

A longitudinal examination of hermit thrush (*Catharus guttatus*) singing behaviour



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Introduction

- Although the period during which oscine songbirds can learn songs varies widely, the default assumption is closed-ended learning (Beecher & Brenowitz, 2005)

Closed-ended learners are birds that do not add to their song repertoires after their first calendar year.

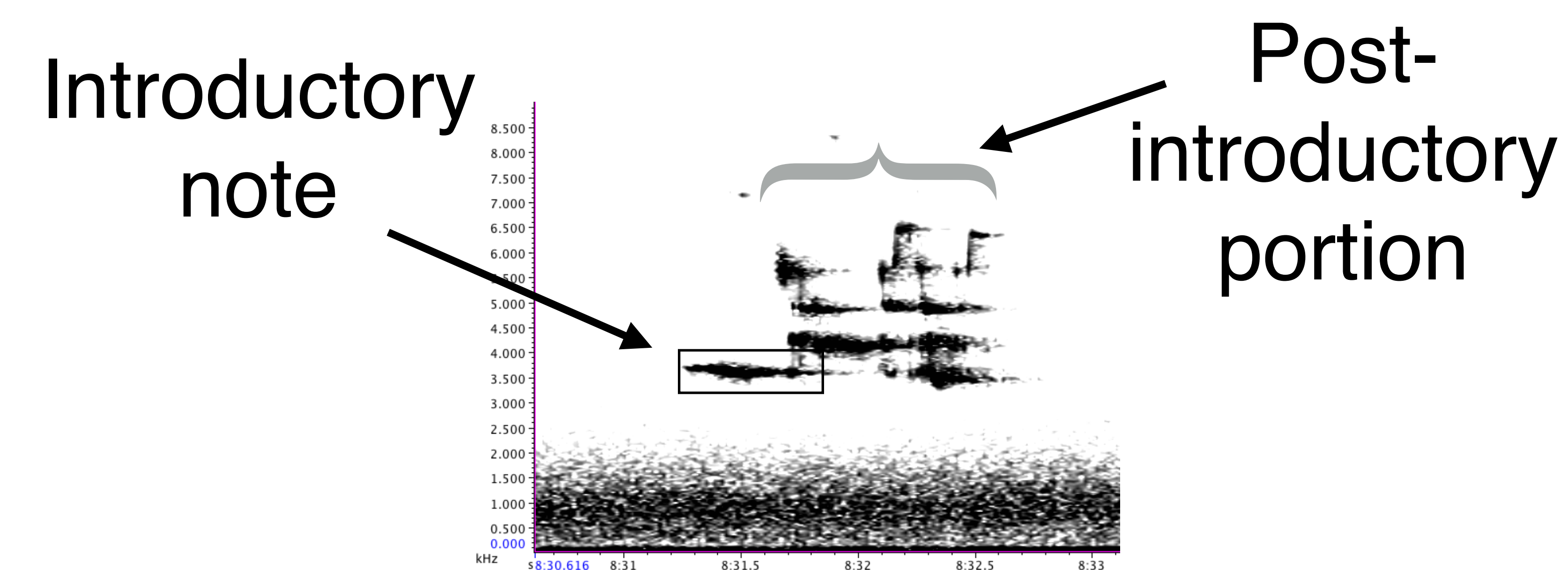
- In many cases, there is no data to support the assumption of closed-ended learning
- This assumption may be false in some cases (e.g. **Great Tit**: McGregor & Krebs, 1989; Franco & Slabbekoorn, 2009; **American Redstart**: Lemon et al., 1994)
- Hermit Thrush have a moderately sized repertoire (7-12 song types; Roach et al., 2013), and have a breeding site fidelity of approximately 50% (Schlossberg, 2009)

Method

Season 1 40 total recorded, 32 colour banded.

Season 2 18 returnees recorded. 13 of these were colour-banded returnees.

34 additional birds recorded in season 2, for a total of 52 birds in this season.

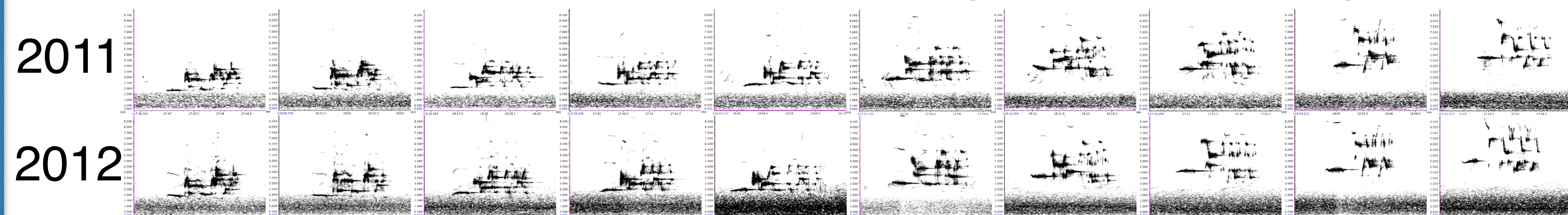


Sample hermit thrush song type

Results

- Return rate** was 50%. Excluding two returnees that were present only very early in the breeding season, **breeding site fidelity** was 45%.
- Between-season comparison**

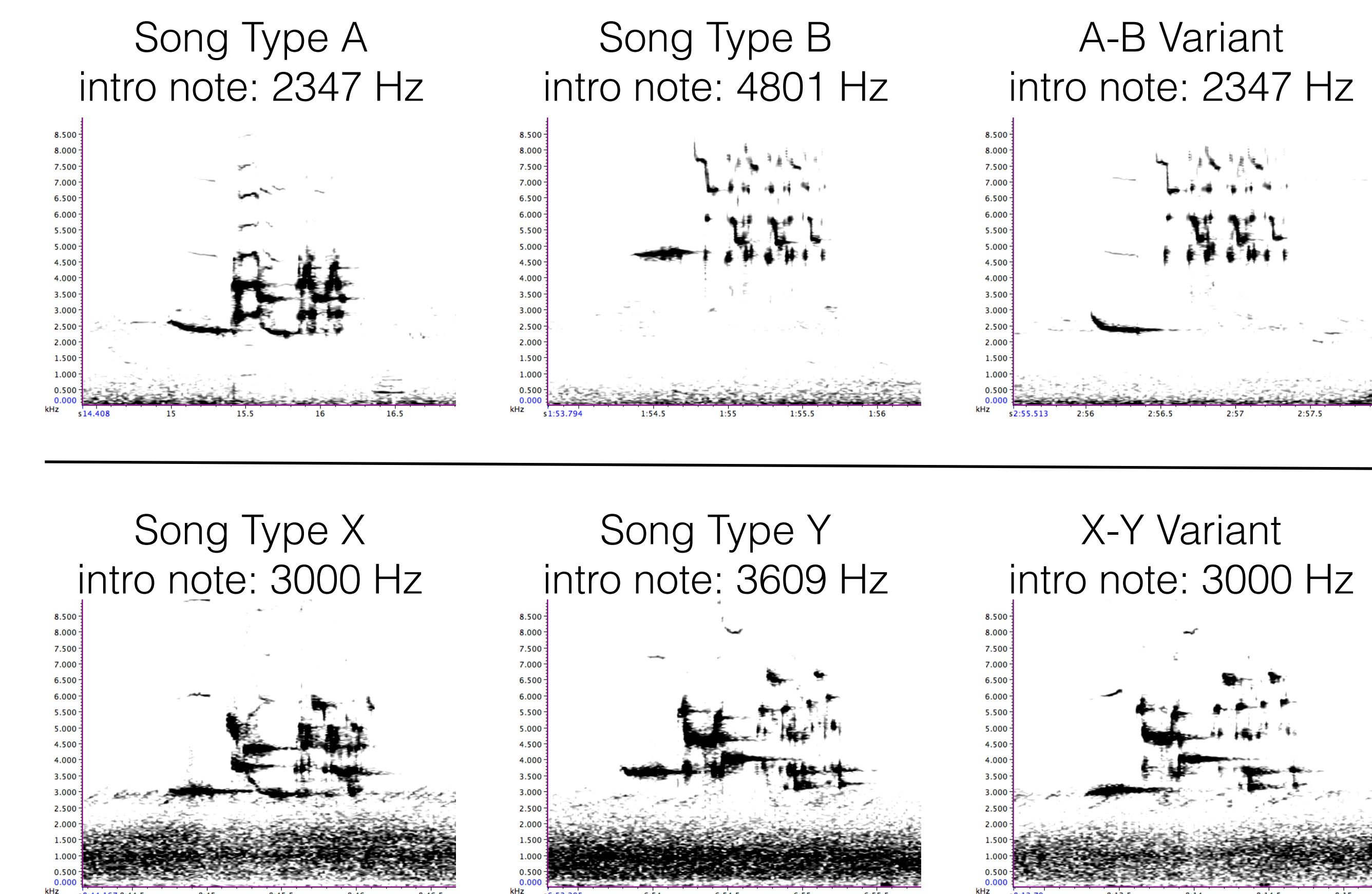
Sample between-season comparison of a single subject with 10 song types.



No changes in repertoire were found for any of the 18 returnees.

3. Song Type Variants

- We discovered song-type variants in 21 out of 52 birds.
- The vast majority of variants (94%) combined the intro note of one song type with the post-intro portion of another song type.
- Variants were rare, comprising 0.2%-7.3% of songs produced in each singing bout.
- Logistic regression indicates that both repertoire size and total number of songs recorded affect the likelihood of observing a variant.



Discussion

- We found no evidence of between-season change in repertoire, supporting the assumption that hermit thrush are closed-ended learners.
- Our results indicate that repertoire can be used to identify individuals, rendering colour-banding unnecessary in many situations.
- The presence of song-type variants in hermit thrush has not been previously described. Our results indicate that they are rare, and are more common among birds with larger repertoires.
- Song-type variants are typically recombinations of pairs of song types.