Prosodic realization of focus and givenness in Czech: a production experiment

Background A FOCUSED constituent gives rise to alternative denotations relevant in the current discourse; what is not focused is called the BACKGROUND [7, 10]. Two prominent uses of focus are in answers to wh-questions (ANSWERHOOD FOCUS) and in corrections of contextually salient utterances (CORRECTIVE FOCUS); these uses have been observed to be realized by different prosody ([16] for Russian; [6] for English). A GIVEN constituent has a synonymic or hyponymic antecedent in the immediate context; what is not given is called NEW. Givenness has been claimed to undergo deaccenting [1, 2]. Focus and givenness encoding in Czech, a language with very flexible word order [13], has traditionally been looked at from a syntactic perspective. Focus has been observed to be realized towards the end of an utterance [3, 9, 11], while given constituents towards the beginning [8]. That focus and givenness are (also) encoded prosodically is well-known [1, 5, 14, 15], but a deeper understanding of how these information structure notions affect prosody in this strongly discourse-configurational language, is still missing.

Experimental design We ran a production experiment where participants read aloud responses to pre-recorded contexts. We manipulated (i) INFO STATUS of the utterance (focus vs. background; where background consisted of contextually given constituents only), (ii) FOCUS POSITION (final vs. non-final), (iii) FOCUS USE (answerhood vs. corrective; manipulated contextually), all within subjects & items, and (iv) SYNTACTIC FUNCTION of the focused element (within subjects, but between items). We constructed 36 items and mixed them with 44 fillers (an example of a target item, excluding context, is in (1)/(2)). The stimuli were distributed on lists using Latin Square and the order of presentation was pseudo-randomized. 68 participants took part in the study (49 female, 19 male). We measured F0 and intensity of the constituents.

Results: info status and position We fitted two linear mixed-effects models to analyze mean F0 and intensity median, using INFO STATUS, FOCUS POSITION, and their interaction as fixed effects; and random intercepts and slopes for participants, along with random intercepts and interaction slopes for items as random effects. Focus in its default utterance-final position is not prosodically prominent relative to its background. Focus is prominent when occurring in a non-final position, followed by its (contextually given) background (interaction of INFO STATUS and FOCUS POSITION; $p < .001$, $t = 15.06$ for F0; $p < .001$, $t = 21.34$ for intensity; see Figs. 1, 2, 5 & 6). The crossed interaction is due to two opposing simple effects: boosted and reduced prominence in focus and background, respectively, implying that a combination of focus prosodic prominence and givenness deaccentuation is at play in these structures, supporting the crucial role of *relative* prominence ([2,4]). Contextually given (= backgrounded) constituents tend to undergo deaccenting, although it involves primarily nuclear pitch accent, not pitch accenting in general. This goes in line with suggestions that given material might carry phrasal, not sentence, stress [12].

Results: focus use We fitted two other LMMs to predict mean F0 and intensity median, with FOCUS TYPE, FOCUS POSITION, and their interaction as fixed effects, and random intercepts for participants and items. There was no difference in answerhood vs. corrective focus encoding (no effect of FOCUS TYPE; $p = 0.764$, $t = 0.3$ for F0, $p = 0.237$, $t = -1.183$ for intensity). This did not change with word order (no interaction between FOCUS TYPE and FOCUS POSITION; $p = 0.18$, $t = -1.341$ for F0 and $p = 0.827$, $t = 0.219$ for intensity; see Figs. 3 & 4). We thus see that Czech speakers are sensitive to focus-as-alternatives ([10]), but fail to encode different focus uses.

Summary and discussion Czech possesses the capacity to encode focus and givenness prosodically, by modulating F0 and intensity, but systematically utilizes this option only for non-final foci. If final, focus remains prosodically non-prominent relative to its given background. Also, we see no evidence that speakers distinguish between answerhood (new) and corrective (contrastive) focus. Czech might thus be different from other better-studied Slavic languages (e.g. Russian [16]; see [14] for a survey), where focus has been found to be prominent independently of its position and where new and contrastive focus are arguably prosodically distinguished.

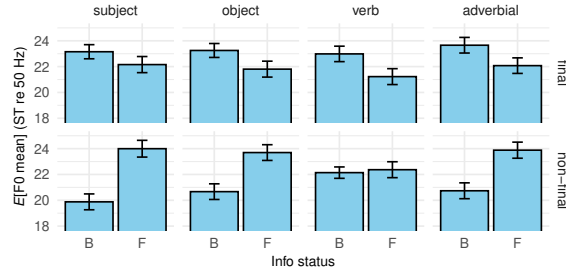**Fig. 1: Exp. F0 mean values dep. on info status and focus position**

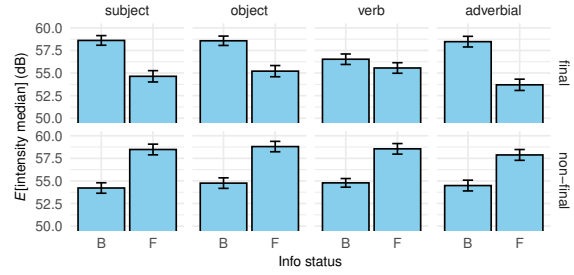**Fig. 2: Exp. intensity median values dep. on info status and focus position**

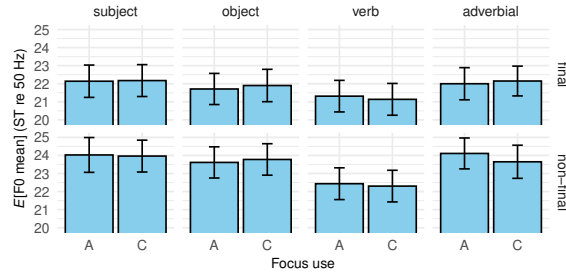**Fig. 3: Exp. F0 mean values dep. on focus use and focus position**

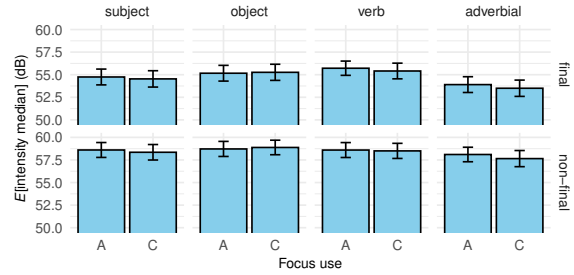**Fig. 4: Exp. intensity median values dep. on focus use and focus position**

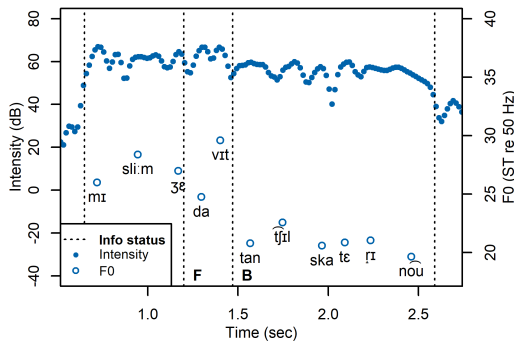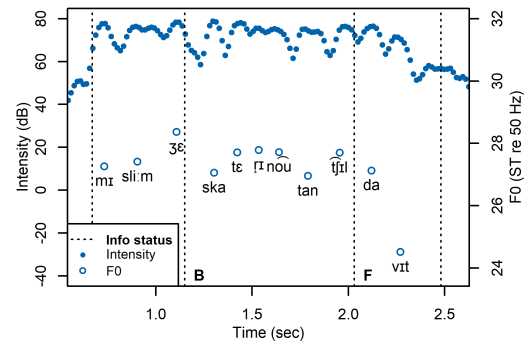**Fig. 5: F0 and intensity contours for non-final focused subject**

Fig.6: F0 and intensity contours for final focused subject

(1) Myslím, že [David]$_F$ [tančil s Kateřinou]$_B$.
think.1SG that David danced with Kateřina

(2) Myslím, že [s Kateřinou tančil]$_B$ [David]$_F$.
think.1SG that with Kateřina danced David

Selected references: [1] Daneš 1957 *Intonace a věta ve spisovné češtině.* ČS AV. **[2] Féry & Samek-Lodovici 2006** Focus projection and prosodic prominence in nested foci. In *Language* 82(1), 131–150. **[3] Firbas 1992** *Functional sentence perspective in written and spoken communication.* Cambridge University Press. **[4] Groeben et al. 2017** Stress shift, focus, and givenness in Czech. In *Formal Approaches to Slavic Linguistics 24: The New York University Meeting 2015,* 180–199. **[5] Hamlaoui et al. 2018** Acoustic correlates of focus marking in Czech and Polish. In *Language and Speech* 62(2), 358–377. **[6] Katz & Selkirk 2011** Contrastive focus vs. discourse-new: Evidence from phonetic prominence in English. In *Language* 87, 771–816. **[7] Krifka 2008** Basic notions of information structure. In *Acta Linguistica Hungarica* 55(3–4), 243–276. **[8] Kučerová 2011** Grammatical marking of givenness. In *Natural Language Semantics* 20(1), 1–30. **[9] Mathesius 1939** O tak zvaném aktuálním členění větném. In *Slovo a slovesnost* 5(4), 171–174. **[10] Rooth 1992** A theory of focus interpretation. In *Natural Language Semantics* 1(1), 75–116. **[11] Sgall et al. 1980** *Aktuální členění věty v češtině.* Academia. **[12] Schubö 2022** Givenness and stress rejection. In *Languages* 7(4), 269. **[13] Siewierska & Uhlířová 1998** An overview of word order in Slavic languages. In *Constituent Order in the Languages of Europe.* De Gruyter Mouton. 105–150. **[14] Šimík 2024** Prosodic reflexes of information structure. In *The Cambridge Handbook of Slavic Linguistics,* eds. D. Šipka & W. Browne. Cambridge University Press. 104–126. **[15] Šimík & Wierzba 2017** Expression of information structure in West Slavic: Modeling the impact of prosodic and word-order factors. In *Language* 93(3), 671–709. **[16] Zybatow & Mehlhorn 2000** Experimental evidence for focus structure in Russian. In *Formal Approaches to Slavic Linguistics 8: The Philadelphia Meeting 1999,* 414–434.