

Table 1. Recognition results of pitch and vowel quality tested for opposing sounds of a D-pattern without and with full attenuation of H1 (vowel recognition = 2 subtests with 10 identifications, pitch recognition = 1 test with 5 identifications; see Method section). Columns 1–3 = sound production (S=series number, fo=fundamental frequency in Hz, V=vowel quality intended). Columns 4–8 = harmonic configuration of synthesis (H1=fundamental, AH1=attenuation of H1, D(i)=dominant harmonics, approximate values in Hz). Columns 9–14 = recognised vowel qualities (total of both tests). Columns 15–16 = recognised pitch level for the comparison of sounds related to a D-pattern without and with full attenuation of H1. – Recognition rates ≥ 80% of mid-closed vowels and/or of low pitch is highlighted in blue, and recognition rates ≥ 80% of closed vowels and/or of high pitch is highlighted in red.

Natural sound			Harmonic synthesis					Vowel recognition						Pitch recognition	
S	fo	V	H1	AH1	D1	D2	D3	o	ø	e	u	y	i	low	high
1	220	e	220 –	0 -100	440	2640	3080			10				5	5
2	250	e	250 –	0 -100	500	2500	3000		1	9				5	5
3	220	ø	220 –	0 -100	440	1760	2640		10				10	5	5
4	220	ø	220 –	0 -100	440	1760	2640		10				9	5	5
5	220	o	220 –	0 -100	440	880	–	10					10	5	5
6	220	o	220 –	0 -100	440	880	–	8			2		10	5	5

Table 1 – details: Labelling of the five listeners (L1–L5).

Vowel recognition test 1: single sounds					Vowel recognition test 2: opposing sounds					Pitch recognition test: opposing sounds				
L1	L2	L3	L4	L5	L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
e	e	e	e	e	e	e	e	e	e	low	low	low	low	low
i	i	i	i	i	i	i	i	i	i	high	high	high	high	high
e	e	e	e	e	e	ø	e	e	e	low	low	low	low	low
i	i	i	i	e	i	i	i	i	i	high	high	high	high	high
ø	ø	ø	ø	ø	ø	ø	ø	ø	ø	low	low	low	low	low
y	y	y	y	y	y	y	y	y	y	high	high	high	high	high
ø	ø	ø	ø	ø	ø	ø	ø	ø	ø	low	low	low	low	low
y	y	y	y	ø	y	y	y	y	y	high	high	high	high	high
o	o	o	o	o	o	o	o	o	o	low	low	low	low	low
u	u	u	u	u	u	u	u	u	u	high	high	high	high	high
o	o	u	o	o	o	o	u	o	o	low	low	low	low	low
u	u	u	u	u	u	u	u	u	u	high	high	high	high	high