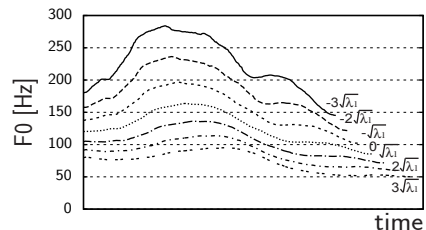


Principal components

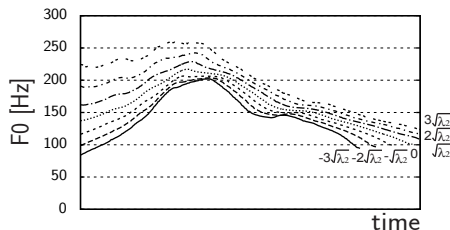
ex.) /naniyorimo/ (5 morae, HLLLL)

1005 dims ($F0$ 500 + power 500 + mora length 5)

4 dims @ 90% of cumulative contribution

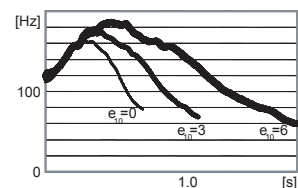


$C1$ changes from $-3\sqrt{\lambda_1}$ to $3\sqrt{\lambda_1}$

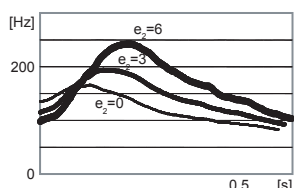


$C2$ changes from $-3\sqrt{\lambda_2}$ to $3\sqrt{\lambda_2}$

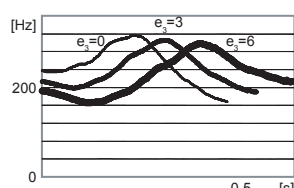
Synthesized prosody patterns



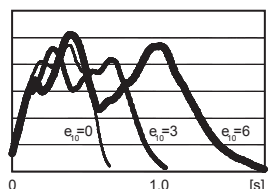
$F0$ contour, /arayuru/
"boredom", $e_{10}=0 \rightarrow 3 \rightarrow 6$



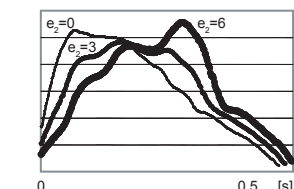
$F0$ contour, /arawani/
"joy", $e_2=0 \rightarrow 3 \rightarrow 6$



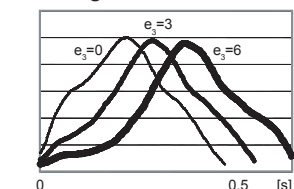
$F0$ contour, /naname/
"disgust", $e_3=0 \rightarrow 3 \rightarrow 6$



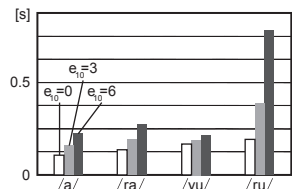
Power contour, /arayuru/
"boredom", $e_{10}=0 \rightarrow 3 \rightarrow 6$



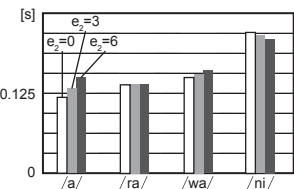
Power contour, /arawani/
"joy", $e_2=0 \rightarrow 3 \rightarrow 6$



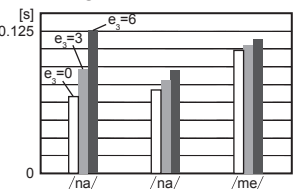
Power contour, /naname/
"disgust", $e_3=0 \rightarrow 3 \rightarrow 6$



Mora length, /arayuru/
"boredom", $e_{10}=0 \rightarrow 3 \rightarrow 6$



Mora length, /arawani/
"joy", $e_2=0 \rightarrow 3 \rightarrow 6$



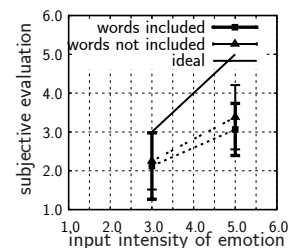
Mora length, /naname/
"disgust", $e_3=0 \rightarrow 3 \rightarrow 6$

Subjective evaluation for synthesized speech

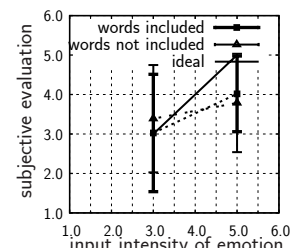
trained (not trained)

	sor	bor	ang	sur	dep	dis	joy	pri	sco	suf	sha	fun
sorrow	10(10)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
boredom	0(0)	10(10)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
anger	0(0)	0(0)	10(9)	0(0)	0(0)	0(0)	0(0)	0(1)	0(0)	0(0)	0(0)	0(0)
surprise	0(0)	0(0)	0(2)	10(8)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
depressed	0(0)	2(3)	0(0)	0(0)	8(6)	0(0)	0(0)	0(0)	0(1)	0(0)	0(0)	0(0)
disgust	0(0)	0(0)	1(1)	0(0)	2(3)	7(6)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
joy	0(0)	0(0)	2(2)	1(3)	0(0)	0(2)	7(4)	0(0)	0(0)	0(0)	0(0)	0(0)
pride	2(0)	1(0)	0(4)	2(1)	0(0)	0(1)	1(0)	2(4)	1(0)	0(0)	0(0)	0(0)
scorn	0(0)	0(0)	3(1)	6(4)	0(0)	0(0)	0(0)	1(1)	0(4)	0(0)	0(0)	0(0)
suffered	4(1)	1(1)	0(4)	0(0)	0(2)	0(0)	0(1)	2(1)	1(2)	1(1)	1(0)	0(0)
shame	0(2)	3(2)	0(0)	0(0)	3(2)	0(1)	2(2)	1(0)	0(0)	0(0)	0(1)	1(0)
funny	0(1)	0(1)	0(2)	4(3)	0(0)	0(0)	1(1)	5(0)	0(2)	0(0)	0(0)	0(0)

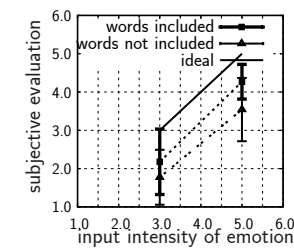
Subjective evaluation for synthesized gradation of emotion



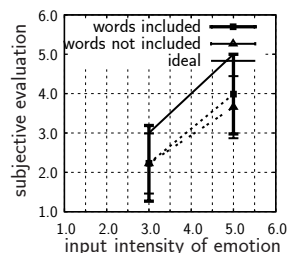
"sorrow" $e_9=3 \rightarrow 5$



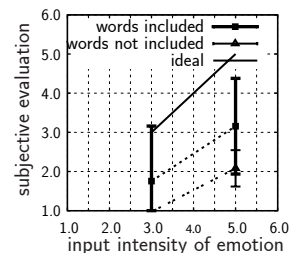
"boredom" $e_{10}=3 \rightarrow 5$



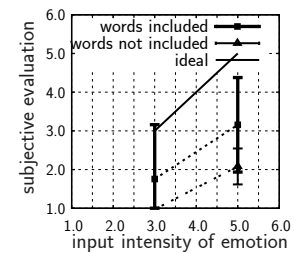
"anger" $e_1=3 \rightarrow 5$



"surprise" $e_4=3 \rightarrow 5$



"depressed" $e_7=3 \rightarrow 5$



"disgust" $e_3=3 \rightarrow 5$