276	0.4309	✓
13 and 15		289	132	4	0.3771	0.5387	✓
13 and 15	[50,100)	202	19	1	0.0508	0.1675	✓
13 and 15		202	14	2	0.0338	0.1369	✓
13 and 15		202	81	3	0.31	0.4993	✓
13 and 15		202	88	4	0.3423	0.5338	✓
13 and 15	[100,200)	228	25	1	0.0643	0.1809	✓
13 and 15		228	29	2	0.0776	0.2014	✓
13 and 15		228	75	3	0.2489	0.4203	
13 and 15		228	99	4	0.3461	0.5266	✓
13 and 15	[200,500)	364	63	1	0.1247	0.2352	✓
13 and 15		364	65	2	0.1294	0.2413	✓
13 and 15		364	151	3	0.3452	0.4881	✓
13 and 15		364	85	4	0.1775	0.3007	
13 and 15	[500,1000)	453	80	1	0.1321	0.232	✓
13 and 15		453	103	2	0.1772	0.2868	
13 and 15		453	142	3	0.2561	0.3771	✓
13 and 15		453	128	4	0.2275	0.345	
13 and 15	[1000,2000)	785	146	1	0.1503	0.2278	✓
13 and 15		785	198	2	0.2115	0.2979	
13 and 15		785	234	3	0.2546	0.3455	✓
13 and 15		785	207	4	0.2222	0.3098	
13 and 15	[2000,3000)	746	182	1	0.2028	0.2904	
13 and 15		746	188	2	0.2103	0.2989	
13 and 15		746	207	3	0.2341	0.3254	
13 and 15		746	169	4	0.1867	0.2721	
13 and 15	[3000,5000)	1469	381	1	0.2287	0.2925	
13 and 15		1469	392	2	0.2359	0.3003	
13 and 15		1469	392	3	0.2359	0.3003	
13 and 15		1469	304	4	0.179	0.238	✓
13 and 15	[5000,10000)	2843	792	1	0.2557	0.3027	✓
13 and 15		2843	711	2	0.2281	0.2735	
13 and 15		2843	832	3	0.2694	0.317	✓
13 and 15		2843	508	4	0.1595	0.1996	✓

Table 41: Results for pair (14,15)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
14 and 15	[0,50)	92	17	1	0.0981	0.3208	
14 and 15		92	13	2	0.068	0.2708	
14 and 15		92	26	3	0.1725	0.4268	
14 and 15		92	36	4	0.263	0.5366	✓
14 and 15	[50,100)	51	8	1	0.0623	0.3426	*
14 and 15		51	3	2	0.0136	0.2213	*
14 and 15		51	17	3	0.1822	0.5287	*
14 and 15		51	23	4	0.276	0.639	*
14 and 15	[100,200)	55	4	1	0.02	0.2318	*
14 and 15		55	6	2	0.0375	0.278	*
14 and 15		55	22	3	0.2392	0.5857	*
14 and 15		55	23	4	0.2541	0.6026	*
14 and 15	[200,500)	106	12	1	0.0526	0.2269	✓
14 and 15		106	12	2	0.0526	0.2269	✓
14 and 15		106	50	3	0.3428	0.6045	✓
14 and 15		106	32	4	0.1944	0.4365	
14 and 15	[500,1000)	109	14	1	0.0633	0.2433	✓
14 and 15		109	27	2	0.1517	0.3775	
14 and 15		109	36	3	0.2195	0.4638	
14 and 15		109	32	4	0.1888	0.426	
14 and 15	[1000,2000)	185	28	1	0.092	0.239	✓
14 and 15		185	49	2	0.1851	0.3637	
14 and 15		185	60	3	0.2369	0.426	
14 and 15		185	48	4	0.1804	0.358	
14 and 15	[2000,3000)	215	43	1	0.1349	0.2862	
14 and 15		215	53	2	0.1742	0.3366	
14 and 15		215	78	3	0.2774	0.4578	✓
14 and 15		215	41	4	0.1272	0.2759	
14 and 15	[3000,5000)	269	52	1	0.1351	0.2689	
14 and 15		269	70	2	0.193	0.341	
14 and 15		269	52	3	0.1351	0.2689	
14 and 15		269	95	4	0.2769	0.4377	✓
14 and 15	[5000,10000)	1333	310	1	0.2018	0.2664	
14 and 15		1333	299	2	0.194	0.2578	
14 and 15		1333	365	3	0.2411	0.3092	
14 and 15		1333	359	4	0.2368	0.3046	

11.3. 30-min pairs

In this section (Tables 42-48) we provide the results of the pair behaviour statistical analysis for the pairs of interest, for data collected at a 30-min frequency.

Table 42: Left: results for pair (1,4). Right: results for pair (1,6)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
1 and 4	[0,50)	3	0	1	0	0.7226	*
1 and 4		3	1	2	0.0353	0.8722	*
1 and 4		3	1	3	0.0353	0.8722	*
1 and 4		3	1	4	0.0353	0.8722	*
1 and 4	[50,100)	10	2	1	0.0358	0.6274	*
1 and 4		10	2	2	0.0358	0.6274	*
1 and 4		10	3	3	0.0718	0.7037	*
1 and 4		10	3	4	0.0718	0.7037	*
1 and 4	[100,200)	22	6	1	0.0966	0.568	*
1 and 4		22	2	2	0.016	0.3802	*
1 and 4		22	9	3	0.1801	0.6858	*
1 and 4		22	5	4	0.0726	0.5249	*
1 and 4	[200,500)	132	16	1	0.0624	0.2224	✓
1 and 4		132	23	2	0.1009	0.284	
1 and 4		132	51	3	0.2774	0.508	✓
1 and 4		132	42	4	0.2178	0.4389	
1 and 4	[500,1000)	166	22	1	0.0753	0.2228	✓
1 and 4		166	42	2	0.1713	0.357	
1 and 4		166	53	3	0.2282	0.4266	
1 and 4		166	49	4	0.2072	0.4015	
1 and 4	[1000,2000)	189	47	1	0.1719	0.3454	
1 and 4		189	49	2	0.181	0.3567	
1 and 4		189	54	3	0.2038	0.3846	
1 and 4		189	39	4	0.1365	0.2995	
1 and 4	[2000,3000)	169	48	1	0.1983	0.3889	
1 and 4		169	42	2	0.1681	0.3512	
1 and 4		169	52	3	0.2188	0.4136	
1 and 4		169	27	4	0.0963	0.2533	
1 and 4	[3000,5000)	377	106	1	0.2214	0.3498	
1 and 4		377	91	2	0.1854	0.3078	
1 and 4		377	88	3	0.1783	0.2994	
1 and 4		377	92	4	0.1878	0.3107	
1 and 4	[5000,10000)	933	227	1	0.2063	0.2846	
1 and 4		933	198	2	0.1773	0.252	
1 and 4		933	263	3	0.2427	0.3247	
1 and 4		933	245	4	0.2244	0.3047	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
1 and 6	[0,50)	176	17	1	0.0505	0.177	✓
1 and 6		176	10	2	0.0243	0.127	✓
1 and 6		176	78	3	0.3431	0.5481	✓
1 and 6		176	71	4	0.3063	0.5088	✓
1 and 6	[50,100)	357	33	1	0.0579	0.1444	✓
1 and 6		357	20	2	0.0306	0.1005	✓
1 and 6		357	181	3	0.4337	0.58	✓
1 and 6		357	123	4	0.2782	0.4175	✓
1 and 6	[100,200)	873	70	1	0.0581	0.1098	✓
1 and 6		873	42	2	0.0316	0.0727	✓
1 and 6		873	451	3	0.4694	0.5635	✓
1 and 6		873	310	4	0.3113	0.4015	✓
1 and 6	[200,500)	1066	112	1	0.0816	0.1343	✓
1 and 6		1066	68	2	0.0459	0.0881	✓
1 and 6		1066	517	3	0.4425	0.5277	✓
1 and 6		1066	369	4	0.3067	0.3879	✓
1 and 6	[500,1000)	252	36	1	0.092	0.2152	✓
1 and 6		252	21	2	0.0463	0.1454	✓
1 and 6		252	113	3	0.3637	0.5362	✓
1 and 6		252	82	4	0.2492	0.4121	
1 and 6	[1000,2000)	86	22	1	0.1486	0.4037	
1 and 6		86	10	2	0.0504	0.2461	✓
1 and 6		86	29	3	0.2137	0.4879	
1 and 6		86	25	4	0.1759	0.4403	
1 and 6	[2000,3000)	20	7	1	0.1358	0.6485	*
1 and 6		20	2	2	0.0177	0.4071	*
1 and 6		20	5	3	0.0802	0.5603	*
1 and 6		20	6	4	0.1069	0.6055	*
1 and 6	[3000,5000)	39	6	1	0.0533	0.37	
1 and 6		39	6	2	0.0533	0.37	
1 and 6		39	7	3	0.0673	0.3987	
1 and 6		39	20	4	0.3065	0.7149	✓
1 and 6	[5000,10000)	39	13	1	0.1666	0.5558	*
1 and 6		39	12	2	0.1485	0.5311	*
1 and 6		39	12	3	0.1485	0.5311	*
1 and 6		39	2	4	0.009	0.2434	*

Table 43: Left: results for pair (2,3). Right: results for pair (2,6)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
2 and 3	[0,50)	12	1	1	0.0086	0.4867	*
2 and 3		12	2	2	0.0297	0.5666	*
2 and 3		12	5	3	0.1382	0.7609	*
2 and 3		12	4	4	0.0958	0.7023	*
2 and 3	[50,100)	14	2	1	0.0254	0.5162	*
2 and 3		14	1	2	0.0074	0.4425	*
2 and 3		14	8	3	0.2485	0.8431	*
2 and 3		14	3	4	0.0506	0.5827	*
2 and 3	[100,200)	42	5	1	0.0373	0.3203	
2 and 3		42	6	2	0.0494	0.3484	
2 and 3		42	17	3	0.2247	0.6147	
2 and 3		42	14	4	0.1709	0.548	
2 and 3	[200,500)	135	23	1	0.0986	0.2782	
2 and 3		135	22	2	0.0931	0.2697	
2 and 3		135	42	3	0.2127	0.4302	
2 and 3		135	48	4	0.2512	0.4757	✓
2 and 3	[500,1000)	266	53	1	0.1398	0.2759	
2 and 3		266	34	2	0.081	0.1958	✓
2 and 3		266	57	3	0.1526	0.2922	
2 and 3		266	122	4	0.3756	0.544	✓
2 and 3	[1000,2000)	498	114	1	0.1807	0.2855	
2 and 3		498	85	2	0.1287	0.2228	✓
2 and 3		498	94	3	0.1447	0.2424	✓
2 and 3		498	205	4	0.3518	0.4742	✓
2 and 3	[2000,3000)	455	121	1	0.2123	0.3274	
2 and 3		455	109	2	0.1883	0.2996	
2 and 3		455	101	3	0.1725	0.2809	
2 and 3		455	124	4	0.2184	0.3344	
2 and 3	[3000,5000)	1055	302	1	0.249	0.3266	
2 and 3		1055	250	2	0.2024	0.2754	
2 and 3		1055	244	3	0.197	0.2695	
2 and 3		1055	259	4	0.2104	0.2843	
2 and 3	[5000,10000)	2202	567	1	0.2323	0.2844	
2 and 3		2202	470	2	0.1901	0.2388	✓
2 and 3		2202	522	3	0.2127	0.2633	
2 and 3		2202	643	4	0.2657	0.3198	✓

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
2 and 6	[0,50)	6	0	1	0	0.5657	*
2 and 6		6	2	2	0.0607	0.7945	*
2 and 6		6	1	3	0.0174	0.693	*
2 and 6		6	3	4	0.1239	0.8761	*
2 and 6	[50,100)	20	3	1	0.035	0.4616	*
2 and 6		20	2	2	0.0177	0.4071	*
2 and 6		20	6	3	0.1069	0.6055	*
2 and 6		20	9	4	0.2	0.7281	*
2 and 6	[100,200)	40	5	1	0.0392	0.3334	*
2 and 6		40	4	2	0.0276	0.3032	*
2 and 6		40	12	3	0.1446	0.5208	*
2 and 6		40	19	4	0.2772	0.681	*
2 and 6	[200,500)	98	19	1	0.1067	0.3263	
2 and 6		98	21	2	0.1219	0.3489	
2 and 6		98	20	3	0.1143	0.3376	
2 and 6		98	38	4	0.2634	0.5287	✓
2 and 6	[500,1000)	149	32	1	0.1362	0.3217	
2 and 6		149	29	2	0.1202	0.2995	
2 and 6		149	33	3	0.1416	0.3291	
2 and 6		149	55	4	0.2677	0.4836	✓
2 and 6	[1000,2000)	324	71	1	0.1619	0.2896	
2 and 6		324	86	2	0.203	0.3389	
2 and 6		324	65	3	0.1458	0.2695	
2 and 6		324	102	4	0.2478	0.3906	
2 and 6	[2000,3000)	410	103	1	0.1964	0.3154	
2 and 6		410	100	2	0.1898	0.3076	
2 and 6		410	99	3	0.1876	0.305	
2 and 6		410	108	4	0.2074	0.3282	
2 and 6	[3000,5000)	1003	273	1	0.2348	0.3131	
2 and 6		1003	234	2	0.1981	0.2726	
2 and 6		1003	210	3	0.1758	0.2475	✓
2 and 6		1003	286	4	0.2471	0.3265	
2 and 6	[5000,10000)	2266	527	1	0.2087	0.2583	
2 and 6		2266	540	2	0.2142	0.2642	
2 and 6		2266	580	3	0.2312	0.2824	
2 and 6		2266	619	4	0.2478	0.3001	

Table 44: Left: results for pair (2,7). Right: results for pair (3,7)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
2 and 7	[0,50)	427	62	1	0.1039	0.1992	✓
2 and 7		427	33	2	0.0483	0.1215	✓
2 and 7		427	131	3	0.2483	0.3722	
2 and 7		427	201	4	0.4043	0.5382	✓
2 and 7	[50,100)	533	41	1	0.0504	0.1156	✓
2 and 7		533	34	2	0.04	0.1001	✓
2 and 7		533	203	3	0.3242	0.441	✓
2 and 7		533	255	4	0.4187	0.5388	✓
2 and 7	[100,200)	1032	68	1	0.0474	0.0909	✓
2 and 7		1032	66	2	0.0458	0.0887	✓
2 and 7		1032	401	3	0.3471	0.4317	✓
2 and 7		1032	497	4	0.4384	0.525	✓
2 and 7	[200,500)	2200	222	1	0.0843	0.1203	✓
2 and 7		2200	219	2	0.0831	0.1188	✓
2 and 7		2200	847	3	0.3565	0.4144	✓
2 and 7		2200	912	4	0.3855	0.4442	✓
2 and 7	[500,1000)	1615	259	1	0.1365	0.1875	✓
2 and 7		1615	247	2	0.1296	0.1796	✓
2 and 7		1615	533	3	0.2982	0.3635	✓
2 and 7		1615	576	4	0.3241	0.3906	✓
2 and 7	[1000,2000)	1377	291	1	0.1822	0.2437	✓
2 and 7		1377	258	2	0.1598	0.2185	✓
2 and 7		1377	435	3	0.282	0.3519	✓
2 and 7		1377	393	4	0.2527	0.3206	✓
2 and 7	[2000,3000)	823	220	1	0.2265	0.3125	
2 and 7		823	195	2	0.1981	0.2807	
2 and 7		823	212	3	0.2174	0.3023	
2 and 7		823	196	4	0.1992	0.282	
2 and 7	[3000,5000)	1462	407	1	0.2469	0.3123	
2 and 7		1462	330	2	0.1967	0.2577	
2 and 7		1462	378	3	0.2279	0.2918	
2 and 7		1462	347	4	0.2077	0.2698	
2 and 7	[5000,10000)	2279	626	1	0.2493	0.3016	
2 and 7		2279	459	2	0.179	0.2259	✓
2 and 7		2279	613	3	0.2438	0.2957	
2 and 7		2279	581	4	0.2303	0.2813	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
3 and 7	[0,50)	6	0	1	0	0.5657	*
3 and 7		6	1	2	0.0174	0.693	*
3 and 7		6	2	3	0.0607	0.7945	*
3 and 7		6	3	4	0.1239	0.8761	*
3 and 7	[50,100)	8	0	1	0	0.4941	*
3 and 7		8	1	2	0.013	0.6076	*
3 and 7		8	2	3	0.045	0.702	*
3 and 7		8	5	4	0.2174	0.9091	*
3 and 7	[100,200)	28	1	1	0.0037	0.2704	*
3 and 7		28	7	2	0.0951	0.514	*
3 and 7		28	11	3	0.1869	0.6456	*
3 and 7		28	9	4	0.1388	0.582	*
3 and 7	[200,500)	104	22	1	0.1219	0.3415	
3 and 7		104	21	2	0.1146	0.3309	
3 and 7		104	37	3	0.2389	0.4928	
3 and 7		104	24	4	0.1366	0.3625	
3 and 7	[500,1000)	240	43	1	0.1204	0.2581	
3 and 7		240	47	2	0.1343	0.2765	
3 and 7		240	107	3	0.3593	0.5358	✓
3 and 7		240	43	4	0.1204	0.2581	
3 and 7	[1000,2000)	535	116	1	0.1713	0.2705	
3 and 7		535	107	2	0.1561	0.2525	
3 and 7		535	183	3	0.2874	0.4013	✓
3 and 7		535	129	4	0.1934	0.2963	
3 and 7	[2000,3000)	541	121	1	0.1777	0.2775	
3 and 7		541	137	2	0.2047	0.3088	
3 and 7		541	176	3	0.2719	0.3838	✓
3 and 7		541	107	4	0.1544	0.2498	✓
3 and 7	[3000,5000)	968	244	1	0.2151	0.293	
3 and 7		968	222	2	0.1938	0.2692	
3 and 7		968	236	3	0.2074	0.2843	
3 and 7		968	266	4	0.2366	0.3166	
3 and 7	[5000,10000)	1931	487	1	0.2256	0.2808	
3 and 7		1931	404	2	0.1845	0.2362	✓
3 and 7		1931	560	3	0.262	0.3197	✓
3 and 7		1931	480	4	0.2221	0.277	

Table 45: Left: results for pair (4,6). Right: results for pair (8,12)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
4 and 6	[0,50)	27	3	1	0.0258	0.371	*
4 and 6		27	5	2	0.0587	0.453	*
4 and 6		27	10	3	0.1688	0.6301	*
4 and 6		27	9	4	0.1443	0.5972	*
4 and 6	[50,100)	74	12	1	0.076	0.3128	
4 and 6		74	7	2	0.0349	0.2317	✓
4 and 6		74	32	3	0.2856	0.5921	✓
4 and 6		74	23	4	0.1847	0.4731	
4 and 6	[100,200)	228	25	1	0.0643	0.1809	✓
4 and 6		228	28	2	0.0743	0.1963	✓
4 and 6		228	85	3	0.2889	0.4651	✓
4 and 6		228	90	4	0.3092	0.4873	✓
4 and 6	[200,500)	762	94	1	0.0938	0.1605	✓
4 and 6		762	101	2	0.1019	0.1706	✓
4 and 6		762	266	3	0.3026	0.3987	✓
4 and 6		762	301	4	0.3468	0.4453	✓
4 and 6	[500,1000)	933	166	1	0.1456	0.2156	✓
4 and 6		933	162	2	0.1417	0.211	✓
4 and 6		933	324	3	0.3051	0.3919	✓
4 and 6		933	281	4	0.261	0.3447	✓
4 and 6	[1000,2000)	1057	235	1	0.1887	0.26	
4 and 6		1057	236	2	0.1896	0.261	
4 and 6		1057	294	3	0.2414	0.3182	
4 and 6		1057	292	4	0.2396	0.3162	
4 and 6	[2000,3000)	946	242	1	0.2183	0.2974	
4 and 6		946	206	2	0.1826	0.2575	
4 and 6		946	258	3	0.2342	0.3149	
4 and 6		946	240	4	0.2163	0.2952	
4 and 6	[3000,5000)	1656	458	1	0.2469	0.3083	
4 and 6		1656	378	2	0.2007	0.2583	
4 and 6		1656	389	3	0.2071	0.2652	
4 and 6		1656	431	4	0.2313	0.2915	
4 and 6	[5000,10000)	3478	943	1	0.2506	0.2927	✓
4 and 6		3478	781	2	0.2054	0.2449	✓
4 and 6		3478	925	3	0.2456	0.2874	
4 and 6		3478	829	4	0.2188	0.2591	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
8 and 12	[0,50)	6	2	1	0.0607	0.7945	*
8 and 12		6	0	2	0	0.5657	*
8 and 12		6	1	3	0.0174	0.693	*
8 and 12		6	3	4	0.1239	0.8761	*
8 and 12	[50,100)	11	1	1	0.0094	0.5122	*
8 and 12		11	0	2	0	0.4154	*
8 and 12		11	5	3	0.152	0.7949	*
8 and 12		11	5	4	0.152	0.7949	*
8 and 12	[100,200)	39	6	1	0.0533	0.37	
8 and 12		39	6	2	0.0533	0.37	
8 and 12		39	13	3	0.1666	0.5558	
8 and 12		39	14	4	0.1851	0.5799	
8 and 12	[200,500)	142	18	1	0.0678	0.2247	✓
8 and 12		142	15	2	0.0531	0.1994	✓
8 and 12		142	52	3	0.2629	0.4834	✓
8 and 12		142	57	4	0.2945	0.5186	✓
8 and 12	[500,1000)	254	35	1	0.0881	0.2091	✓
8 and 12		254	53	2	0.1466	0.2881	
8 and 12		254	100	3	0.3124	0.4813	✓
8 and 12		254	66	4	0.1909	0.3431	
8 and 12	[1000,2000)	455	100	1	0.1705	0.2785	
8 and 12		455	95	2	0.1607	0.2668	
8 and 12		455	148	3	0.2673	0.3892	✓
8 and 12		455	112	4	0.1943	0.3066	
8 and 12	[2000,3000)	430	91	1	0.162	0.2716	
8 and 12		430	103	2	0.187	0.3014	
8 and 12		430	100	3	0.1807	0.294	
8 and 12		430	136	4	0.2573	0.3818	✓
8 and 12	[3000,5000)	873	220	1	0.2133	0.2952	
8 and 12		873	220	2	0.2133	0.2952	
8 and 12		873	207	3	0.1993	0.2796	
8 and 12		873	226	4	0.2197	0.3023	
8 and 12	[5000,10000)	2630	652	1	0.2251	0.2722	
8 and 12		2630	701	2	0.2432	0.2913	
8 and 12		2630	647	3	0.2233	0.2702	
8 and 12		2630	630	4	0.2171	0.2636	

Table 46: Left: results for pair (8,13). Right: results for pair (8,14)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
8 and 13	[0,50)	3	0	1	0	0.7226	*
8 and 13		3	1	2	0.0353	0.8722	*
8 and 13		3	1	3	0.0353	0.8722	*
8 and 13		3	1	4	0.0353	0.8722	*
8 and 13	[50,100)	11	1	1	0.0094	0.5122	*
8 and 13		11	4	2	0.1051	0.7354	*
8 and 13		11	6	3	0.2051	0.848	*
8 and 13		11	0	4	0	0.4154	*
8 and 13	[100,200)	31	4	1	0.0358	0.3717	*
8 and 13		31	4	2	0.0358	0.3717	*
8 and 13		31	10	3	0.1455	0.5711	*
8 and 13		31	13	4	0.2136	0.6576	*
8 and 13	[200,500)	111	16	1	0.0745	0.2606	
8 and 13		111	22	2	0.1139	0.3222	
8 and 13		111	36	3	0.2153	0.4565	
8 and 13		111	37	4	0.2229	0.4657	
8 and 13	[500,1000)	169	23	1	0.0783	0.226	✓
8 and 13		169	37	2	0.1435	0.3192	
8 and 13		169	65	3	0.2873	0.4921	✓
8 and 13		169	44	4	0.1781	0.3638	
8 and 13	[1000,2000)	428	85	1	0.1503	0.2577	
8 and 13		428	85	2	0.1503	0.2577	
8 and 13		428	138	3	0.2629	0.3883	✓
8 and 13		428	120	4	0.224	0.3446	
8 and 13	[2000,3000)	369	76	1	0.1535	0.2706	
8 and 13		369	105	2	0.2239	0.3542	
8 and 13		369	95	3	0.1993	0.3256	
8 and 13		369	93	4	0.1944	0.3199	
8 and 13	[3000,5000)	885	212	1	0.2018	0.2818	
8 and 13		885	210	2	0.1997	0.2795	
8 and 13		885	228	3	0.2188	0.3007	
8 and 13		885	235	4	0.2262	0.309	
8 and 13	[5000,10000)	2543	645	1	0.2303	0.2785	
8 and 13		2543	654	2	0.2337	0.2821	
8 and 13		2543	587	3	0.2083	0.255	
8 and 13		2543	657	4	0.2349	0.2833	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
8 and 14	[0,50)	50	9	1	0.0755	0.371	*
8 and 14		50	1	2	0.0021	0.1677	*
8 and 14		50	22	3	0.2654	0.6308	*
8 and 14		50	18	4	0.2014	0.5564	*
8 and 14	[50,100)	92	6	1	0.0222	0.1763	✓
8 and 14		92	9	2	0.0404	0.2182	✓
8 and 14		92	45	3	0.3501	0.6299	✓
8 and 14		92	32	4	0.2259	0.4935	
8 and 14	[100,200)	208	18	1	0.046	0.1571	✓
8 and 14		208	20	2	0.0528	0.1687	✓
8 and 14		208	100	3	0.3864	0.5765	✓
8 and 14		208	70	4	0.2523	0.4326	✓
8 and 14	[200,500)	638	50	1	0.0535	0.1135	✓
8 and 14		638	68	2	0.0771	0.1456	✓
8 and 14		638	310	3	0.4311	0.541	✓
8 and 14		638	210	4	0.2795	0.383	✓
8 and 14	[500,1000)	762	108	1	0.11	0.1807	✓
8 and 14		762	118	2	0.1217	0.195	✓
8 and 14		762	297	3	0.3417	0.44	✓
8 and 14		762	239	4	0.2688	0.3623	✓
8 and 14	[1000,2000)	981	191	1	0.1618	0.2324	✓
8 and 14		981	189	2	0.1599	0.2302	✓
8 and 14		981	307	3	0.2732	0.3557	✓
8 and 14		981	294	4	0.2605	0.342	✓
8 and 14	[2000,3000)	744	171	1	0.1897	0.2756	
8 and 14		744	142	2	0.1539	0.2343	✓
8 and 14		744	199	3	0.2247	0.3151	
8 and 14		744	232	4	0.2665	0.3611	✓
8 and 14	[3000,5000)	1394	361	1	0.2276	0.293	
8 and 14		1394	326	2	0.2037	0.267	
8 and 14		1394	364	3	0.2296	0.2953	
8 and 14		1394	343	4	0.2153	0.2797	
8 and 14	[5000,10000)	3395	908	1	0.2468	0.2892	
8 and 14		3395	767	2	0.2065	0.2466	✓
8 and 14		3395	798	3	0.2153	0.256	
8 and 14		3395	922	4	0.2508	0.2934	✓

Table 47: Left: results for pair (11,14). Right: results for pair (12,13)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
11 and 14	[0,50)	9	1	1	0.0115	0.5721	*
11 and 14		9	2	2	0.0399	0.6628	*
11 and 14		9	4	3	0.1305	0.81	*
11 and 14		9	2	4	0.0399	0.6628	*
11 and 14	[50,100)	6	2	1	0.0607	0.7945	*
11 and 14		6	0	2	0	0.5657	*
11 and 14		6	2	3	0.0607	0.7945	*
11 and 14		6	2	4	0.0607	0.7945	*
11 and 14	[100,200)	6	2	1	0.0607	0.7945	*
11 and 14		6	0	2	0	0.5657	*
11 and 14		6	2	3	0.0607	0.7945	*
11 and 14		6	2	4	0.0607	0.7945	*
11 and 14	[200,500)	91	9	1	0.0409	0.2204	✓
11 and 14		91	17	2	0.0992	0.324	
11 and 14		91	33	3	0.2379	0.5091	
11 and 14		91	32	4	0.2286	0.4982	
11 and 14	[500,1000)	191	26	1	0.081	0.2199	✓
11 and 14		191	39	2	0.1351	0.2966	
11 and 14		191	74	3	0.2952	0.4885	✓
11 and 14		191	52	4	0.1925	0.3699	
11 and 14	[1000,2000)	510	93	1	0.1395	0.2348	✓
11 and 14		510	105	2	0.1605	0.2602	
11 and 14		510	147	3	0.2357	0.3472	
11 and 14		510	165	4	0.2687	0.3837	✓
11 and 14	[2000,3000)	556	115	1	0.163	0.2588	
11 and 14		556	141	2	0.2057	0.3083	
11 and 14		556	128	3	0.1843	0.2837	
11 and 14		556	172	4	0.2575	0.3665	✓
11 and 14	[3000,5000)	1016	275	1	0.2336	0.3113	
11 and 14		1016	279	2	0.2373	0.3154	
11 and 14		1016	222	3	0.1845	0.2568	
11 and 14		1016	240	4	0.2011	0.2754	
11 and 14	[5000,10000)	2285	693	1	0.2771	0.3308	✓
11 and 14		2285	525	2	0.2061	0.2553	
11 and 14		2285	540	3	0.2124	0.262	
11 and 14		2285	527	4	0.2069	0.2562	

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
12 and 13	[0,50)	9	0	1	0	0.4648	*
12 and 13		9	4	2	0.1305	0.81	*
12 and 13		9	1	3	0.0115	0.5721	*
12 and 13		9	4	4	0.1305	0.81	*
12 and 13	[50,100)	45	9	1	0.0842	0.4045	*
12 and 13		45	2	2	0.0078	0.2159	*
12 and 13		45	17	3	0.2085	0.5832	*
12 and 13		45	17	4	0.2085	0.5832	*
12 and 13	[100,200)	126	15	1	0.0599	0.2227	✓
12 and 13		126	12	2	0.0441	0.1936	✓
12 and 13		126	50	3	0.2845	0.5212	✓
12 and 13		126	49	4	0.2774	0.5134	✓
12 and 13	[200,500)	437	52	1	0.0823	0.1691	✓
12 and 13		437	46	2	0.0709	0.1535	✓
12 and 13		437	138	3	0.2573	0.3807	✓
12 and 13		437	201	4	0.3946	0.5267	✓
12 and 13	[500,1000)	669	106	1	0.123	0.2018	✓
12 and 13		669	97	2	0.111	0.1871	✓
12 and 13		669	239	3	0.3074	0.4104	✓
12 and 13		669	227	4	0.2903	0.3921	✓
12 and 13	[1000,2000)	895	170	1	0.156	0.2292	✓
12 and 13		895	172	2	0.1581	0.2316	✓
12 and 13		895	257	3	0.2469	0.3311	
12 and 13		895	296	4	0.2884	0.376	✓
12 and 13	[2000,3000)	701	147	1	0.17	0.2558	
12 and 13		701	132	2	0.1505	0.2329	✓
12 and 13		701	225	3	0.2739	0.372	✓
12 and 13		701	197	4	0.2362	0.3307	
12 and 13	[3000,5000)	1469	355	1	0.2119	0.2742	
12 and 13		1469	340	2	0.2022	0.2636	
12 and 13		1469	377	3	0.2261	0.2897	
12 and 13		1469	397	4	0.2391	0.3038	
12 and 13	[5000,10000)	3441	948	1	0.2547	0.2973	✓
12 and 13		3441	836	2	0.2231	0.264	
12 and 13		3441	834	3	0.2225	0.2634	
12 and 13		3441	823	4	0.2195	0.2601	

Table 48: Results for pair (13,14)

Pair	Distance interval (m)	Total	Count	Type	Lower CI	Upper CI	Sign. diff.
13 and 14	[0,50)	4	0	1	0	0.6614	*
13 and 14		4	1	2	0.0263	0.8044	*
13 and 14		4	2	3	0.0934	0.9066	*
13 and 14		4	1	4	0.0263	0.8044	*
13 and 14	[50,100)	9	1	1	0.0115	0.5721	*
13 and 14		9	1	2	0.0115	0.5721	*
13 and 14		9	3	3	0.0802	0.7414	*
13 and 14		9	4	4	0.1305	0.81	*
13 and 14	[100,200)	28	3	1	0.0249	0.3609	*
13 and 14		28	3	2	0.0249	0.3609	*
13 and 14		28	11	3	0.1869	0.6456	*
13 and 14		28	11	4	0.1869	0.6456	*
13 and 14	[200,500)	86	9	1	0.0433	0.2319	✓
13 and 14		86	12	2	0.0651	0.274	
13 and 14		86	37	3	0.293	0.5791	✓
13 and 14		86	28	4	0.2041	0.4761	
13 and 14	[500,1000)	151	28	1	0.1133	0.2885	
13 and 14		151	21	2	0.078	0.2356	✓
13 and 14		151	54	3	0.2581	0.4712	✓
13 and 14		151	48	4	0.2232	0.4305	
13 and 14	[1000,2000)	314	68	1	0.1589	0.288	
13 and 14		314	67	2	0.1561	0.2846	
13 and 14		314	78	3	0.1869	0.3221	
13 and 14		314	101	4	0.2531	0.3989	✓
13 and 14	[2000,3000)	354	77	1	0.1627	0.2846	
13 and 14		354	88	2	0.1903	0.3178	
13 and 14		354	77	3	0.1627	0.2846	
13 and 14		354	112	4	0.2519	0.3888	✓
13 and 14	[3000,5000)	758	174	1	0.1897	0.2749	
13 and 14		758	213	2	0.2378	0.3287	
13 and 14		758	156	3	0.1679	0.2498	✓
13 and 14		758	215	4	0.2403	0.3314	
13 and 14	[5000,10000)	2141	569	1	0.24	0.2933	
13 and 14		2141	554	2	0.2332	0.2861	
13 and 14		2141	503	3	0.2103	0.2615	
13 and 14		2141	515	4	0.2157	0.2673	

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