

Generational differences in the low tones of Black Lahu: Appendices

Appendix A: Wordlist (organized by order of appearance in the story)

	IPA	Gloss	Annotated in the TextGrid as:
1	phu ⁵³	dog	phU3
2	k ^h aʔ ⁵³	crossbow	kha6
3	ɔ ⁴⁵ qa ¹¹	water buffalo	O4 qa7
4	nu ⁵³ pa ¹¹	ox	nu3 pa7
5	ga ²¹ taʔ ⁵³	go up into the hills	ga2 ta6
6	yu ²¹	stream	GU2
7	dɔ ²¹	drink	dO2
8	da ²¹ qa ⁴⁵ lu ³³	edible fern	da2 qa4 lu1
9	bu ⁵³ ni ³³ te ²¹	cherry tree	bU3 nI1 tE2
10	bu ⁵³ ni ³³ ei ¹¹	cherry blossom	bU3 nI1 ci7
11	sɿ ⁴⁵ veʔ ⁵³	flower	sI4 ve6
12	ŋaʔ ⁵³	bird	Na6
13	po ²¹	to fly	po2
14	o ³³	egg	o1
15	a ³³ p ^f ɣ ⁴⁵ ei ¹¹	duoyi (a type of fruit)	a1 pu4 ci7
16	u ⁴⁵ qo ¹¹	head	u4 qo7
17	vaʔ ²¹ ti ³⁵ pa ¹¹	wild boar	va5 ti4 pa7
18	mu ³³	sit	mU1
19	qa ³³	sing	qa1
20	qhaʔ ⁵³ qhɔ ³³	village	qha6 qhO1
21	dzɿ ²¹ do ²¹	drink alcohol	dzi2 dO1
22	q ^h ɔ ³³ pu ³³	mountain	qhO1 pU1
23	q ^h ɔ ²¹ tea ⁵³	celebrate the New Year	qhO2 tca3
24	laʔ ²¹	hand	la5

Appendix B: Wordless picture book

Illustrated by Sasithon Namsiri





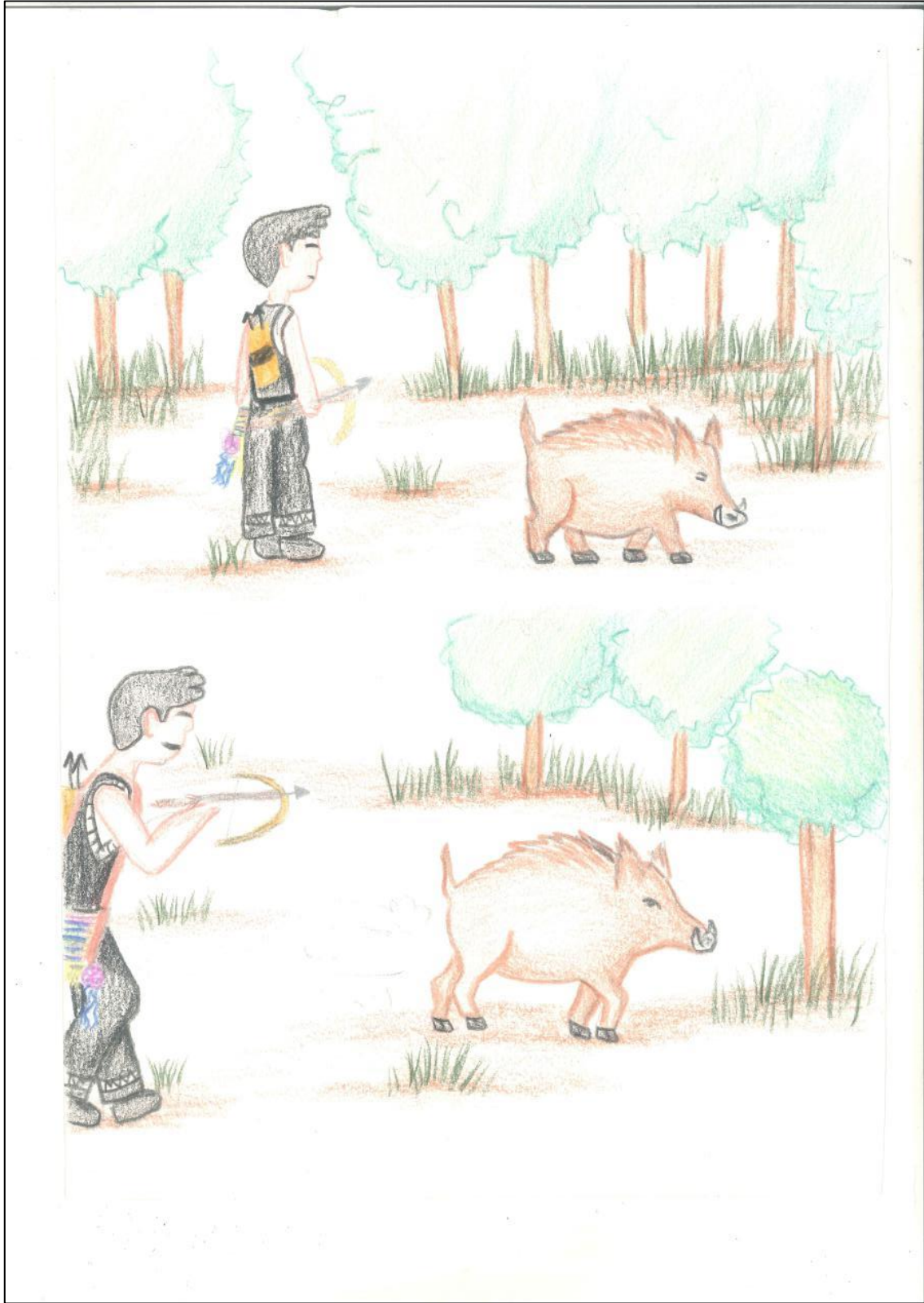


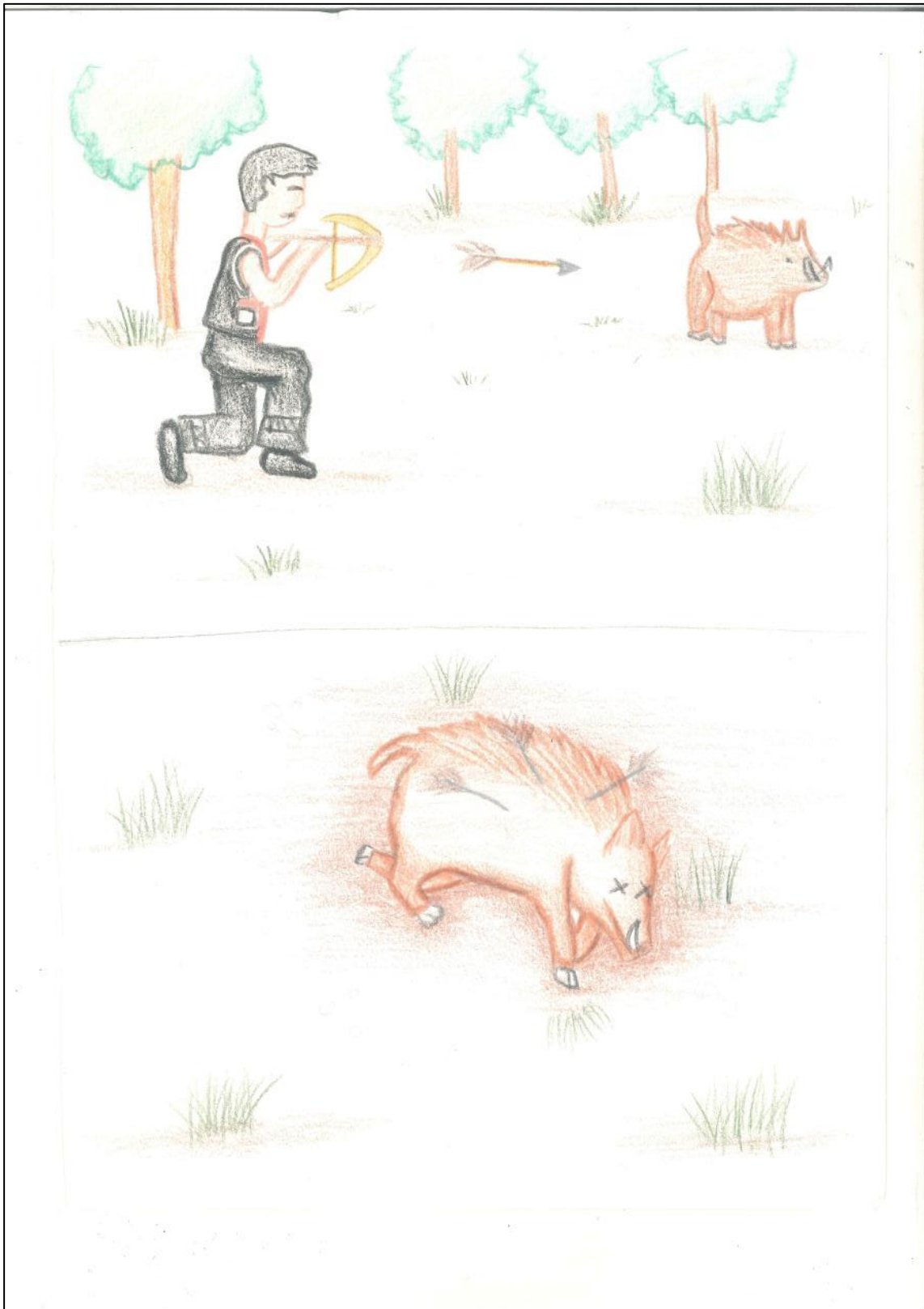


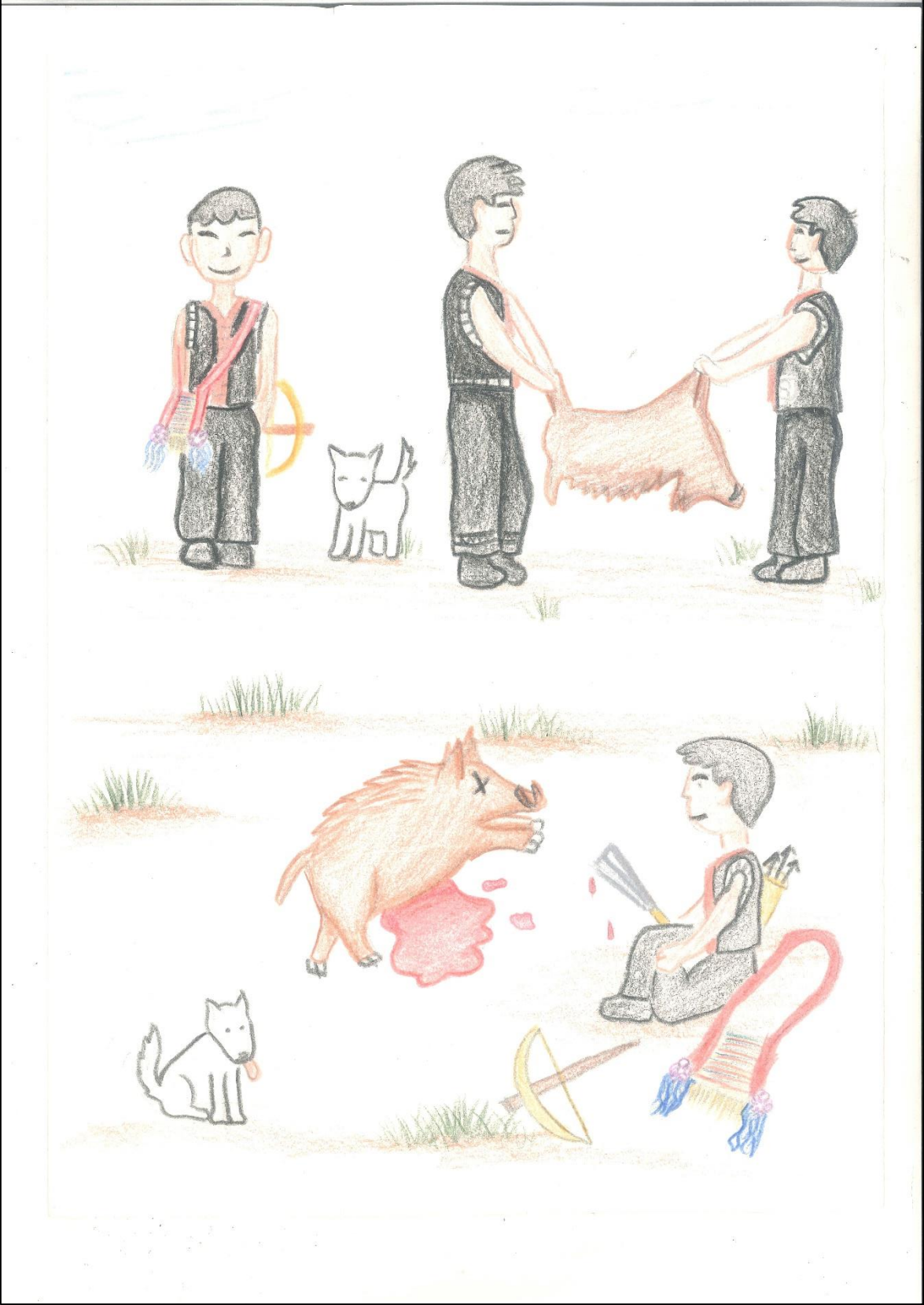
















Appendix C: Cross-tabulation tables

Table 1. T21 data cross-tabulation of Preceding tone environment versus Initial type.

Preceding Environment:	Initial type: sonorant	voiced obstruent	voiceless obstruent	total
High	6	3	49	58
Low	135	99	68	302
Mid	241	259	285	785
Silence	20	31	10	61
total	402	392	412	1206

Table 2. T21 data cross-tabulation of Preceding tone environment versus Following Initial type

Preceding Environment:	Following initial type: obstruent	sonorant	silence	total
High	35	23	0	58
Low	179	94	29	302
Mid	467	301	17	785
silence	57	4	0	61
total	738	422	46	1206

Table 3. T11 data cross-tabulation of Preceding tone environment versus Initial type.

Preceding Environment:	Initial type: sonorant	voiced obstruent	voiceless obstruent	total
High	19	0	441	460
Low	63	0	123	186
Mid	119	10	200	329
Silence	0	0	7	7
total	201	10	771	982

Table 4. T11 data cross-tabulation of Preceding tone environment versus Following Initial type

Preceding Environment:	Following initial type: obstruent	silence	sonorant	total
High	305	14	141	460
Low	135	9	42	186
Mid	219	11	99	329
Silence	2	0	5	7
total	661	34	287	982

Appendix D: F0 trajectory plots by speaker

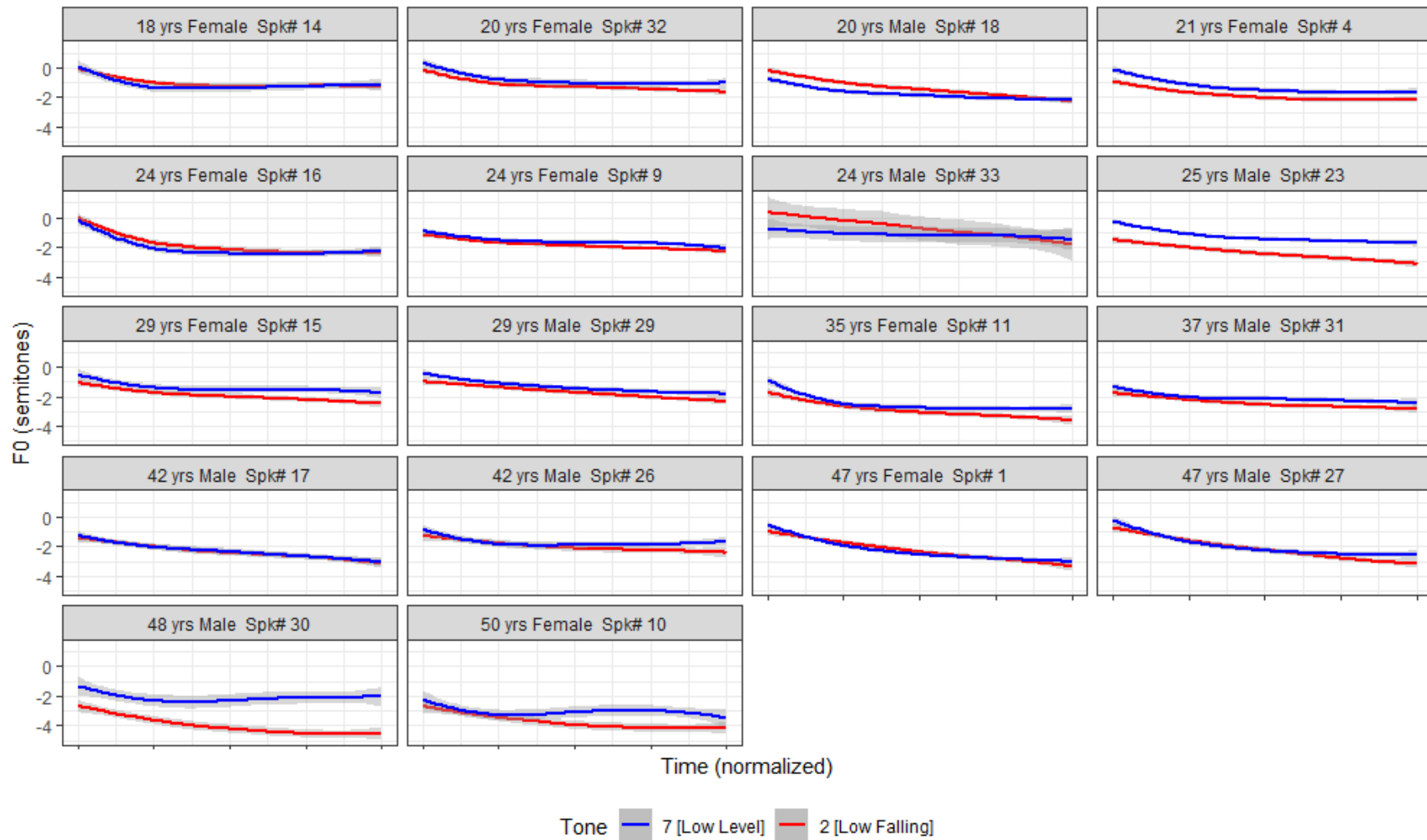


Figure 1. F0 trajectory plots, by speaker, arranged in order of increasing age.

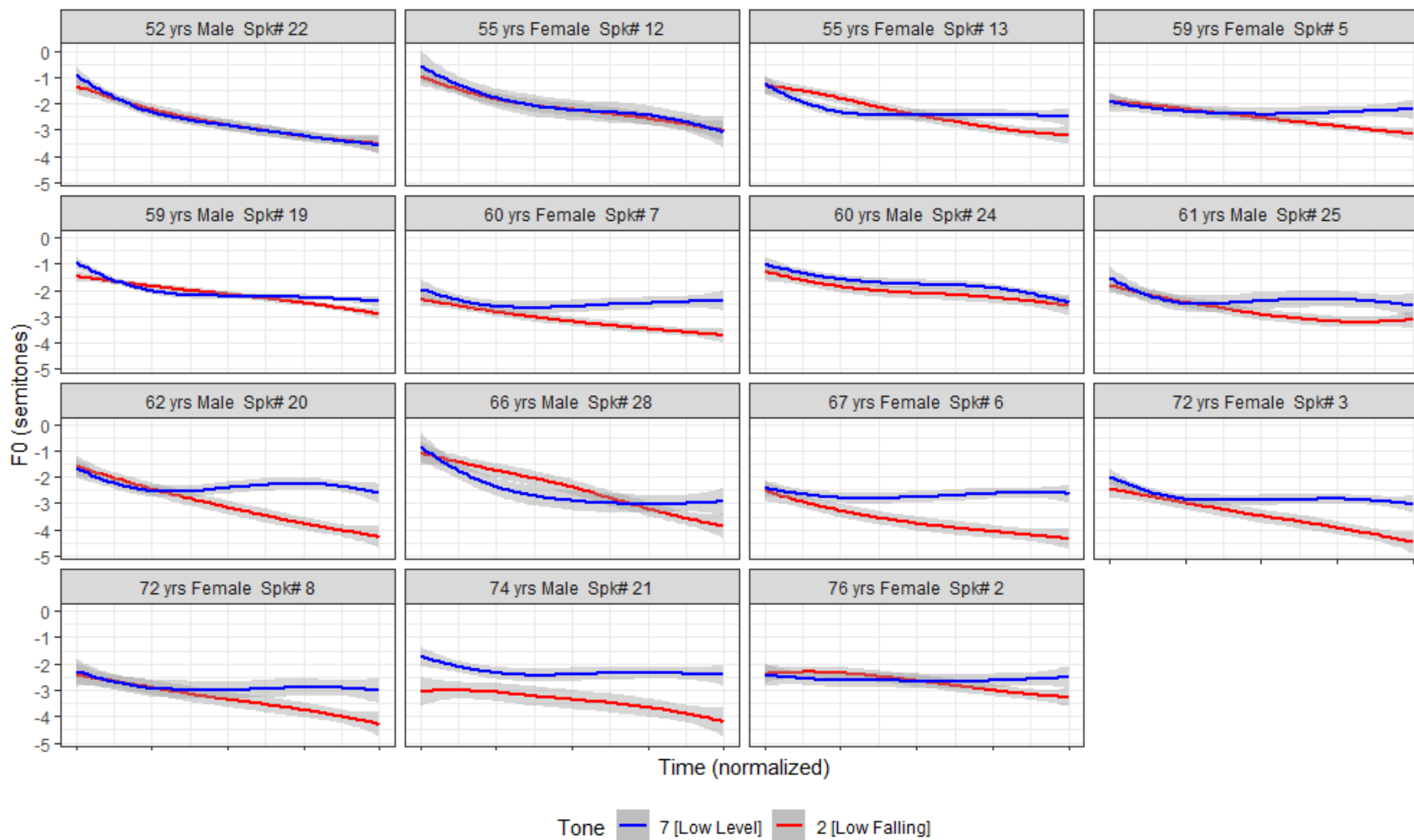


Figure 1, continued. F0 trajectory plots, by speaker, arranged in order of increasing age.

Appendix E: LME model results for T45

1. T45 Onset Model. Mid is chosen as the baseline for Preceding Environment.

```
model formula: T45 Onset ~ Initial + Preceding.Environment + T_int + (1 | Speaker) + (1 | Token)
Linear mixed model fit by maximum likelihood . t-tests use Satterthwaite's
method [lmerModLmerTest]
Formula: as.formula(form$form)
Data: eval(parse(text = paste0("dat", ii)), envir = globalenv())

      AIC      BIC  logLik deviance df.resid
4586.9  4636.1 -2283.5  4566.9    1002

Scaled residuals:
   Min       1Q   Median       3Q      Max
-5.7918 -0.3131  0.1224  0.5169  2.2330

Random effects:
Groups   Name      Variance Std.Dev.
Token    (Intercept) 0.3716   0.6096
Speaker  (Intercept) 0.6784   0.8236
Residual                    4.9304   2.2205

Number of obs: 1012, groups: Token, 44; Speaker, 32

Fixed effects:
              Estimate Std. Error      df t value Pr(>|t|)
(Intercept)          3.2804    0.4088  49.3841   8.024 1.66e-10 ***
Initialvoiced          1.1382    0.7427  38.6024   1.533 0.133552
Initialvoiceless        1.1432    0.3505  22.2477   3.262 0.003535 **
Preceding.EnvironmentHigh  0.1466    1.1497  988.5843   0.128 0.898532
Preceding.EnvironmentLow -0.2383    0.2648  171.8390  -0.900 0.369464
Preceding.EnvironmentSilence 1.3205    0.3060  971.3803   4.315 1.76e-05 ***
T_int                 -8.0914    2.2587  600.3437  -3.582 0.000368 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:
```

```

(Intr) Intlvcd Intlvcl Prc.EH Prc.EL P.E<NA
Initialvocd -0.250
Initilvclss -0.547 0.356
Prcdng.EnvH -0.052 0.007 0.013
Prcdng.EnvL -0.108 -0.218 -0.258 0.050
Prcdn.E<NA> -0.110 0.049 0.109 0.026 0.102
T_int      -0.630 0.014 0.037 0.019 0.047 -0.044

```

2. T45 Offset model

```
Model formula: Offset ~ Following.Environment + (1 | Speaker) + (1 | Token)
```

```
Linear mixed model fit by maximum likelihood . t-tests use Satterthwaite's
method [lmerModLmerTest]
```

```
Formula: as.formula(form$form)
```

```
Data: eval(parse(text = paste0("dat", ii)), envir = globalenv())
```

```

      AIC      BIC  logLik deviance df.resid
3951.6  3986.0 -1968.8  3937.6     1005

```

```
Scaled residuals:
```

```

      Min      1Q  Median      3Q      Max
-7.9153 -0.3670  0.0828  0.5166  2.5270

```

```
Random effects:
```

```

Groups   Name      Variance Std.Dev.
Token    (Intercept) 0.3212   0.5667
Speaker  (Intercept) 0.7100   0.8426
Residual                2.5765   1.6051

```

```
Number of obs: 1012, groups: Token, 44; Speaker, 32
```

```
Fixed effects:
```

```

              Estimate Std. Error    df t value Pr(>|t|)
(Intercept)      4.3554    0.4599 633.1757   9.470  <2e-16 ***
Following.Environment.High -0.2306    0.4376 985.7281  -0.527   0.598
Following.Environment.Low  0.2811    0.4338 958.9726   0.648   0.517
Following.Environment.Mid -0.2720    0.4327 977.4375  -0.629   0.530

```

```
---
```

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:

(Intr) Fl.E.H Fl.E.L

Fllwng.En.H -0.809

Fllwng.En.L -0.882 0.835

Fllwng.En.M -0.881 0.834 0.923