



DO FEMALE SONGBIRDS CHANGE THEIR SONG IN A CONTEXT OF HIGH AGGRESSIVE MOTIVATION ?

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- Birdsong is **widespread in females**, even though researchers have traditionally considered it a male trait (1).
- Males singing close to production limits are said to reach high **vocal performance**, an honest signal of individual quality (2).
- A bird emitting **high-performance songs** can be perceived as more competitive, reducing its chances to be contested by rivals.
- Vocal performance is expected to be higher during a **territorial intrusion** than when **singing spontaneously**.

Do female songbirds change their vocal performance in the same way as males when challenged by a territorial intrusion?

METHODS

Experimental protocol

European robin (*Erithacus rubecula*)

Both male and female robins **sing** to defend their exclusive territories (during winter).

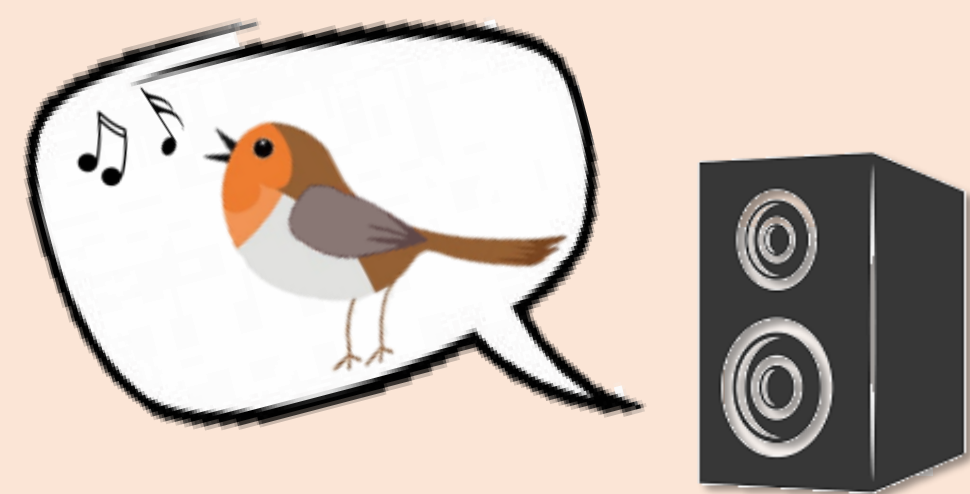
Robins are individually marked, then **recorded** in two contexts :

Spontaneous context



No intrusion

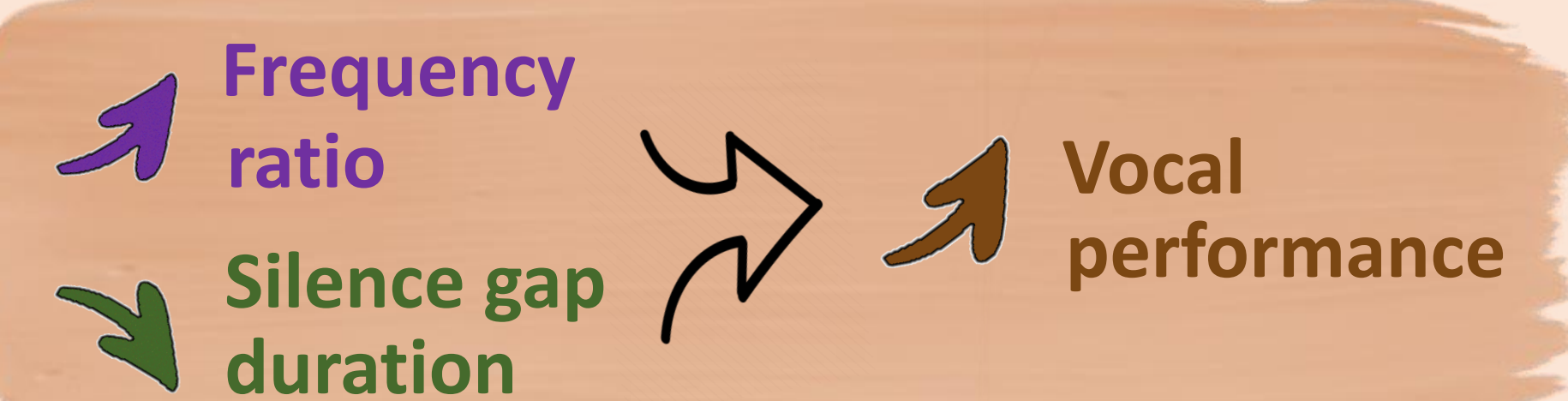
Intrusion context



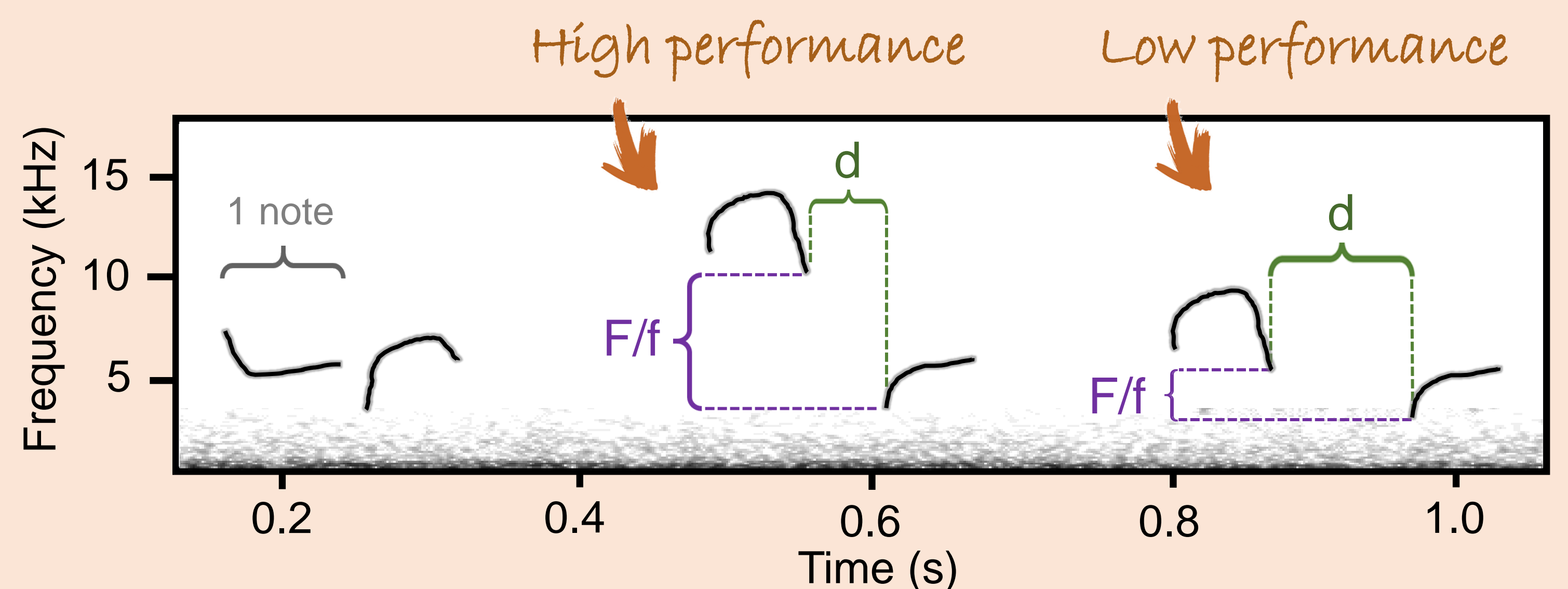
Simulated using a robin playback

Vocal performance measurement (3)

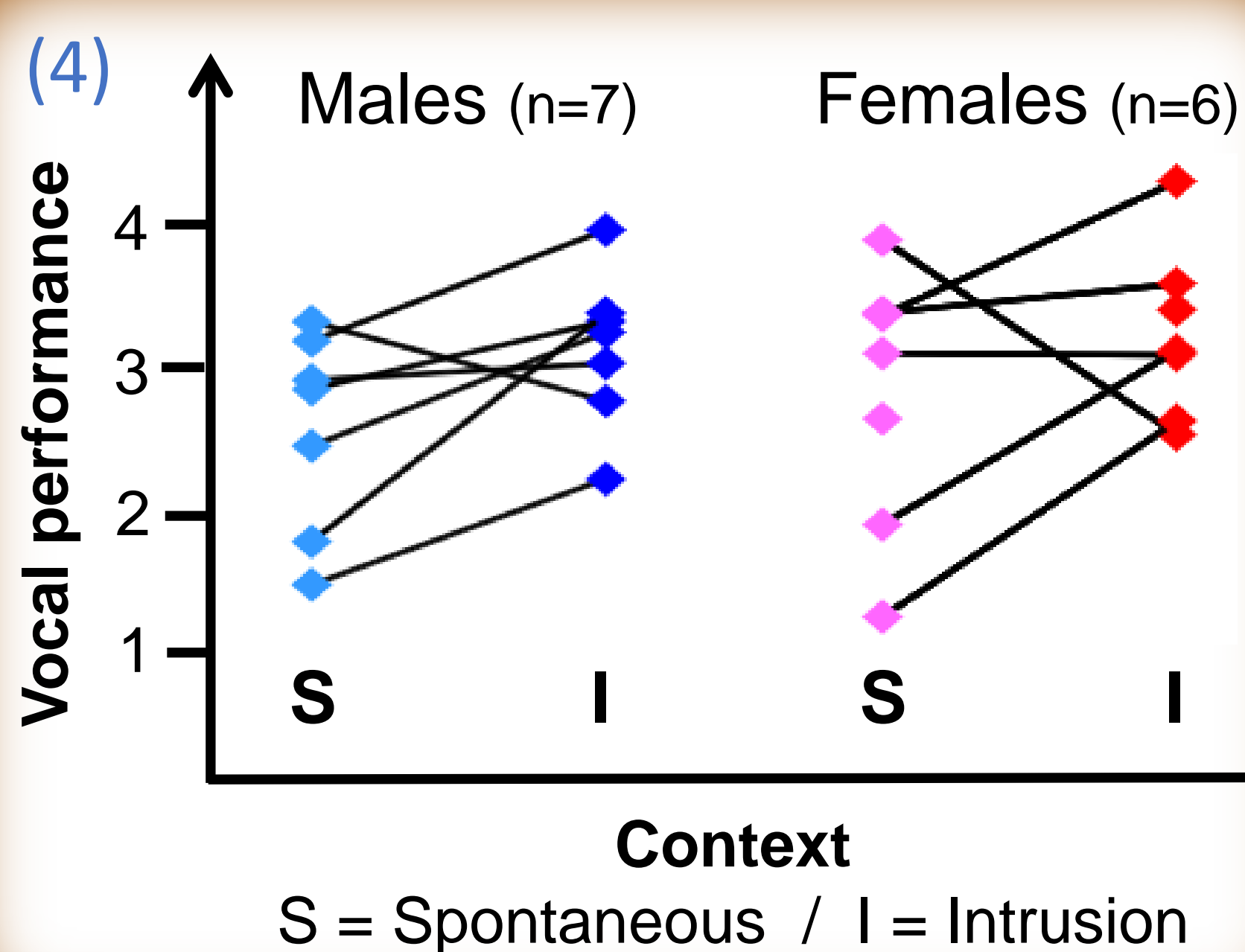
Calculated using the **speed** at which a bird changes the **frequency** between two song notes.



F/f = **Frequency ratio** between the end of one note and the beginning of the next.
 d = **Silence gap duration** between two consecutive notes.



PRELIMINARY RESULTS



Vocal performance was **higher in intrusion context**.

(Anova, $F = 11.894$; $P < 0.001$).

Similarly in **males and females**

(Anova, $F = 0.1552$; $P = 0.694$)

DISCUSSION & PERSPECTIVES

Robins increase vocal performance when territorially challenged.

➔ **Vocal performance could be an honest signal of aggressive motivation**

Similar **selection pressures** seem to act on the song in females and males: both have to defend an individual winter territory.



Thesis project

Would male and female robins adjust their response depending on **playback** vocal performance ?

Male robins are known to increase their minimum song frequency in response to high **urban noise** levels (5).

➔ **Do females** increase frequency in the same way? ➔

Does such an increase **compromises** vocal performance?



References

- (1) Odom *et al.* 2014. Nat. Commun., 5, 3379.
- (2) DuBois *et al.* 2009. Biol. Lett., 5, 163–165.
- (3) Geberzahn & Aubin 2014. BMC Biol., 12, 58.
- (4) Jacquin 2021. Masters thesis
- (5) Montague *et al.* 2012. Behav. Ecol. 24, 343–348.

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