





O: 4-c[: F V[ M: K -[[M\F: 8 eFD - IM I: d: I M`DZ -`  
-K8J -g: d: K O -[[M\F: 8 eFDZ I-f-`FVK -K8 P: -[cZ X  
QPTbi ] R  
K M\FCK-I -PPZM4D F `MO: >M`K8 FK ( MC: IY " D` `D: E  
[F 1b<Z / : [c8F: 8 [: d: Z-I e-ZKFK [CK-I [ QZM\Fg d: E  
DF4: [FZ K[74-Z DMK[7OF4g4: O: II[7e DF`I: [R FK - P[gE  
4DMFKCcF`F4 >Z-J : e M`HT &DF -PPZM4D F O-[: 8 M`D:  
[c8g M`D: P-ZF4P-K[Y>Z: 8 [4ZP`FVK[ M`D: [CK-I[  
J F: 8 FK`M`e M8Ff: Z K` O-4-CZM`K8 [: Uc: K4 [ OZ-ffi4  
KM[: -K8 PcOIF4 C-Z8: KRT

*Factors in environmental sound identification*  
&D. Z. 7F 4-K Q. -[[c] : 8`D` QVD

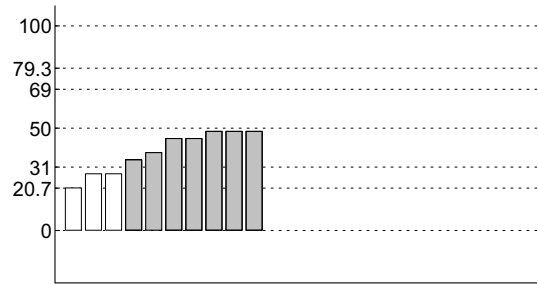
[ˈc8g7e: e ɦl -[ɦ ɦfː] k: ʒ e d ˈd: z ˈd: g p: z4 fɔ: ˈd: [ː  
[mʌk8] -[ 4m fkc ʒm 4-z dnmk] Qd: k ˈdmʌcd -ɦ ˈd:  
[mʌk8] ˈ: [ː] 8 -z z -l 4-z dnmk [mʌk8] d -z8 nk - 8-ɦg  
o-[ɦ ɔg ʒm8c[: ʒfɪ) : e ɦl ˈd: z ʌz j : -[cz ˈd: -cz : e  
j : k ˈ-j nk ˈd: ɦfː] k: ʒ nk ˈd: j : j o ʒ dfp mʌ: -4d mʌ  
ˈd: [ː [mʌk8] fkc ˈd: 4-ˈ: ɔvɪg vʌ-z dnmkxt

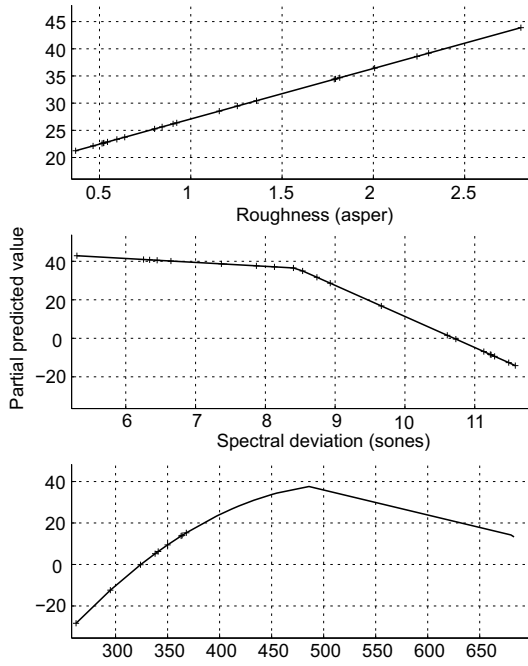
## 2.1. Experimental setup

### Method

*Participants:* &e: K'gEeM4-Z dnmk [mʌk8] e: z 4dm: k [m-  
ˈm]-j pi: ˈd: kfk: 4-[: [ mʌ-fk: 8 ʒm ˈd: [mʌfkc]-[ɦ  
fk ˈd: pz dfmʌ [ˈc8g q: : ˈd: ɦfː] z p-k: l mʌ ˈfcz bɪt  
&d: 4-z dnmk] e: z z 4mʌz 8fk -k -k: 4dmʌ 4d-j o z q: :  
102 ʌz ˈd: 8 ˈ-ɦ [ mʌ ˈd: z 4mʌfkc] rɪ ɦ [mʌk8] l-[: 8-pe  
pzmfj -ˈ: ɦg @ j [t&d g d-8 o: k pz dfmʌ [ɦg : uc-ɦf: 8  
fk ɦmʌ8k: [[ fkc - pz ɦfj fkc-ʒg : f p: ʒfj : k tɪ ɦfː] k: ʒ e: z  
-[ɦ 8 ˈm-8g] ˈd: l: d: l mʌ: -4d [mʌk8] [m ˈd-ˈ ˈd: g p: z  
4 fɔ: 8 f -ˈ ˈd: [-j : ɦmʌ8k: [[ -[ - z ʒ k4 [mʌk8] ɔɦ h  
pɔz ˈnk: -ˈ 7[mʌk8

*Stimuli:* &e: K'gEeM4-Z dnmk [mʌk8] e: z 4dm: k [m-  
ˈm]-j pi: ˈd: kfk: 4-[: [ mʌ-fk: 8 ʒm ˈd: [mʌfkc]-[ɦ  
fk ˈd: pz dfmʌ [ˈc8g q: : ˈd: ɦfː] z p-k: l mʌ ˈfcz bɪt  
&d: 4-z dnmk] e: z z 4mʌz 8fk -k -k: 4dmʌ 4d-j o z q: :  
102 ʌz ˈd: 8 ˈ-ɦ [ mʌ ˈd: z 4mʌfkc] rɪ ɦ [mʌk8] l-[: 8-pe  
pzmfj -ˈ: ɦg @ j [t&d g d-8 o: k pz dfmʌ [ɦg : uc-ɦf: 8  
fk ɦmʌ8k: [[ fkc - pz ɦfj fkc-ʒg : f p: ʒfj : k tɪ ɦfː] k: ʒ e: z  
-[ɦ 8 ˈm-8g] ˈd: l: d: l mʌ: -4d [mʌk8] [m ˈd-ˈ ˈd: g p: z  
4 fɔ: 8 f -ˈ ˈd: [-j : ɦmʌ8k: [[ -[ - z ʒ k4 [mʌk8] ɔɦ h  
pɔz ˈnk: -ˈ 7[mʌk8





[M&K8]T&D: [: K:e [M&K8] D-8`MZ [P: 4 `eM&NK[ `Z-FK[ T  
`FZ] 7`D: g D-8`M[D-Z `D: [-J: P: Z4: P`c-I 8FJ: K[F&K  
-[: `D: Z 4M&B: 8NK: [7-K8`MD-d: - J M&: :f: K8: 8 Z-KC:  
M& d-lc: [ `D-K `D: PZ dF&V[lg `: [: 8 [M&K8] 7FK M&B: Z`M  
FKd: [ `F-: `D: Z-I-`F&K[DFP[ O`e:: K J: J O: Z[DFP -CZ: E  
J: K` -K8 -4M&[ F4-I 8 [4ZP`M&T% 4M&87`D: g D-8`MO:  
P: Z4: P`c-Ilg 4IM: `M`D: 4-: OMF: [ M&: fF] FK 4-Z D&K  
[M&K8] 7FK M&B: Z`M&KMO: [: `P-Z >M `D: : fF] FK MK: [ T  
`: 4-c[: `D: Z [cl[ M&`D: PZ dF&V[ [ `c8g 102[DM&: 8`D-`  
IF]: K: Z[ P: Z4: Fd: `D: J: 4D-KFJ 4-c[FK `D: [M&K87e:  
`MMH 4-Z `MPZ [: Zd: `D: [: -[P: 4]T

%gK`D: [F&K [M&K8] >cl?IIFK `D: [: 4NK[ `Z-FK[ -I[M  
D: IP: 8 c[ `M: [ ` - PM[FOI: J: `DN&M&Og >AZ `D: 8 [FK  
M&K:e 4-Z D&K [M&K8]T

3.1. Creation of a new set of sounds

&D: `DZ: 8 [4Z] M& 4M&Z I-: 8 eFD `D: P: Z4: P`c-I 8FJ  
J: K[F&K] T- Z 8 Og `D: 4-Z D&K [ -Z Z-I-: 8 `M`D: [P: 4E  
`Z-I P&M P: Z4: [M`D: [M&K8] QP: 4Z-I 4 K ZM&B: K8 [P: 4Z-I  
8 dF-`F&K [ -K8 `M[DM&E: Z] J P- Z-I P&M P: Z4: [ OMFCD  
K: [[RT+]: d: K DF I-: ZP&M: 7c+K O: [: K-: P: 4Z-I  
[FK4: F J -gZ [cl `>M `D: J F] ckFKCM&`D: D-ZI NK&F4P-Z  
`F-I [ M&`D: [P: 4ZcJ T&Dc[7e: 4-K -[[cJ: `D-`D: P: Z  
4: Fd: 8 8F[FJ H-ZFF [ O`e:: K `D: 4cZ: K` 4-Z D&K [M&K8]  
-Z O-[: 8 NKlg MK [P: 4Z-I -K8 D-ZI NK&F4 8Ff: Z K4 [T K8  
e: 4-K >ZD Z -[[cJ: `D-`D: [: [M&K8] [D-Z F& K`FE  
4-I : J P&M-I P&M P: ZF [7-K8 P-ZF4cl-Zlg D-d: -K F& K`F4-I  
: J P&M-I: Kd: IMP: T&D: Z >AZ 7`MAZ -: K:e [M&K8] 4IM]:  
`M`D: 4cZ: K` MK: [7e: D-d: `MAZ -: [M&K8] eFD `D: [-J:  
: J P&M-I: Kd: IMP: T`f: K8FK `D: Z-KC: M&`D: `FJ OZ 8FE  
J: K[F&K] 4-K `D: Z Og O: -4DF: d: 8 Og J M&cl-`FK `D: [P: 4E  
`Z-I -K8 D-ZI NK&F4 P&M P: ZF [T

Synthesis method

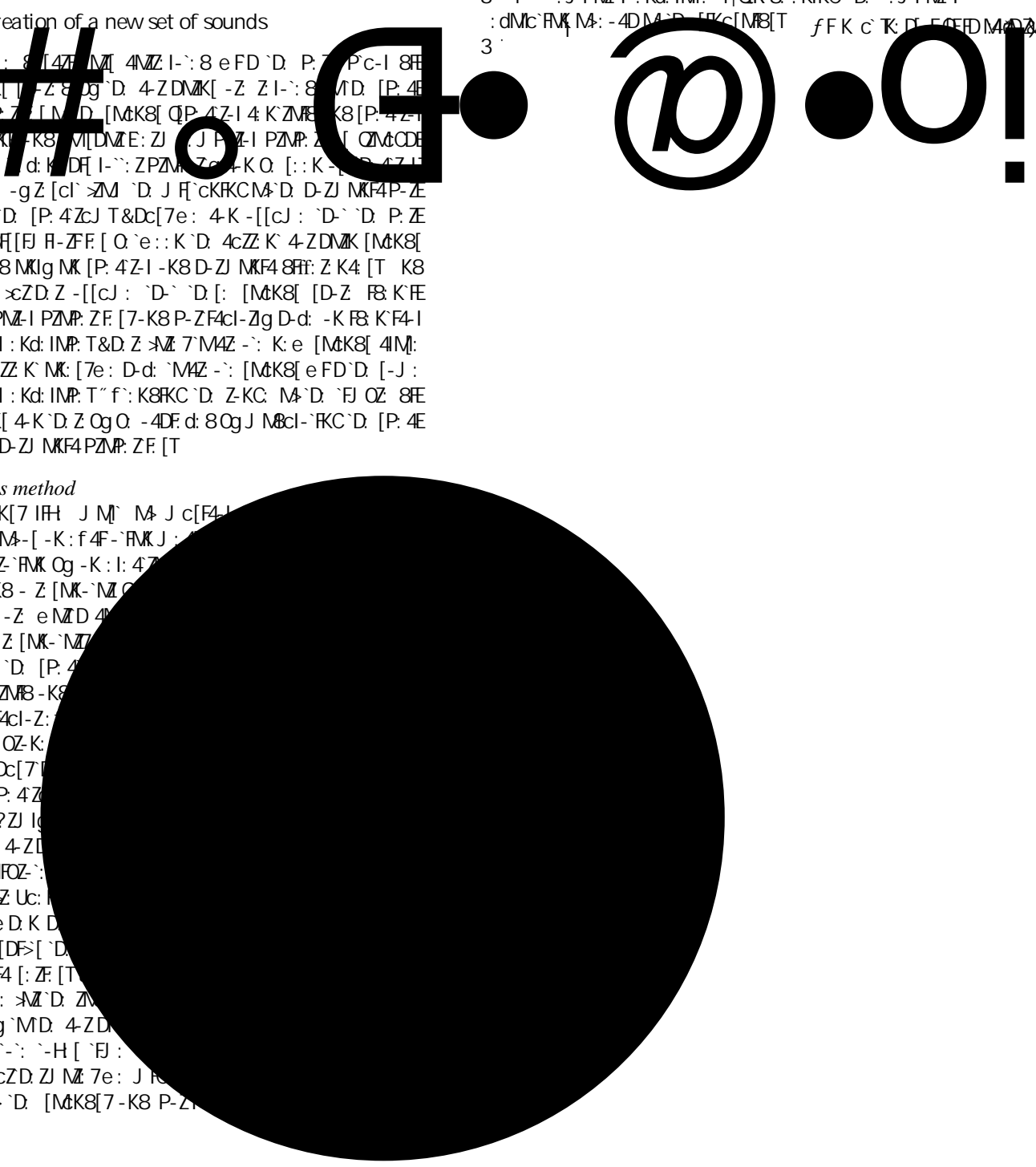
`-Z D&K [7 IH- J M] M& J c[F4]  
`DN&CD M&- [ -K: f 4F-`F&K J: M&K8] 4-Z D&K [7 IH- J M] M& J c[F4]  
FK`MdFOZ-`F&K Og -K: l: 4Z  
: J R7-K8 - Z [NK-`M&O  
KM :K- -Z eM&D 4M&Z  
`D-`D: Z [NK-`M&O  
: K4: NK `D: [P: 4E  
`Z-I 4 K ZM&B -K8  
`D: P-ZF4cl-Z:  
`D: J: J OZ-K:  
J: K T&Dc [7 IH- J M] M& J c[F4]  
J NK&F4 [P: 4Z  
-Z KM?Z] Ig  
->: Z `D: 4-Z D  
>Z: `MdFOZ-`  
J: K-I >Z Uc:  
4DM&B [ e D: K D  
[IFCD] Ig [DF> [ `D:  
D-ZI NK&F4 [: ZF [T  
[PMK]FOI: >AZ `D: Z  
4-Z >clg `M`D: 4-Z D  
[: -8g [ `: ]-H [ `FJ:  
I: -[: T`cZD: ZI M& 7e: J f  
P-Z [ M&`D: [M&K8] 7-K8 P-Z

KM]: 7-Z d: Zg FJ P&M-K >AZ `D: Z 4M&K F&K M& 4-Z D&K [T  
`: 4-c[: `D: P: Z4: Fd: 8 8F[FJ H-ZFF [ O`e:: K `D: 4cZ: K`  
4-Z D&K [M&K8] 8M&KM Z lg NK -Kg `: J P&M-I P&M P: Zg 7e:  
4-K `D: Z >AZ -[[cJ: `D-`D: [: P&M P: ZF [ -Z F& K`F4-I >AZ  
-II `D: [M&K8] M&`D: 4-: OMF T&D: g J c[ O` H P` F& K`F4-I  
>AZ `D: [gK`D: [Fh: 8 [M&K8] 7F>e: e-K `D: J `MO: P: Z4: PE  
`c-Ilg 4IM: `M`D: Z 4M&B: 8NK: [T

&DF] -K-Ig[F M&`D: [M&K8] P&M 4 F&K J: 4D-KFJ M&`D:  
4-Z D&K [ I: 8c[ `MP&M&M]: - [gK`D: [F J M& I FK >M&ZP-Z [6

3 T K: -Zlg D-ZI NK&F4: f 4F-`F&K [M&Z4: 7J -8: M&-  
[cJ M&N KM] -IFh: 8 [FKc] M&B [7D: >Z Uc: K4g M&e DF4D  
-Z FK: C: ZJ cl`FP: [ i M&- >K8-J: K-I >Z Uc: K4g  
-88: 8 `M-K FK-D-ZI NK&F4 g `: Z] f] T&D: : f 4F-`F&K F  
`D: K6 Σ<sub>i=0</sub><sup>N</sup> sin Q<sub>i</sub> + f] RT

3 T `: J P&M-I: Kd: IMP: Tj QR 8 ? KFC `D: : J P&M-I  
: dMc`F&K M&: -4DM&`D: F&K [M&B] T f F K c`K: D: 5CFD M&O Z  
3`







† % † J M&I >M`D: 8F`-K4 Q`e:: K[`F] clFi -K8j  
PM]`cl-: [ 4M J M& 8FJ : K[FVK[ [D-Z 8 Og -II [`F] clF7[P: E  
4F?4-`ZFC: [7M`specificities 7P-Z F4cl-Z`M -4D [`F] clc[7  
-K8 I-: K` 4-[: [ M[cOG 4[T&D: [: 4-[: [ D-d: 8Ff: Z K`  
[-IF: K4 [ M]e: FCD[ >M: -4D M`D: 4M J M& 8FJ : K[FVK[  
-K8 >M`D: e DMt [:`

#### 4. Experiment 3: Agreement on the membership of synthesized sounds

&D: [ : K: e [Mk8[ -Z PZ [ : K: 8 Rk - b ~ : fP: ZFJ : K  
[FJ H-Z`MD: Mk: Z PMZ: 8 Rk % 4 Rk bTfK MZ Z`M: [ `D:  
4Mk[F]: K4g M`D: [ : J: -[cZ [7e: Rk4c8 Rk `D: `D:  
bb Z 4MZ 8[Mk8[ `]: [ : 8 Rk `D: ?Z` : fP: ZFJ : K`T

##### 4.1. Experimental setup

&D: : fP: ZFJ : K `MMHPI-4 8cZKc`D: [-J : [ : [[Rk M: fE  
P: ZFJ : K bT &D: P-ZF4P-K[ ^ Q.C-K : FD: Z e FD : fP: ZFJ  
J : K b7M eFD: fP: ZFJ : K aT&D: MZ Z Q fPTb ~ fPTa  
d[T` fPTa ~ fPTbRe-[ 4Mk: ZD-I-K4 8-4ZM[ `D: P-ZF4E  
FP-K[Tz Mk: M`D: J D-8 `H K P-Z Rk `D: PZ dRk[ : fE  
P: ZFJ : K OT&D: -PP-Z`c[ -K8`D: PZM: 8cZ e: Z : f-4lg  
`D: [-J : -[ Rk [ : 4Rk bT&D: CL [gk`D: [Rr 8[Mk8[ e: Z  
` : [ : 8-[ e: II -[ `D: bb Z 4MZ 8[Mk8[T

##### 4.2. Results

###### *Participant strategies and consistency of the measure*

&D: [ : ` Rk4c8: 8 ZMCDlg -[ J -Kg Z 4MZ 8 -[ [gk`D: `F4  
[Mk8[T&D: I-` : Ze: Z 8 [Rk: 8`M: fPIMZ `D: IFJ F[ M  
`D: P: Z4 P`c-I [P-4 7[Me: : fP: 4: 8 `D-` - IM M`D: J  
eMl8e e





% 4Nk8lg7F 4-K O. -[[cj : 8`D` - ZM8`Z-ffi4 [Fc-`FVK  
 eMl8 IM4 : Z`D. -J OFCcFg M4 [M : [Mk8[Tfk8 : 87F>-  
 [Mk8D. -Z8 FK - I-ONZ-`Mg 4-K O. 4Nk>c[: 8eFD- J c[FE  
 4-I FK[`ZcJ : K [Mk87k8`D. J M4 [MeD. K`DF I-ONZ-E  
 `Mg F[ IM4 : 8 FK - FK[`Fc`FVK 8 dM 8`MU c[F47F 4-K O.  
 -[[cj : 8`D` `D. [-J : [Mk8D. -Z8 FK - ZM8`Z-ffi4 [Fc-E  
 `FVK eMl8D-d: I: [ 4D-K4 `MO. 4Nk>c[: 8eFD- `ZcJ P. `  
 4-IIT [ KMt 8 Og (MC: I 1b<27IF): KFKC`Me -ZKFKC [FK-I[  
 FK 4Nk: f` 4-K FJ PZM: `D. cKfdM4-I K`cZ M4`D. [: [FCE  
 K-I(T) : 4-K`D. Z >M4 -[[cj : `D` M4Z Z[cl[ -Z J M4  
 4Nk[: Zd`Fd: `D-K`D. Z -I [Fc-`FVKT

KMD. Z FK: Z [`FKC ?K8FKC M4 M4Z: fP. ZJ : K[ F[ `D`  
 IF): K: Z[ 8MKMc[: `D. [-J : P. Z4 Pc-I 8EJ : K[FVK[ eD. K  
 `D. g D-d: `MG8CP`DK8[FJ H-Zfg O. `e:: K`D. [Mk8[7  
 -K8 eD. K`D. g D-d: `M4` : CNZh - [Mk8 -[ - 4-Z DNkT  
 fk8 : 87D. `FJ 9Z [ `c8g Z PNV: 8 FK 1OZZ d: -I: 8`DZ : P. ZE  
 4 Pc-I 8EJ : K[FVK[ 4NkZ I-: 8`M4M4CDK: [[7[P. 4Z-I 4 KE  
 `ZM8 -K8 [P. 4Z-I 8 dF-`FVKT) D. K IF): K: Z[ D-8`M4` : E  
 CNZh: `D. [-J : [Mk8[7M4Z-K-Ig[: [ 4Nk4c8 8`D` `D. g  
 D-8 O-[: 8`D. FZ G8CJ : K[ NK ZM4CDK: [[7[P. 4Z-I 8 dF-E  
 `FVK -K8 8]a

