

# STATOR

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**Ontwerpen van een energietransitieplan**

**Peilen in Rusland is nog niet zo eenvoudig**

**STATISTICS AND OPERATIONS  
RESEARCH FOR ROBUST DECISION  
MAKING - Program Annual Meeting  
2023**

**Are you from the ladies program?**

**Een optimale meldingsstrategie voor  
burgerhulpverleners**

**Ode aan de efficiëntie**

**Over de gevaren van zelfselectie-  
peilingen**

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# STATOR 2.0

## STATOR

Jaargang 24, nummer 1, maart 2023

STATOR is een uitgave van de Vereniging voor Statistiek en Operations Research (VWSOR). STATOR wil leden, bedrijven en overige geïnteresseerden op de hoogte houden van ontwikkelingen en nieuws over toepassingen van statistiek en operations research. Verschijnt 4 keer per jaar.

### FYXUMY

Joaquim Gromicho (hoofdredacteur), Annelieke Baller, Joep Burger, Caroline Jagtenberg, Guus Luijben (eindredacteur), Kerry Malone, Richard Starmans, Gerrit Stermerdink (eindredacteur), Vanessa Torres van Grinsven, Sanne Willems en Laura Zwep. Vaste medewerkers: Jelke Bethlehem, John Poppelaars, Gerard Sierksma en Henk Tijms.

### ?cd]Yb fYUMYg f]VhYb UUb

Prof. dr. J.A.S. Gromicho (hoofdredacteur), Universiteit van Amsterdam Faculteit Economie en Bedrijfskunde, Sectie Operations Management | Amsterdam Business School, Plantage Muidergracht 12, 1018 TV Amsterdam, j.a.s.gromicho@uva.nl

### 6Yghi i f j Ub XY JJ GCF

Voorzitter: prof. dr. Casper Albers, db@wsor.nl; Secretaris: Pieter Jongsma MSc, secretaris@wsor.nl; Penningmeester: dr. Judith ter Schure, penningmeester@wsor.nl; Algemeen bestuurslid: dr. Marianne Jonker, db@wsor.nl; Webmaster: Eugenio Traini MSc, webmaster@wsor.nl.

Voorzitters van de secties: prof. dr. ir. Mark van de Wiel (Biometrical Section); prof. dr. Albert Wagelmans (Section for Operations Research); dr. Eduard Belitser (Section Mathematical Statistics); dr. Rebecca Kuiper (Social Sciences Section); dr. Michel van de Velden (Economics Section); dr. ris Yocarini (Section Data Science); Marije Sluiskes MSc (Young Statisticians); dr. Sanne Willems (Section Statistics Communication).

### @XYb! Yb UVcbbYa YbHYbUXa ]b]gfUhY j Ub XY JJ GCF

VWSOR, Maarsbergseweg 20, 3956 KW Leersum, admin@wsor.nl. Raadpleeg onze website www.wsor.nl over hoe u lid kunt worden van de VWSOR of een abonnement kunt nemen op STATOR.

### Jccf UXj YfHYbhjYg

Prof. dr. J.A.S. Gromicho, j.a.s.gromicho@uva.nl  
STATOR verschijnt in maart, juni, september en december.

### I ]h[ Yj Yf

<sup>a</sup> Vereniging voor Statistiek en Operations Research  
SSN 1567-3383

8]hYYfghY bi a a Yf j Ub XY &(Y UUF[ Ub[ j Ub cbg h]XgVf]Zh]g \YhYYfghY j Ub YYb Hk YXXY fYY\_g" <Yh YYfghY bi a a Yf XUhk Y ncbXYf XY dfcZYgg]cbY-Y \i `d j Ub A cb]ei Y j Ub <cchY[ Ya j cfa [ Y[ Yj Yb" Bi k YHYb k Y dUg YVhK UhYYb k Yf\_n]^XY UZ`Y`cdYb &' UUF j ccf GH5tCF j Yff]Vh\YYZH' 8Y cda UU\_ k cfXhbi [ YXUUb Xccf Yb\_Y`Y fYXUMY`YXYb a Yh @JHYL#Cj Yf`YUZ`Ug [ YfYXgVhUd" K Y \UXXYb \Yh [ Y' \_]b Vt`bHUMHY`ca Yb a Yh9g[ Yf FYb\_Ya UX]Y XY @JHYL!HYa d`UHg \]Yfj ccf cbk ]\_Y`XY" Cb[ Y! Hk ]ZY`X ni `hi ]b X]hbi a a Yf cbj c`\_ca Yb\YXYb UUbHY` Yb X]Y HY k ]HYb n]b UUb cbg [ YVfY\_ UUb Yfj Uf]b[ zcZ UUb Vt`a d`]Vh]Yg X]Y k Y b]Yh\UXXYb j ccfn]Yb" A UUF k Y \YVYb \Yh YfHci k Yb XUhk Y gbY` UUb XY b]Yi k Y k ]HY j Ub k Yf\_Yb ni ``Yb n]b [ Yk YbX"

8]h]g YYb bi a a Yf j c` UUM U`h]h]U`YfYfgh Xccf XY ]bZcfa UhY`cj Yf XY 5bbi U`A YH]b[ zX]Y d`UUhg nU`j ]bXYb cd XcbXYfXU[ &' a UUFH`BU XY `YXYbj Yf[ UXyf]b[ ni ``Yb X]h`UUF j ]Yf gdY`Yfg \i b j ]g]Y a YhcbgXY`Yb cj Yf XY hcYdUgg]b[ j Ub gh]h]ghY`\_ Yb cdYfUH]cbg fYgYUfVh`ca`fcVi i ghY`VYg]gg]b[ Yb" 5Uba YXYb ]gbc[ a c[ Y`^"; fUU[ j ccf %` a UUFH`

JYY`Ufh`\_Y`Yb [ UUb cj Yf YYb UUM`YY`cbXYfk Yfdz ncUg XUhj Ub f]g j Ub 6Yi nY`ca`cj Yf Cd]h]a U]gU]Y j Ub a i`h]YbYf[ ]YgngHYa Ybz]Yhg XUhVi ]hYb[ Yk ccb VY`Ub[ f]`\_gV]^XY \i ]X]]Y Yb`\_ca YbXY fUbg]hY" 9b k UhY`XYb\_Yb j Ub XY V]XfU[ Y j Ub X`\_Y 6Yh`Y`Ya cj Yf XY fcbta c[ Y`^`YXYb j Ub dY]]b[ Yb ]b \Yh \i ]X]]Y Fi g`UbX3

Cj YfU` ]b \Yhg]fUUhY`Y`X n]Yha Yb H[ Ybk ccfX]] 598!UddUfUH`b" JUU\_n]h\]Yf YYb [ fcYd j f]k`]] [ Y Vi f[ Yf\i`dj Yf`YbYfg UVM`HYf k UUFXccf \i `d V]^Ufh ]bZUMYb nYyf gbY` [ Y[ Yj Yb`\_Ub k cfXYb" 7Ufc`]bY`\_J[ HYbVYf[ Yb \UUF Vt`Y[U!Ui`HYi fg \YVYb cbXYf! ncY` [ YXUUb bUUF YYb cd]ha U`Y a Y`X]b[ gghU]h[ ]Y \]Yfj ccf" Cc\_X]h]g \YY` UUM`YY`"

J]bV`bhK Ufa YfXUa`gVf]Zh]cj Yf \Yh[ Yj UUF j Ub Zci h]Y`Y`UVY`]b[ j Ub XUHU X]Y j ccf a UVM`]bY! `YUfb]b[ k cfXYb [ YVfi ]h]; Yn]Yb XY [ fcY]YbXY fc` j Ub 5`]g cc\_X]hYb UUM`YY`cbXYfk Yfd"

JYfXYf j ]bXhi ]b X]hbi a a Yf \Yhb]Yi k gj Ub XY Mti b[ GHU]gh]VUbg Yb YYb Xf]YHU Vt`i a bg"

K ]^k YbgYb i j YY`YYgd`Yn]Yf a Yh \YhYYfghY bi a a Yf j Ub GH5tCF XUhk Y cd YYb b]Yi k Y hcY`\_ca gh]YghYbX]] Y a Ub]Yf [ Ya UU\_h`YVYb"

8Y GH5tCF!fYXUMY



# INHOUD

**2 STATOR 2.0**

**4 Optimalisatie van multi-energiesystemen** p f]g j Ub 6Yi nY\_ca

**12 Peilen in Rusland is nog niet zo eenvoudig** p Ɔ`\_Y 6Yh`Y\Ya

**15 Letter from the president**

**16 Annual Meeting of the Netherlands Society for Statistics and Operations Research (VVSOR)**

**20 Are you from the ladies program?** Vt`i a b p ; Yff]hGHYa YfX]b\_

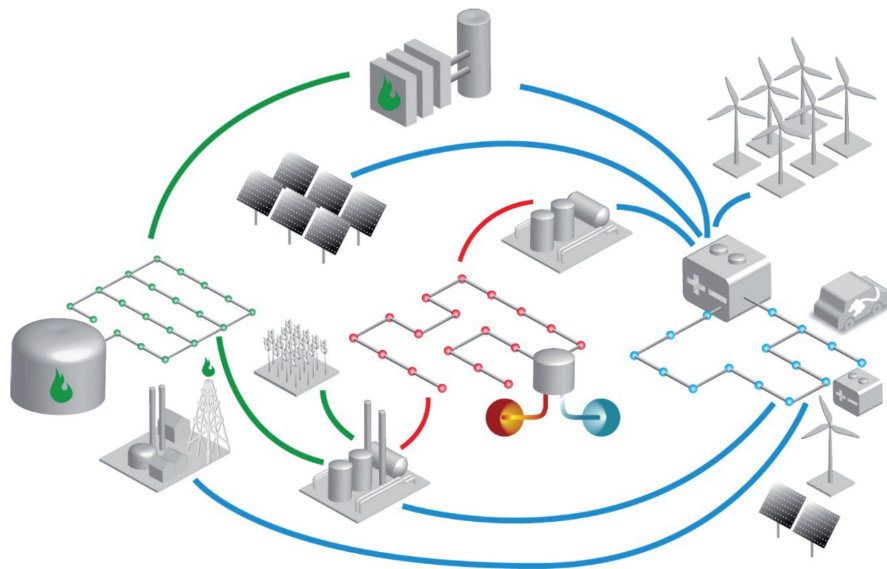
**21** Mt i b[ ghUgh]WUbg

**22 Een optimale meldingsstrategie voor burgerhulpverleners** p 7Ufc`]bY Ɔ] hYbVYf[ žD]YHYf j Ub XYb 6Yf[ Yb CVAUbY : ci fa YbhfUi l

**26 Ode aan de efficiëntie** Vt`i a b p 6YfbUfX Nk YYfg

**28 Bad labels** p J]bWbhK Ufa YfXUa

**32 Over de gevaren van zelfselectie-peilingen** Vt`i a b p Ɔ`\_Y 6Yh`Y\Ya



# Optimalisatie van multi-energiesystemen

Optimalisatie van investeringen in geïntegreerde multi-energiesystemen om steden te helpen met het ontwerpen van een energietransitieplan

f]gj Ub 6Yi nY\_ca

G]bXg XY \_]a UUhVZbZYfYbh]Y j Ub XY J YfYb][ XY B Uh]Yg ]b Duf]g ]b &\$%& ]g Yf [ YYb Hk ]ZY` a YYf XUhYf Xf]b[ YbX UVM]Y bcX][ ]g ca j YfXYfY i ]H gtcchj Ub VfcY\_Lug[ Uggyb j YfgbY`X hY j Yfa ]b! XYfYb Yb nc XY Yf[ ghY [ Yj c`[ Yb j Ub \_]a UUhj Yf! UbXYf]b[ hY j ccf\_ca Yb" JccfU` ghYXYb ghUUb \]Yf]b j ccf [ fchY i ]hXU[ ]b[ Ybžca XUhny nck Y` XY [ fcchghY V]XfU[ Y `Yj YfYb UUb VfcY\_Lug[ UgY! a ]gg]YgžU`g XY [ fcchghY [ Yj c`[ Yb cbXYfj ]bXYb j Ub \_]a UUhj YfUbXYf]b[" NcXcYbXY \YVVYb j YY` ghYXY`^\_Y VY`Y]Xga U\_Yfg ghfYb[ Y \_]a UUhXcY! `Yb cd[ YghY`Xžj UU\_ j ccf`cdYbX cd bUh]cbU`Y XcY`Yb" <Yh]g YVWhYf Ybcfa `Ugh][ ca YYb d`Ub hY cbHk ]\_Y`Yb j Ub j UbXUU[ bUUF X]Y hcY\_ca ! gh][ Y XcY`Yb" JYY` hcY\_ca ghj ]g]Yg \_]^Yb U`YYb bUUF \YhY`Y`\_hf]V]hY]hgghghYya žca XUhXY a YYg! hY Xi i fnUa Y YbYf[ ]YVfcbYb Y`Y`\_hf]V]hY]h[ Y! bYfYfYb" 9VWhYf ]g \Yh\i ]X][ Y YbYf[ ]YgghghYya [ fchYbXYY`g b]YhY`Y`\_hf]gVWžk Uhncf[ hj ccf YYb nc[ YbcYa XY VUff]Yf a ]ga UHVV. YYb j YfgVX ]b XY YbYf[ ]YXfU[ Yf X]Y [ Y`Yj YfX k cfXhYb XY[ YbY X]Y [ Yj fUU[ X k cfXhfh]Y : ]i i f`%Ž' 8UUFbUUhgn]b j YY` Xi i fnUa Y YbYf[ ]YVfcbYb UZ`Ub\_Y`^\_j Ub k YfYfgca ghUbX][ \YXYb Yb i V]i YfYhXUUfa YY

XY Y`Y`\_hf]V]hY]hg[ YbYfUH]Y XU[ Y`^\_gža UUbXY`^\_g Yb nY`Zg `UUF`^\_g" 8]hVZffYgdcBXYfYhb]YhU`h]X a YhXY j fUU[ bUUF YbYf[ ]Yžk Uhncf[ hj ccf YYb hYa dcfU` a ]ga UHVV" Hchg`ch]g XY VYbcX][ XY hfUbg]h]Y j Ub YYb j ccfbUa Y`^\_Zcgg]Y` bUUF YYb Xi i fnUa YbYf[ ]YgghghYya Ybcfa cbnY`Yf Yb UZ`Ub\_Y`^\_j Ub `c\_U`YžbUh]cbU`YžYb nY`Zg ]bhYf! bUh]cbU`Y cbHk ]\_Y`]b[ Yb" 6cj YbX]Yb n]b YI ! dYfHg \Yhb]YhYYbg cj Yf XY j YfXY`]b[ j Ub XYnY cbnY`Yf \YXYbžXUUfa YY \YVVYb k Y hY a U\_Yb a Yhnc[ YbcYa XY XYYd i bWfU]b]m!

## Methode

b X]hcbXYfncY`\_k cfXYb XYnY Xf]Y i ]hXU[ ]b[ Yb UUb[ YdU\_hXccf hcYdUgg]b[ j Ub YYb gghghYya ! dYfgdYV]YZ cd U`Y YbYf[ ]YXfU[ Yfgž [ YVZa V]! bYYfX a YhYYb ]bj YghYf]b[ gd`Ubb]b[ a YhXcXY j ccf `Ub[ Y hYfa ]b a Yha YYfXYfY h]XgdYf]cXYb f6Yi nY\_ca ž&\$&&Ž' Ca ghYXYb hY cbXYfghYi bYb a Yh\YhcbHk ]\_Y`Yb j Ub YYb YbYf[ ]YhfUbg]h]Y! d`Ub j Ub j UbXUU[ bUUF YYb Xi i fnUa Y hcY\_ca gh k cfXhYYb fUUa k Yf\_j ccf XY cdh]a U`]gUh]Y j Ub

)LJXXU 8LWGDJLQJHQ LQ GH HQHUJLHWUDQVLWLH %URQ YDQ %HXJHNRP

JH±QWHJPHDWC HHVQVWHVPHQ YRJRQH DOVRRN VRFLR HFRQRPLVFKH  
VWHOG %HXJHNRP J% HQ + 6ORJH QZ NH QWUDDO 3ODQEXUHDX -Q  
'LW UDDPZHUN EHYDW LQYHVW WULM QWVPS SHQYDQ YDQGGDDJ WRV  
JHQ YRRU HQHUJLHQHWZHUNHQ GHQHJLHFRQLYJHLQ YHVWHULQJHQ  
HQHUJLHRSVODJ HQ HQHUJLHRSZHHVYVWHVPHQ YRRU YDQ GH VWDG JHRS  
DOOH UHOHYDQWH HQHUJLHGUDJHUV LQ KHVWVWHVPHQ YRRU YDQ GH VWDG JHRS  
JHELHG HQ JRUJW GDW NOLPDDW GRHOHQ EHKDDOG ZRU  
GHQ WHUZLMO KHW V\ VWHP DOV JHKHHO LQ EDODQV  
EOLMIW +HW UHVXOWHUHQGH RSWLPDOLVDWLHSUREOHHP  
ZRUGW JHIRUPXOHHUG DOV PLJHG LQWHJHU OLQH DU  
SURJUDP HQ YHUWDDOW JLFK QDDU HHQ QLHXZH WRH  
SDVVLQJ YDQSDHQ WDWHG IDFLOLW\ ORFDWLRQ QHW  
ZRUN GHVLJQ SHRFQPELQDWLH YDQ WZHH  
13 KDUG SUREOHPHQ %RQHQN DPS

'DWD

2P GLW UDDPZHUN WHYDOLGHUHQ HQ GHPRQVWUHUHQ  
LV HHQ FDVH VWXG\ RSJHVWHOG YDQ GH JHPHHQWH  
(LQGKRYHQ )LJXXU 'HJH FDVH EHYDW DOOH HQHU  
JLHQHWZHUNHQ DDQZHJLJ LQ GH VWDG (LQKRYHOLVLDWMEHQ  
ZDUPWH HQ JDV 'DDUQDDVW ZRUGHQ GH NOLPDDW  
GRHOHQ YDQ GH VWDG JHEH &2 (ONH ORFDWLH WHOW JRYHH  
LQ WHQ RSJLFKWH YDQ SHUVFKLQHHGH  
GDWDVHWV ZRUGHQ JHFRPELQHJHUV JLMQ )LJXXU J  
RYHU GH RQWZLNHOLQJHQ YDQ ZRUGHQ PHHHHQPHQ -Q GLW 4JXXU J  
GH VWDG LQFOXVLHIZRQLQJJH VFKLQHWVPHVPHV JHQRP HQ ZRUGHQ  
OH HQ LQG XVUL-OH JHELHG HQ GH QVNDHQWULHQVZHW  
\*HPHHQWH (LQGKRYHQ WQFKQLMEVJGD GULH VRRUWHQ HQH  
WD HQ WHFKQRORJLVFKH RQWZLNH HQHQHQ (ZLGGHQHUJLH HQ G



)LJXXU 9RRUEHHOG YDQ GH RSORVVLQJVP RJHOLMNKHHGHLQ HHQ V\ VWHHP PHW

HQH UJLHFRQYHUVLHV GLH GH L G F H Q L G X I H P H Q H W Z H H U Q B Q U D E R O L V F K  
DDQ HONDDU NRSSHQHQ HHQ Z C W P X W W N G H D W R W D B S S Q Y H V W H U L Q J V N R  
OL Q R P E L Q H G + H D W 3 R I Z I Q U Z D U G L W Y R R U H Q R U P H W R H Q D P H L Q G H P  
W H S R P B D W 3 X P S I Q + B B R Z H U W R & 2 D W P L V V L H V Y H U J H O L M N E D D U P H W 6  
3 \* D V V H W ( H Q E H O D Q J U L M N H K B B W W H H U H L Q J H L F R Q D W T X H Q W L H V Y I  
G H J D V Y R R U J L H Q L Q J D O E H V W D D W H P S M U X D W X P B V W L Z R J L Q J P H W P R J H O  
G H Q J H U H G X F H H U G G X V K L H U N D R Q V H Q V G R R Z R I O G F I D D W Y H U D Q Q G H U L Q  
J H ± Q Y H V W H H U G L V H H Q E H O D Q J U L M N U H V X O W D D W Z D  
G H Z D D U G H Y D Q K H W U D D P Z H U N W R R C  
D I Z H J L Q J H Q G L H E H O H L G V P D N H U V P R  
' H V F H Q D U L R V P H W Z H H U V Y D U L D W L H V

5HVXOWDKWQVFIHQDULR V

+HW UDDPZHUN LV HHUVW JHW R S W L R S V R D U L V F W H H G D W Q H Q G H U H V X O  
NOLPDDWEHOHLG HQ MDDUOLM N W L H Z H L Q U H V Q H U J L D W R L S Z H N S K W J J L M Q Y H  
NOLPDDWEHOHLG VFHQDULR V S L O M Q X G H H B B D I E V R C X Y D H Q K R H Y H H O K H  
HHQ EXVLQHV DV XVXDO % S B H Y F H U Q V F K L R P R Q G H U V F H Q D U L R V J L H  
& 2 H P L V V L H U H G X F W L H V W R W M H I Q W F R S Z H U N R L Z D D U L D J R Q Q H H Q H U J  
G H H P L V V L H V D O L Q W H U X J J H Q Y D F K W V L Z I Q Q G D D H U D E V R O X W H K R H  
Q X O ) L J X X U 6 F H Q D U L R N R P M N R U H O D W H C H F D M V D D L O G H D F D R G H  
K H W N O L P D D W G R H O Y D Q ( L Q G K Z R Q G Q H Q L J R Q Q H B O D W L H H H Q I D F W R U  
G H R Y H U N R H S H O H Q G H U H V X O W D K R H Q H I H Q X Y D H Q D Y O O H K H F M M D D U H H Q H O  
Q D U L R V Y H U J H O H N H Q P H W K H W Q S B W F H B D W H R W ' H H Q H U H H U W 9 R R U  
4 J X X U J H H I W H H Q Y H U J H O L M N L Q Q R S V E G L W V R Q Q G H W R Y R R U Z L Q G R S C  
W D O H N R V W H Q H Q G H L Q Y H V W H U L Q Q H R S J H B J R Q G B H U G 5 H Q H Z D E O H V  
S H U W I S H D V V H W H Q H U J L H F R Q Y H U M L G H U G P V Z H G H N Q G H X L W G D J H Q G  
R S V O D J H Q R S Z H N ( H Q V W U H Q U I R U E M O R P L B I O H L G O Y W R W H U L Q J H Q J L H  
K R J H U H N R V W H Q H F K W H U P H W O L L Q W G F D W Q W P W O G H U L M G W R W K R J H U  
F X P X O D W L H Y P L & 2 L H V 8 L W J H V W P L O B E G O H V G H Q L Q J H Q S D V L Q O D W H U

)LJXXU .OLPDDWEHOHLGVFHQDEWRHGRHWBQ

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)LJXXU /DQJH WHUPLMQ ZHHUV5XFWXDWLHV FHDULR V PHW UHODWLHYH FDSDFLW  
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)LJXXU 5HVXOWDWHQ ODQJH WHUPLMQ ZHHUV5XFWXDWLHV W R Y VWDELHO ZHHU

EHQRGLJG JLMQ RS KHW PRPH ~~DDC~~ ~~MMVGH~~ ~~DLVZFR~~ ~~ON~~ %HX]HNRP % +  
WHULQJVYRHW LQYHVWHULQJH ~~BO~~ ~~RHO~~ ~~ZHWL~~ ~~HI~~ ~~JRH~~ ~~GR~~ ~~SH~~ ~~DWH~~ ~~ZRUG~~ ~~HQ~~  
PDDNW 2RN DQGHUV GDQ ELM ~~ZHN~~ ~~HO~~ ~~LD~~ ~~DD~~ ~~WE~~ ~~HLO~~ ~~HL~~ ~~GD~~ ~~DJ~~ ~~QDDU~~ ~~HQH~~ ~~U~~  
VFHQDULR V WRQHQ GH UHVX ~~WH~~ ~~FW~~ ~~OR~~ ~~OR~~ ~~XJ~~ ~~YH~~ ~~FO~~ ~~PH~~ ~~QV~~ ~~RF~~ ~~FLR~~ ~~HFR~~ ~~QR~~ ~~FP~~  
UHVSRQV ELQQHQ GH RSHUDWL ~~HY~~ ~~DL~~ ~~KHW~~ ~~Q~~ ~~WHU~~ ~~H~~ ~~LV~~ ~~W~~ ~~U~~ ~~Q~~ ~~Y~~ ~~DS~~ ~~H~~ ~~U~~ ~~FX~~ ~~GH~~  
WHHP 'H ZHHUVYDULDWLHV OH ~~6~~ ~~PS~~ ~~OL~~ ~~QJ~~ ~~W~~ ~~DR~~ ~~H~~ ~~SH~~ ~~D~~ ~~W~~ ~~LR~~ ~~PG~~ ~~DW~~ ~~GH~~ ~~G~~  
GHRSZHN YDQ HOHNWULFLWHL ~~W~~ ~~DD~~ ~~WR~~ ~~S~~ ~~Z~~ ~~DP~~ ~~W~~ ~~H~~ ~~GH~~ ~~HQ~~ ~~RQE~~ ~~HN~~ ~~HQ~~ ~~G~~ ~~L~~  
JDV JHUHODWHHUGH FRQYHUVL ~~GL~~ ~~HQ~~ ~~RS~~ ~~V~~ ~~Q~~ ~~D~~ ~~V~~ ~~W~~ ~~H~~ ~~PH~~ ~~HQ~~ ~~YR~~ ~~UP~~ ~~YD~~ ~~Q~~ ~~VD~~  
UHDJHUHQ J)H)LJXXU 'LW EHY ~~J~~ ~~K~~ ~~H~~ ~~OR~~ ~~R~~ ~~J~~ ~~H~~ ~~N~~ ~~H~~ ~~U~~ ~~K~~ ~~H~~ ~~L~~ ~~G~~ ~~V~~ ~~U~~ ~~X~~ ~~L~~ ~~P~~ ~~W~~ ~~H~~ ~~V~~ ~~W~~ ~~U~~ ~~X~~  
YDQ ~~H~~ ~~FW~~ ~~OR~~ ~~W~~ ~~H~~ ~~U~~ ~~H~~ ~~P~~ ~~R~~ ~~P~~ ~~Z~~ ~~H~~ ~~H~~ ~~U~~ ~~V~~ ~~5~~ ~~X~~ ~~F~~ ~~W~~ ~~X~~  
DWLHV RS WH YDQJHQ DOVRRN ~~J~~ ~~R~~ ~~F~~ ~~K~~ ~~W~~ ~~G~~ ~~D~~ ~~Q~~ ~~E~~ ~~L~~ ~~M~~ ~~O~~ ~~R~~ ~~Q~~ ~~W~~ ~~H~~ ~~&~~ ~~D~~ ~~U~~ ~~O~~ ~~R~~ ~~V~~ ~~D~~ ~~P~~ ~~S~~ ~~O~~ ~~L~~  
PHHQPHQ YDQ ZHHUVH • HFWH ~~Z~~ ~~R~~ ~~U~~ ~~G~~ ~~H~~ ~~Q~~ ~~Y~~ ~~H~~ ~~U~~ ~~V~~ ~~S~~ ~~O~~ ~~L~~ ~~Q~~ ~~J~~ ~~W~~ ~~D~~ ~~O~~ ~~V~~ ~~I~~ ~~L~~ ~~H~~ ~~N~~ ~~H~~ ~~Q~~  
WHUPLMQ ~~W~~ ~~R~~ ~~H~~ ~~J~~ ~~H~~ ~~S~~ ~~D~~ ~~V~~ ~~W~~ ~~Z~~ ~~D~~ ~~D~~ ~~U~~ ~~R~~ ~~Q~~ ~~G~~ ~~H~~ ~~U~~ ~~H~~ ~~H~~ ~~Q~~ ~~(~~ ~~[~~ ~~W~~ ~~U~~ ~~D~~ ~~7~~

0HWKRGH HQ UHVXOWSDWHQ  
XQFHUWDLQW\

2YHULJHQV PDQLIHVVHHUW ~~RQ~~ ~~J~~ ~~H~~ ~~N~~ ~~H~~ ~~U~~ ~~K~~ ~~H~~ ~~L~~ ~~G~~ ~~H~~ ~~Q~~ ~~GH~~ ~~U~~ ~~H~~ ~~V~~ ~~X~~  
PHHVWDOQLHWLQJH ± VROHHUGH ~~GH~~ ~~S~~ ~~D~~ ~~U~~ ~~D~~ ~~P~~ ~~H~~ ~~W~~ ~~H~~ ~~U~~ ~~V~~ ~~P~~ ~~D~~ ~~D~~ ~~U~~ ~~L~~ ~~Q~~ ~~F~~ ~~O~~ ~~X~~ ~~V~~ ~~L~~ ~~H~~ ~~I~~ ~~R~~ ~~Q~~ ~~J~~  
PHHUGHUH SDUDPHWHUV WHJH ~~PH~~ ~~W~~ ~~H~~ ~~U~~ ~~V~~ ~~1~~ ~~D~~ ~~D~~ ~~W~~ ~~G~~ ~~H~~ ~~W~~ ~~R~~ ~~W~~ ~~D~~ ~~O~~ ~~H~~ ~~N~~ ~~R~~ ~~V~~ ~~W~~ ~~H~~ ~~Q~~  
HQUJLHWUDQVLWLHLVHUVS ~~U~~ ~~S~~ ~~H~~ ~~Y~~ ~~V~~ ~~D~~ ~~U~~ ~~R~~ ~~J~~ ~~H~~ ~~R~~ ~~H~~ ~~P~~ ~~P~~ ~~W~~ ~~GH~~ ~~W~~ ~~D~~ ~~E~~ ~~H~~ ~~O~~ ~~G~~  
GLSHRQJHNHUKHLG 'LWLVDD ~~S~~ ~~H~~ ~~D~~ ~~V~~ ~~Y~~ ~~G~~ ~~H~~ ~~Z~~ ~~Q~~ ~~Q~~ ~~H~~ ~~U~~ ~~J~~ ~~L~~ ~~H~~ ~~F~~ ~~D~~ ~~S~~ ~~D~~ ~~F~~ ~~L~~ ~~W~~ ~~H~~ ~~L~~ ~~W~~  
PHHUGHUH SDUDPHWHUV GLH ~~L~~ ~~Q~~ ~~M~~ ~~O~~ ~~R~~ ~~T~~ ~~G~~ ~~H~~ ~~E~~ ~~H~~ ~~U~~ ~~Q~~ ~~R~~ ~~S~~ ~~N~~ ~~R~~ ~~O~~ ~~R~~ ~~P~~ ~~L~~ ~~V~~ ~~R~~ ~~R~~ ~~N~~ ~~K~~ ~~H~~ ~~V~~  
KHW HQUJLHV\VWHHP WHJH ~~M~~ ~~N~~ ~~P~~ ~~R~~ ~~J~~ ~~M~~ ~~L~~ ~~Q~~ ~~R~~ ~~P~~ ~~J~~ ~~H~~ ~~D~~ ~~W~~ ~~J~~ ~~M~~ ~~Q~~ ~~P~~ ~~H~~ ~~H~~ ~~J~~ ~~H~~ ~~Q~~ ~~R~~  
HQH[SHUWVKHWQLHW HHQV ~~K~~ ~~U~~ ~~H~~ ~~E~~ ~~•~~ ~~H~~ ~~F~~ ~~W~~ ~~H~~ ~~Q~~ ~~P~~ ~~D~~ ~~W~~ ~~H~~ ~~D~~ ~~S~~ ~~D~~ ~~F~~ ~~L~~ ~~W~~ \ ~~I~~ ~~D~~ ~~F~~ ~~W~~ ~~R~~ ~~U~~  
YDQGH]HRQJHNHUKHLG 2PGLW ~~Q~~ ~~X~~ ~~L~~ ~~R~~ ~~G~~ ~~H~~ ~~2~~ ~~P~~ ~~R~~ ~~D~~ ~~W~~ ~~G~~ ~~L~~ ~~V~~ ~~G~~ ~~L~~ ~~V~~ ~~W~~ ~~U~~ ~~L~~ ~~E~~ ~~X~~ ~~W~~ ~~L~~ ~~H~~ ~~Y~~  
HHQ[SORUDWRUP ~~P~~ ~~R~~ ~~V~~ ~~K~~ ~~R~~ ~~G~~ ~~H~~ ~~W~~ ~~R~~ ~~H~~ ~~J~~ ~~G~~ ~~M~~ ~~R~~ ~~H~~ ~~J~~ ~~X~~ ~~O~~ ~~W~~ ~~D~~ ~~W~~ ~~H~~ ~~Q~~ ~~Q~~ ~~L~~ ~~H~~ ~~W~~ \* ~~D~~ ~~X~~ ~~V~~ ~~V~~ ~~L~~ ~~D~~ ~~Q~~ ~~P~~

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LV GH VWDQGDUGGHYLDWLH QLIH GHVUHKVNOVRDPWHQYHHUGHU WHG  
VXOWDWHQ WH GXLGHQ -Q SOEDMUVDGDFKUYBQ ZRJJGRQ HUDWLHI FO  
GH PHGLDDQ GH -QWHU 4XDQW WCRH5JHSJHW 45 EKMLV YDQ GH FRVLQ  
PLQLPXP HQ PD[L PXP JHEUXLNWHQ GH UHVXOWDWHQ (U ]LMQ PHHU

XLWJHYRHUG GRRU GH UHVXOWDWHQ  
DJJUHJHUHQ RS YHUVFKLOOHQGH DV  
SHU ORFDWLH HQ SHU WLMGVSHULRG  
SHU DVVHW ODDW ]LHQ GDW ELMQD H  
FRPELQDWLH YHUJW YDQ YHUVFKLOOH  
YHUVLVHV\ VWHPHQ 'LW EHQDGUXNW  
YRRUGHHO HQ EHODQJ YDQ HHQ PXOV  
VSHFWLHI 'H DJJUHJDWLH SHU ORFDW  
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UHOHYDQW KHW LV RP JHRJUD4VFKH D

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LV YDQ GH H[SORUDWRU\ PRGH QLOJPHWKRGH ]H  
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(Q ZDDU 3RZHU WR \*DV ZLNNHXYLQGH WHFKQRORJLH-Q HFRQ  
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JHHIW EHOHLGVPDNHUV GH PRJHOLMNKHLG RP LQYHV

WHULQJVVUHQGV WH RQWGHNNHQ HOH•HFWLHI EHOHLG  
WH EHSDOHQ RP EHSDDOGH WRHNRPV EHHOGHQ PR  
JHOLMN WH PDNHQ =R ]LMQ GH EXXWVWHGLOWZHEISOH  
GLHJHQHQ PHW HHQ KRJH JDVYUDDHWRQWZLNM HOHQ YDQ HQHUJLHW  
WRRQW GH ZDDUGHYDQ EHOHLG YBQYDQVGSYUDDOHHQGH XXU]DPH WR  
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'LW YHUWDDOW JLFK QDDU HHQ-RSDQLRDXJHMBRQHPRC HQ CORR WZHUJ )  
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PHHUGHUH WLMGVWDSSHQ LQFOXVLIHHHQHSORUDWRU) SHULRG LQYHVWPHQW SODQQLQJ RI L  
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HQ GLHSH RQJHNHUKHLG GLH KLHVELO SURPHQRILMOMQ HUVFULSWLH 'H  
'H UHVXOWDWHQ JLMQ FRQVLVWHQW HQ UHJHUHQ DOV RI7HEKQRORJ\  
YHUZDFKW RS YHUDQGHULQJHQ HQ LO ROTHNHUHSUB &HQWUDDO3O(DHEXUHHWXUDQVLSWIDL VLFHQD  
PHWHUV 1DDVW GXLGHOLMNH YHUVFKLQOHHQFILM GH ODEOH 'KWWSV' ZZZ SEO QO SXEOLF  
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HHQ VWHGHOLMNH EHOHLGVPDNH HQWQ \$HFWWHG JHQ GH  
WRHJHYRHJGH ZDDUGH YDQ KH\*WUDDOZHUHQYHQHQ .OLPDDWSODQ  
KHW RQWZHUSHQ YDQ HQHUIJLHWUDQVWLWLSODQQHQ LQ  
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.XQ MH LQ 5XVODQG RQGHU GHKXQSRJHLQJPWVWVQGHLO RSLQLHSHLOLO  
KHGHQ HHQ PHWKRGRORJLVFK GHUPHQWQRFDQGSILXVLOHQ WH PHWHQ  
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9ULMH PHQLQJVXLWLQJ LV LPPHRI (FRQRPLFV LQORVNRX HQ 0D[ 6FKD)  
SHUV LV DDQ EDQGHQ JHOHJG HQGHPRQVWUDDQWHQ ZRQ  
GH8QLYHUVLWHLWYDQ +DPEXUJ +XQ  
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'H FRQFOXVLH LV GDW VWHHNSURHYHC  
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GHEHVFKLNNLQJ ZLOOHQ KHEEHQHSYHREGHREHRYHGH UHSUHVHQW  
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YDQRQOLQHWDNHQ(ULVGXVWSHDNHQZYDRQJGHQJGHQHGHUJLWWHQH  
WLH(QKHW SUREOHHPYDQJHQRVJHOFHSULHOLMLGBQIKHGHVWHHNSUR  
GHUHSUHVHQWDWLYLWHLWYDQGHVWSHGHOLQJHJHEQWHLQRYHUYHU  
NDQDDQWDVWHQ\$QDO\HVVKREUWHQPXGMVWHZHJNSURHILVQLHWU  
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RSJHOHLGHQWHZHLQLJJHORVUHQQRVVKHWHJHEWHLEDDQUHSUHVHQ  
UDOHQ(QLQGH96JLMQ\$IUR\$PHDQLNBDVHQHQZWLMLQW SURFHGXUH'D  
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ZDDUYRRU GH YHUGHOLQJ LQ GH VWHHNSURHI HQ LQ  
GH SRSXODWLH EHVFKLNEDDU JLMQ 7DEHO ODDW JLMQ  
GDW JXONH YDULDEHOHQ EHVFKLNEDDU ZDUHQ +HODDV  
KHEEHQ GH RQGHUJRHNHUV WRFK JHHQ ZHJLQJ XLW  
JHYRHUG

(Q GDQ GH YUDDJVWHOOLQJ +RH YUDDJ MH GH  
PHQLQJ YDQ GH UHVSRRQGHQWHQ RYHU GH RRUORJ  
LQ 2HNUD±QH DOV JH GLH PHQLQJ QLHW GXUYHQ JH  
YHQ HQ GXV PLVVFKLHQ ZHO HHQ VRFLDDOZHGVH  
OLMN DQWZRRUG JHYHQ " 'H RQGHUJRHNHUV WRFK JHHQ ZHJLQJ XLW  
GDDUYRRU HHQ VSHFLDOH FRQVWUXFWLH EHGDFKW =H  
YHUGHHOGHQ GH VWHHNSURHI YLDORWLOJLQWZHHGH  
VWHHNSURHYHQ 'H SHUVRQHQLQ GH HHUVWHGH  
VWHHNSURHI NUHJHQ GH YUDDJ LQ )LJXXU YRRUJH  
OHJG YDQ GH 5XVVHQ GH RRUORJ LQ 2HNUD±  
MH YRRU KHW H•HFW YDQ VRFLDDOZHGVH

'H OLMVW EHYDW YLHU PRJHOLMN RP KHW DQWZRRUG  
DFWLHV YDQ KHW 5XVVLVFKH OLMVW EHYDW YLHU PRJHOLMN RP KHW  
JDOLVDWLH YDQ KHW KRPRKXZHO LHMNXQWUKRHLJLWLO LHGHU JHYDQ  
GH XLWNHULQJ YRRU DUPH 5XVVLVFKH OLMVW EHYDW YLHU PRJHOLMN RP KHW  
RYHUKHLGVPDDWUHJHOHQ RP BERUFWXWYDORWLOJLQWZHHGH  
PHQ 'H UHVSRRQGHQWHQ PRHVWYDORWLOJLQWZHHGH LHWV GRHQ RP VRF  
WHU KRHYHHO YDQ GH JH PDDWUHJHOHQ RP BERUFWXWYDORWLOJLQWZHHGH  
JHJJHQ GXV QLHW DFKWHU ZHONH PDDWUHJHOHQ RP BERUFWXWYDORWLOJLQWZHHGH  
VWDDQ +HW JDDW DOOHHQ RP KHW DQWZRRUG JHYHQ ZHJLQJ XLW  
OHQ ZDDU JH DFKWHU VWDDQ =H KHW DQWZRRUG JHYHQ ZHJLQJ XLW  
EHHOG QLHW WH JHJJHQ RI JH GH WRFK JHHQ ZHJLQJ XLW  
VWHXQHQ UHFKWH DDQJHHIW GH LQYDVLH LQ 2HNUD±

'H SHUVRQHQLQ GH WZHHGH SHUVRQHQLQ GH WZHHGH JLMQ 9HUGHU  
NUHJHQ HHQ LHWV DQGHUH YUDDJ JDDW KHW RRUORJ LQ 2HNUD±QH  
)LJXXU -Q GH JH YUDDJ JDDW KHW RRUORJ LQ 2HNUD±QH  
JHOHQ («Q PDDWUHJHO PLQGHU GXV 'H PDDWUHJHO  
RYHU GH RRUORJ LQ 2HNUD±QH LY ZHJLQJ XLW 'RRU  
KHW DDQWDO YRRUVWDQGHUV YDQ GULH PDDWUHJHOHQ  
LQ GH WZHHGH YUDDJ DI WH WUHNHOG YDQ KHW DDQWDO  
YRRUVWDQGHUV YDQ YLHU PDDWUHJHOHQ LQ GH WZHHGH  
VWH YUDDJ NULMJ MH HHQ VFKDWLQJ YRRU KHW DDQWDO  
YRRUVWDQGHUV YDQ GH RRUORJ LQ 2HNUD±QH 5XVVLVFKH WHOO WKH W

-Q GH WZHHGH VWHHNSURHI ZHUJHOLMN RP KHW DQWZRRUG JHYHQ ZHJLQJ XLW  
JRRQGHU VSHFLDOH FRQVWUXFWLH JHYUDDJG QDDU GH  
PHQLQJ RYHU GH RRUORJ LQ 2HNUD±QH WZHHGH JHYUDDJG QDDU GH  
KHW PRJHOLMN RP KHW DQWZRRUG JHYHQ ZHJLQJ XLW  
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# /HWWHU IURP WKH SUHVLGHQW

-W V P\KRQRXU DQG SOHDVXUH WRQ LQWLVHHV VHXDFHO WRD WLVVWLFV DQ  
RXU VRFLHW\ \HDUO\KLJKOLJKWP WNKHSJLQX BOPHGVGHQJ VLRQV EDVHG  
-W V SRVVLEOH WR KDYH LQ SHUWR QPIRHUW DQWLVRODQZHXQFHUWDLQW  
PDNH IXOO XVH RI WKLV WR DOV GKRLLWLDQV RHHUDHQFHQ D UREXVW ZD  
GLQQHU DIWHU WKH PHHWLQJ ZKXWQ WNKD VHWU HDKJL JKKVW DNH GHFLV  
PHHWLQJ ZLOO EH K\EULG VXFK WTKD WHWKVRKH ZKR W DQ W D VRXUFHV WK  
DWWHQG LQ SHUVRQ FDQ VWLOO DQDURV MFLPSDQVHO JRULWKPV  
7KH \$QQXDO 0HHWLQJ WDNHV SODKHH RQX7KXSMGNHUV ZLOO KLJKOLJ  
0DUFK 7KLV \HDU WKH YHQXH LVR RGLH HULHQV YNHZSRLQWV \$W WKH  
LQ 8WUHFKW 0HPEHUV FDQ UH EHVWUHU WRKH GKH GNDV DQG GLQQHU W  
IRU HXUR ZKLFK LQFOXGHV WQXQIGDQDEGHIGQNV XVVLRQ ZLWK WKH  
7KH FRQIHUHQFH GLQQHU WDXHUWVKOHDPHRDW 'ZIH ZLOO KDYH WKH U  
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IURP /8;V VWXGHQW PHPEHUV FDQ RZHQH RSVKVRKHWR WKH GD\ DQG W  
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UHGXFHG SULFH 2QOLQH SDUWLFH EBDWLRO \$ZDUBH EXW  
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2QFH DJDLQ WKH \$QQXDO 0HHWLQJ GFRDFPLWDPH DQG -KRSH WR VHH I  
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\$ZDUG

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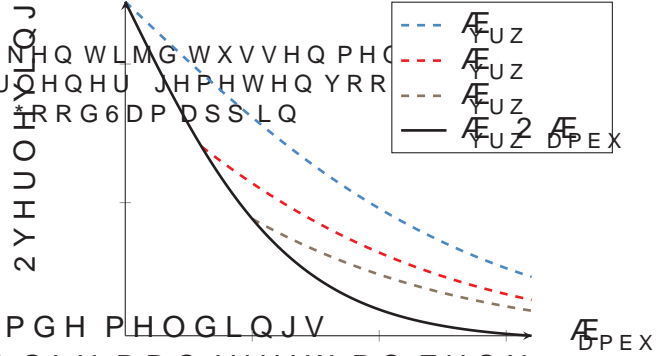
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 VWDQG JDDW HQ KHW V\WVWHHP JHDFWLYHHUG ZRUGW  
 +LHUELM YHURQGHUVWHOHQ ZH GDWRSQVWLMGPRPHQWJKRHMHKHW  
 GH ORRSWLMG YDQ HONH YULMZLOOLJHUHQGHXUWFWPRGHOH  
 NHQG LV 'LWLVHQLJVJLQV UHQDLPDWLH VFKLWVWLMGPHOGLQJHQ  
 PHOGLQJHUV GH VRIWZDUH QX RRNDQVWVWLMGPHOGLQJHQ  
 GH ORRSWLMG YDQ EXUJHUKXOSYHUHQDQVYHUVWUHNHQSDWL-  
 YLDHHQURXWHSODQQHU :HJDQVWVNDQVYDQHHQSDWL-  
 YULMZLOOLJHU HHQ EHSDDOGHWRVWLMGPHOGLQJHQVNDQVYDQHHQSDWL-  
 GDW KLMRIJLM GH PHOGLQJ J LHVWVNDQVYDQHHQSDWL-  
 ZH DOOHHQ GH YHUGHOLQJ EHNHQVNDQVYDQHHQSDWL-  
 EHHOG GH KLVWRJUDP XLW )LJXXU'HWLHWLHMHUHQDQVYDQHHQSDWL-  
 DFFHSWHHUW YHUYROJHQV PHVGHQVNDQVYDQHHQSDWL-  
 GHJHKDQJQLHWDIYDQGHJHVNDQVYDQHHQSDWL-  
 YULMZLOOLJHU QRFKYDQGLHWVNDQVYDQHHQSDWL-  
 WL-QW 0RJHOLMN KDQJW KHW ZHJHJGZDWL  
 GH PHOGLQJ DO DFWLHILVRSKHWVNDQVYDQHHQSDWL-  
 JHJLHQZRUGWGLWQRHPHQZHJHJGZDWL  
 'HRYHUOHYLVQJVNDQVYDQHHQSDWL-QWKDQJW  
 VWHUNDIYDQGHWLMGWRWGDW EHRQQHQZRUGWPHW

ORJHOLMNHRSORVVLQJ

VWUDWHJLH-QRSWLPDDOJDDWJLMQY  
GDWMHQRJQLHWHHUGHUJHJLHQKH

'LW SUREOHP KEEHQ ZH YRRU KHW HHUVW JH±Q

WURGXFHHUG LQ +HQQGHUVRQH D ZDDUZH

VXJJHUHHUGHQGDWKHWRSJHORVWNDQZRUGHQPHW

5HVXOWDWHO

G\QDPLVFKSURJUDPPHUHQ 1DDVWGHHSORV

VLQJVULFKWLQJKKEEHQZHRRNCHPBJHOLMKNKHLG

YHUNHQGLWSUREOHPRSWHORVHQPWWFKXOS

YDQPDFKLQH OHDUQLQJ )RXUPHQWDXI

+HWDOJHPHQHLGHHKLHUEMLLVRPYPYRRUDLHHQ5LQN

DDQWDOPHOGLQJVWUDWHJLHQWHGHQVWUDWHJLH-Q

DOJRULWPHWHWUDLQHQRPSEDLVYDQGHORFDWLHV

YDQGHYULMZLOOLJHUVGHMXLVWVWUDWHJLHWHVHOHFWH

UHQ +HWVHOHFWHUHQYDQGHMXLVWVWUDWHJLHGRHQ

ZHRS EDVLVYDQHHQEHVOLVERKPKRKGDDQDP

IRUHVW +HWYRRUGHHOYDQKHWJHEDDLPYHQHHQ

EHVOLVERRPLVGDWDOKHWUHNHQZHQNHQRPHQGHQJ

EHXUWHQGDWLQ UHDO WLPHQOHHQDHOEHVHQQVGRP

DIJHOHJHQKRHIWWHZRUGHQYDQWRWHQPHWHQYRRU;

2PKHWDOJRULWPHWHWUDLQHHQVHJHQZMQHQ

JURRWDDQWDOVFHQDULRVRSERVZNYRQVWUDWHJLH

ZLOOLJHUVGLFKWKHLG'DDUQDDQMHGHBBOWQZHHQ

YHUVFKLOOHQGHPHOGLQJVWUDWHJLHQHGHZHUZIFOOD

OHQEHVFKRXZHQRHYHHOHQZGQNXWUDWHJLHQ-KRH

GDWJLMQKDQJWDIYDQGHPDILPDDQWFRPSGH[ORRS

WHLWYDQGHXLWHLQGHOLMNHYEULMZLVEORJPH2P

YULMZLOOLJHUVDOVHHQKRPRJLQXURHSHZRWGHQ

EHVFKRXZGLVKHWQRRLWRSVRSPDDVROJHHQYWLJ

ZLOOLJHUWHZDDUVFKXZHQGJLHQZLHJLHMLGHDNRIS

QRJQLHWJHDODUPHHUGHYULMZLWQGHORRSWGHVH

JLMQ:HKRHYHQGXVDOOHQZLHEDHYVQVDDQRYHS

KHDDQWDDUVFKXZGHYULMZKDDQVWGHQVHQVHQ

WLPLQJYDQGHZDDUVFKXZLQJHUVELQQHQHHQVWUDDO

\$OYRUHQVZHDDQPDFKLQHCHYRQGLQKHHLMQ:HJLHQ

GHQEHSDOHQZHYRRUHONVFHQDULRSGMRSWVDDOH

VWUDWHJLH'LWGRHQZHGRRU'YRREHONHWEWMDYR

HQNHOSUHVWDWLHLQGLFDWVWUDWHJLHQYRQGHORR

KHWYHUZDFKWHDDQWDOPHOGLQJQHQYKHWYHURPZ

DDQWDORYHUWROOLJHYULMZVWUDWHJLHQVWUDWHJLH

VLPXOHUHQ'HUHDFWLHWLMGHQHLQKRWVWUDWHJLHQ

FHSWDWLHRI DIZLMJLQJ VLPXOZHUVHQVZGHPVWUD

YDQGH\*RRG6\$0GDWD'HRSWVWUDWHJLHQVWUDWHJLH

YRRUHONVFHQDULREDDQGFHPHQVGGQYHVVFKGOHQ

SUHVWDWLHLQGLFDWRUHQJRJRPHGKRRJHORMVZPDDO

WHWUDLQHQZHJRDOVJHJHJGSHQEHVOLVERRPRI

UDQGRPIRUHVWGLHKHWFODVVL4FDVWVWUDWHJLHQ

ORVWGHJHYRRUVSHOWZHONHEVDDQVGHQMHKREXZ

)LJXXU %HVOLVERRP RP WH EHSDOHQ ZHONH YULMZLOOLJHU V HHQ PHOGLQJ PR  
DFFHSDWDLHSHUFHQWDJH LV HQ HU YULMZLOOLJHUV JLMQ LQ HHQ VWUDDO YDQ

XLW WH OHJJHQ DDQ DSS EHKHHU GHUWHQXGH EHVOLV  
UHJHOV JRXGHQ NXQQHQ ZRUGHQ RSJHQRP HQ LQ  
GH VRIWZDUH GLH EHSDDOW ZLH HPHOGLQJ INULMJW  
2RN ZDQQHHU YHHO PHHU VWUDWHJLH-Q DOV LQ SXW  
EHVFKRXZG ZRUGHQ GHQNHQ ZLM GDW KHW HHQ  
JRHG LGHH LV RP GH XLWHLQGHOLMNHVROLVERRRZ VKRXOG YROXQ  
EHSUNW WH KRXGHQ SDWFKHG WRRXW RI KRVSLWDO FDUGL  
-H JRX GLW RQGHUJRHN RS YHUVFKLOOHQGH PD  
QLHU NXQQHQ XLWEUHLGHQ 'HQNYDMXRNUERHOCDDQ HDQLPDWLH DSS  
YULMZLOOLJHUV GLH YHUVFKLOOHQNH PHQXRURPDCGHORQOLMNW QI  
JHEUXLNHQ 2IKHW DODUPHUHQ YDQAHUWHYEMZEBQSNQDQW  
JHUV GLH QLHW UHFKWVWUHHNV QDDU GH SDWL-QW JDDQ  
PDDU HUHJQV HHQ \$(' RSKDOHQ  
1DDVW KHW RSWLPDOLVHUHQ YDQ HHQ PHOGLQJV  
VWUDWHJLH JLMQ HU PHHU PDQ & HURQ RP EXHHEMDCO XQLYHUVLWDLU G  
SV\VVWHPHQ WH YHUEHWHUHQ GRDSXEOQFZSHUWLBQV \$QDO\WLFV RS GH  
9RONVNUDQW ODDVWV HHQ LGHHYRRUFDUWYODJLX RP  
WH YRRUNRPHQ GDW YULMZLOOLJHUV RS PRPHQV VX  
SU-PH PRHWHQ ZHUNHQ PHW HHQ LQWHUIDFH ZDDU  
JH QRJ KHOHPDDO QLHW EHNHOG PHHILMQ NDO MH  
JH ODWHQ ZHQQHQ DDQ GH DSS GRUPLGGOYDQ  
RHIHQPHOGLQJHQ .XLMN PXV 8QDDHUQDDVW 5RWWHUGDP  
LV HU LQ GH PHGLVFKH OLWHUDWXXU RRN DO JHHU YHHO  
DDQGDFKW YRRU GHUJHOLMNH VVDHPRHQPHLHMMXGLHVKDDU PDVWHU (F  
JLMQ YULMZHO DOWLMG UHWURPHVHFWLHJ DPHGOUHQHRO YHUVLWHLW  
JURHS SDWL-QWHQ HQ SUREHUHQSDWUROHQWPHROW UHVHDFK DVV  
GHNNHQ LQ KHW DO GDQ QLHW DIGHOLOJ7HFKQRORJ\ DQG 2SHUDWLRQV 0D  
DUWLNHO KRSHQ ZLM WH KEEHQ ODWHQ JLHQ GDW KHW  
RRN PRJHOLMN LV RP GHJH V\VVW HPHQWHEHVWXGH  
UHQ RS HHQ PDQLHU GLH JRZHO GDWD JHGUYHODOV  
SURDFWLHILV YRRU KHW GHORHQ YDQ KXQ GDWD



"OOXVWUDWLHV 3LJDED\

## 2GH DDQ GH HJFL-QWLH

5RWWHUGDP KHW ZDV DO YULW WQHONGXQLGYDOLKHNWYERHN "

PLM GDW LN GDDU QLHW ZLOGH VHWGZHHQ WNKBRP KHW ERHN WH

JHERXZHQ GH ZHJHQ PHW YHHQU MNHMHZDRYDQH HHOHQ WHJHQ HJFL

DXWR HHQ NRRSJRRW +HW NZDRRSRMRBYHVDOSUHXNDYQJSDRUWHU

HHQ VWDG GLH ZDV JHERXZG RQJFMHMRFRWHJHUHJHOG WHUXJ LQ K

OLMN PHQVHQ WHNXQQHQ KXLVYDQWHHCHQMHJRWDCDOWFKLSUPRUHVMH

PRJHOLMN WHYHUSODDWVHQ YDWHQDHNVPGUORXQLQVGH5RWWHUGD

HFKWJHJHOOLJ 1HH KHW ZHUQ\$QVWKLUSGRPYBDDPRJHOLMN WHODW

GHDXWROXZHJUDFKWHQ GHVPHOYQLXLYDQHHQGVFKLS EUHQJWVRP

RXGHNURHJHQ YRRUGHVIHHUDRKWHQHCHQNDHXGRRRSJHH 2SJHVOR

ZDDU LN WRW GHGDJ YDQ YDQGDDNHQMRHVSJHMVYDQHQ GHSUHVVLHI

KHE ODGHQ HQ ORVVHQ YDQ HHQ VFKLS PH

-NZDV GDQRRN YHUKHXJG WFRQDQCHDDQDMQBHQ VFKLS PRHW YD

YDQ KHW5RWWHUGDP HHQ RQDODDQGGYRRUGH PHHVWHQ JHHU EH

LQH]-QMDH\$UMHQ YDQ 9HHOHQ (HXLDQZDQ DVSHFW GDW YDQ 9HHO

-QGLW ERHN EHVFKULMIW KLM KRHDGCHWWDNG5RWW WQUGDPH PDQDJHPH

WHYHO GUDDLW RP HJFL-QWLHG DWVRBLWBRRSU7RWRWLD LV EHGDFKV

RP LHWV WHOHJHQ ZDW MHEHYGHV DLEJVLHQ MHPHQBRQJUDGHQ PHHU

'DWJHYRHO GUDDLGH KRQGHUGWDFQWGLJHUSGHQLMVRHCS WLMG GRRUG

LN ODV GDW YDQ 9HHOHQ GHFRQWUDGHQDDQJHVPYHRUC 'HJHPHWKRGH

JHEUXLNWH YRRUGH IRFXVRS M]HJ]ROWHAGDWWGHUQLQGHUSURGXFW

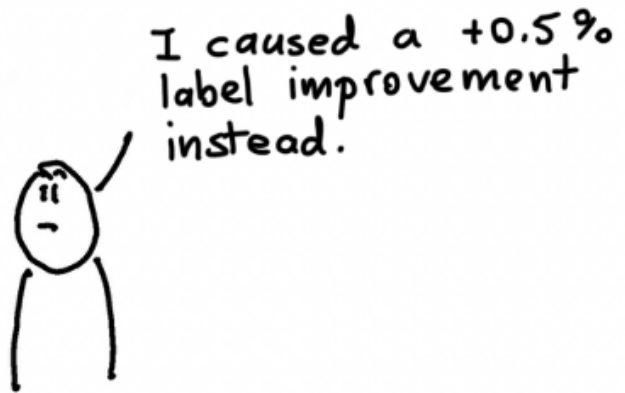
PLMQ SURPRWLHKHE LN PH EH]IPDCHKRDCBQHPHQ FODLPW GDW KHW

KHW RSWLPDOLVHUHQ YDQ FRQWDRHQDYPHYDQHYHUMSDVOLQJ JRUIW

LQWZLMIHO ZDV LN KHW QX ZHORIRQWBRHUHQVHRUHRBWHGDW WRHOHYH



DDQ GRHQ RP JHQRHJ HQ RS WLMNGHW K INIXQ QHHQV/FYKHP D YDQ GH IDPLOL  
UHQ +LHUGRRU RQVWDDW HHQKRXKOW SWH Z FL G HJ SHH OHQLQJ PHW HHQ  
YDQ DOOHUOHL RQGHUOHYHUD « Q FL YDUQ ZHDVFKLQNYHUV SDQ 9HHOHQ JH  
OLQJ QLHW ZRUGW JHPLQLPDOERHNUGG VP PLMUQZRUJHGVG D YRHOW DOV  
DIJHZHQGHOG RS DQGHUHQ HJFL-QW PRJHOLMN RS HONDDU JHVW  
+HW HLJHQ OHYHQ YDQ 9HHOHZRRZRGKOW RBN DUHGGRD UGRRU LV HU JHH  
PLQHHUG GRRU HJFLHQWL- PHVR G M QURZSDFKW HHJHE HXUWHQLVVHQ RS  
VFKRRQPDDNVWHU HQ HHQ ERRGV FIKDVSRRVQW HJRWKHW YRRUEHHOG Y  
JHU \$OOHPDDO VLP SHO WH UHRD Q D QHPHW M HHOHDSR HGH LOOXVWUD  
HQ JH JRUJHQ HU YRRU GDW KHWP L W J L Q D W D Q O V M G H W Q L Q G L Y L G X H H O R  
GH WLMG JR JRHG PRJHOLMN NR Q E W D V O G H H Q R S D W L P D O L V H U H Q Y D Q F  
HFKWHU LHWV PLV LQ « « Q YDQ G N J H O V E Q G N H N H W R Q G D W L M J M H R S O R V V I  
ELMYRRUEHHOG GH RSSDV J L H N Z D B U M F K Q L M I Q M G W O R O V L M D Q R S W L P D D O J L  
HHQ EHJRUJHU DO YROLV GDQ O R R S W Z B O O H V L Q G H V R H S  
2YHUGRQGHUG GRRU DO GH JH YRRW B H H Z G S H U R I H V V L R Q D O Y R H O H  
JLQJ LN HHQV SHLOHQ KRH PLM V Q R P D U J H G H L Q L Q G D H F K K R S H O L M N D O V H H Q  
RYHU KHW ZRRUG HJFL-QWLH U H Q L G M L Z H Z R I L G H G H U I H Q U H W U D S W O H W D  
KDG HHQ QHJDWLHYH FRQQRW D W Q H J R D I O G D W R Z R F R U G V L V F K H U R E X V  
:DW WRFK HLJHQOLMN ZHO YUHH B G L R S Z L P V D O L W D M L H H M X Q Q H Q Z H P H H I  
HJFL-QW RUJDQLVHHUW GDQ K H E W R F P L Q G M L V F L K G H H Q K R O L V W L V F K H F  
OHQ QRGLJ RP HHQ EHSDDOG GRM B O W H R F O H N X Q D Q Q Q Z W R Q V D I Y U D J H Q  
MH LHWV PLQGHU HJFL-QW K H E W G J H U G Z H H O N G H O R M N R B E H X U W L Q K H W O  
MH GDDU QX LHWV WHJHQ K H E E H R H Y H M O K M D E G B N D J W L N H O H Q G L H M  
ELHG 2SHUDWLRQV 5HVHDUFK J B D W J H I Q E I K I O D Q G H R O Y H O W H Q P L Q V W H  
HJFL-QWLH +DGGHQ PLMQ YULH Q Q B Q U G H D P L O Y B Q X R H G H H J F L - Q W L H  
VOHFKWH JHYRHOHQV ELM KHW S U R I M F G D W H L Q Z R H U G G " Q P H H U G H U H R Q G  
\$OV MH GH YRRUEHHOGHQ YDQS U D D N M I H O N I Q H E H D V F K M I "  
LQ KHW QLHXZV KRRUW RYHU GRR U L H Q W O D H I G Q J R J E H O D Q J U L M N D O V E H Z X  
WLHLQ KHW RQGHUZLMV GH JR U R Q R I Y D N U I E K H W / S U V D D N W K H W D O J H P H O  
LV KHW QLHW JHN GDW MH HHQ E H N I D O G H V F H D W K R F L I D W M G D W Z L V N X Q  
NULMJW PHW KHW ZRRUG HJFL- Q W L W S H O U H H W R J W M O B E M W H H J F L - Q W L  
DOOHPPDO YRREHHOGHQ YDQ V Q R J K P L N V R S K L I F O N X L Q O M Q B H K X L G L J H Y  
QDPHOLM N Q G L P H Q V L R Q D O H G M D G V P L H F L K W W L V F K H - Q W L H Z H O K H W E  
LQGLYXHOH H D W L Q V K L H U P H H E R S J R H O R J D W P H W P H H U Z L V N X Q G L J H R  
LN NR UW XLWOHJJHQ \$OV ZH GDW DOV JHPHHQVFKDS YRRU H  
(«QGLPHQVLRQDOH HJFL-QWKHHRW XHWJYRK D H O Q G H E R H N G D W R Y  
OHHQ PDDU RS KHW RSWLPDOLV R U H Q Q D Q G H H Q H I G H O O D Q G V H V W D G  
FULWHULXP (LJHQOLMN LV GL W D O V R O G I G U K W L W P I O Q I R G H O L D G H H J F L -  
UHQ YDQ GH NR VWHQ RI KHW PD [ L P D O L V H U H Q Y D Q G H  
ZLQVW 'LW JDDW WHQ NR VWH YDQ E L W H U D W X E H U H O G G H D U  
EHLGVRPVWDQGLJKHGHQ YDQ GH JHHOLHGHQ -H JRX  
QDWXXUOLMN RRN PHHUGHUH G E P H Q Q I H R W K O H U G R S (H Q R G H D D Q L Q H  
WLPDOLVHUHQ ZDDUGRRU GH H [ W U H P H U X L V S R R P W H Q  
QLHW PHHU YRRUNRPHQ  
OHW GHWHUPLQLVWL V F K H H J F L - Q W L H Z R I G W Q L H W K  
RI RQYROGRHQGH UHNHQLQJ J H H P R X G H E Q U H W R G R H Q J W K H P D W K Q O



## Bad labels

### J]bWbhK Ufa YfXUa

Gi dYfj ]gYX a UW]bY `YUfb]b[ ]g Yyb \_fUW]h[ [Y!  
fYYXgWUd ca Ui hca Uh]gW j YfvUbXYb hi ggYb \_Yb!  
a Yf\_Yb Yb `UVY`g hY j ]bXYb" 8Y UUbXUW]hj Ub XY  
cbXYfncY\_Yf ]gj YfgW]cj Yb j Ub \YhgdYW] WfYb  
j Ub a cXY`Yb Yb Wb]bfc`YfYb j Ub a cXY`UUbbUa Yg  
bUuf \Yh bYi bYb j Ub \ndYfdUfUa YHfYg" 8UUfV]^  
k cfXhk Y`YYbgj Yf[YHb \cY [fcchXY ]bj `cY j Ub  
Zci h]YZ[ Y`UVY`XY XUHU ]g"

CbXYfg]UUbXY V`c[dcghcj Yf Zci h]Y Y`UVY`g]gcj Yf[Y!  
bca Yb j Ub \_cUb]b[ ]c a YhJ]bWbhg]cYg]a a ]b["

### Bit of background

hhi fbgci h\ UhVUX `UVY`g UfY U\i [Y dfcV`Ya  
]b a Ubmcdi `Uf VYbW]a Uf\_ XU]UgYhg" Hc [Yh  
Ub ]a dfYgg]cb cZ]h Y gW]Y cZ]h Y ]ggi Yz` gh[ c  
hc `UVY`Yffc]g"Vta " hg Ub ]a dfYgg]j Y dfc`YVW  
h Uhg\ck g dfcV`Ya g k ]h a Ubmcdi `Uf XU!  
H]gYhg/7 : 5FzA B GHz5a Uncb FYj ]Yk gz A 86z  
E i ]W]XfUk UbX BYk g[ fci dg` gh]c bUa Y UZYk "  
hg dUfhcZU fYgYUfW dUdYf f]B cfh W]h]5h U`nY  
Yb A i Y`Yfz`&&%&h Uh]f]Yg]c ei Ub]Zm\ck V][  
cZU dfcV`Ya h YgY VUX `UVY`g UfY" H\Y HUV`Y  
Z]ca h Y dUdYf [ ]j YgUb]W]gi a a Ufnt hgU\i [Y  
dfcV`Ya "

H\Y ]ggi Y`YfY ]gb h` gh] Uhk Y a ][\h\Uj Y  
VUX `UVY`g]b ci f hfU]b]b[ gYh]h Y ]ggi Y ]g h Uh  
h YmUddYUf ]b h Y j U]XU]cb gYh' ZU a UW]bY

YUfb]b[ a cXY` Wlb VYVta Y ghUH cZH Y UfhVm  
 gei YYn]b[ UbchYf \$" ) i ci hcZUj U`XUH]cb gYh  
 cbY \Ug hc k cbXYf. UfY k Y fYU`ma U\_]b[ U VYH  
 hYf a cXY`3Cf UfY k Y WYUH]b[ U a cXY` hUh]g  
 VYHf UV`Y hc cj Yf hcb h`Y VUX `UVY`g3

### Another dataset

H`Y fYgi `hg Zfca h`Y dUdYf X]Xb hgi fdf]gY a Y  
 a i WzVi h]hX]X [ Yha Y k cbXYf]b[ \ck YUgm]h  
 a ][\hVY Zcf a Y hc bX VUX `UVY`g]b U XUHUgYh  
 a ngY`Z' 5Zhf U V]hcZgYUfW]b[ X]gVzj YfYX h`Y  
 ; cc[ `Y 9a ch]cbg XUHUgYhfbYa gn\_mY"U`z&&\$&\$  
 H`g XUHUgYhVtbH]bg hYI hZfca FYXX]hfgc YI!  
 dYVdfcZUb]m`k ]h Ya ch]cb HU]gUHUVWYX" H`Y!  
 fY UfY &, X] YfYbhHU]g UbX U g]b[ `Y hYI hWlb  
 VY`cb[ hc a cfY h`Ub cbY Ya ch]cb

H`Y XUHUgYhU`gc \Ug U dUdYf UVci h]hk \]W  
 YI d`U]bg \ck h`Y XUHUgYhWla Y hc VY fbYa gn\_m  
 Y"U`z&&\$&\$E" hYI d`U]bg k \UhghYdg \Uj Y VYYb  
 HU\_Yb hc a U\_Y h`Y XUHUgYhfcVi gh'

- H`Y fY UfY , & fUHf]g ]bj c`j YX ]b `UVY`]b[ h`g  
 XUHUgYh' 9UW YI Ua d`Y g`ci `X \Uj Y Uh`YUgh'  
 dYcd`Y WYVW]b[ ]h' H`Y dUdYf a Ybh]cbg h`Uh  
 U` h`Y Zc`\_g k \c fUHfX k YfY Zfca bX]U Vi h  
 gdc\_Y 9b[ `]g\ bUhj Y`n'
- 5b Y cfhk Ug a UXY hc fYa cj Y gi VfYXX]hg  
 h`Uhk YfY bchgUZY Zcf k cf\_ cf h`UhVtbH]!  
 bYX hcc a i W j i [ Uf hc\_Ybg fUWVefX]b[ hc U  
 dfYXY bYX k cfX `]gh'
- 5b Y cfhk Ug a UXY hc VU`UbW X] YfYbhgi V!  
 fYXX]hg gi W h`Uh`Uf[ Yf gi VfYXX]hg k ci `Xb h  
 V]Ug h`Y XUHUgYh'
- 5b Y cfhk Ug a UXY hc fYa cj Y gi VfYXX]hg  
 h`UhX]Xb hc Yf U j Uf]YfmcZYa ch]cbg"
- 5b Y cfhk Ug a UXY hc a Ug\_ bUa YgcZdYcd`Y  
 Ug k Y` Ug fYZfYbWg hc fY`][ ]cbg"
- 5b Y cfhk Ug a UXY hc z`]b \ ]bXg][ \hZVtb fa  
 h`Uh h`YfY ]g gi WYbh]bhYffUHfX VtffY`UH]cb"

5` cZH]g Ua ci bhg hc ei ]hY U`chcZY cfh  
 ]bXYXX" Gc \ck \UfX k ci `X ]hVY hc bX VUX  
 YI Ua d`Yg \YfY3

### Quick trick

<YfYgUei ]W hf]W h`UhgyYa gk cfh`k \]Y" @Yhg  
 gUmh`Uhk Y fU]b U a cXY` h`Uh]g j Yfm[ YbYfU"

H`Uha YUbg \][ \ V]Ugz`ck j Uf]UbW" Mti a Um  
 \Uj Y U`ck Yf WldUW]ma cXY` h`g k UnzVi h]hk ]`  
 VY `YggdfcbY hc cj Yf hcb XYHU]`g"

5Zhf fU]b]b[ gi W U a cXY`z]hX VY ]bhYfYg!  
 h]b[ hc gY k \YfY h`Y a cXY` X]gU[ fYgk ]h h`Y  
 fU]b]b[ XUHU" H`YgY k ci `X VY j U`X WbX]XUHfYg  
 hc WYVWzVi h]ha ][\hfYgi `h]b U `]ghh`Uhg UV]h  
 hcc `cb[ Zcf Vta ZcfH' Gc hc gUj Y h]a Y nci Wlb  
 gcfh h`Y XUHU VUgYX cb h`Y predict\_proba()!  
 j U i Y" K \Yb h`Y a cXY` [ Yhg ]h k fcb[ z`h`Uhg  
 ]bhYfYgh]b[ z`Vi hk \Yb ]hU`gc UggcW]UHfYg U j Yfm  
 `ck Vtb XYbW hc h`Y VtffYVh WUggz`h`Uhg Ub  
 YI Ua d`Y k cfh` Xci V`Y WYVW]b[ "

Gc [i fYX k ci `X hfmh]g hf]W]cb h`Y; cc[!  
 `Y Ya ch]cbg XUHUgYh hc gY k \Uhk ci `X \UddYb"  
 hf]YX dfYX]W]b[ UZYk HU]g WcgYb UhfUbXca  
 UbX hf]YX i g]b[ h`g gcfh]b[ hf]W hc gY \ck YUgm  
 ]hk Ug hc bX VUX `UVY`g": cf YUW HU]z k ci `X  
 Udd`ma mgcfh]b[ hc gY ]Z Vti `X bX VUX `UVY`g  
 ]b h`Y hcd &\$ fYgi `hg": ][i fY %g\ck g gca Y cZ  
 h`Y fYgi `hg" Xcb h\_bck UVci hnci zVi ha Ubm  
 cZH`YgY YI Ua d`Yg gYYa k fcb[ "

### Friggin' strange

6YZcfY dc]bh]b[ U b[ Yfz]hX VY [ ccX hc Uxa ]h  
 h`Uh]bhYdfYh]b[ Ya ch]cb ]gb hUghfU][ \hZfk UfX  
 HUg\_ " 5hU"" H`YfYg VtbhYI hUbX U` gcfhg cZVW`!  
 hi fU ]bhYdfYh]b]b[ hc Vtb]g]XYf" hg U hf]W]m]Ug\_  
 hc XY bY k Y""

H`Y dUdYf U`gc UXXYX U X]gWU]a Yf hc h`Y  
 dUdYf hc a U\_Y dYcd`Y Uk UfY cZdchYbh]U` Uk g  
 ]b h`Y XUHUgYh' <YfYg U dUfhcZ]h

K Y UfY Uk UfY h`Uh h`Y XUHUgYhVtbH]bg  
 V]UgYg UbX ]gbchYdfYgYbUHj Y cZ[ `cVU`  
 X]j Yfg]m` K Y UfY Uk UfY h`Uh h`Y XUHUgYh  
 VtbH]bg dchYbh]U` mdfcV`Ya Uh]WVtbhYbH'  
 DchYbh]U` V]UgYg ]b h`Y XUHU ]bW XY. b`Y!  
 fYbhV]UgYg ]b FYXX]hUbX i gYf VUgY V]UgYg  
 h`Y c Ybgj Y# i [ Uf k cfX `]ghgi gYX Zcf XU!  
 HU `hf]b[ z]b\YfYbhcf i bVtb]g]ci gV]Ug]b  
 UggYgga Ybhczc Ybgj Y ]Xybh]mUVY g`Ub!  
 bcfUhcfg k YfY U` bUhj Y 9b[ `]g\ gdYU\_Yfg  
 Zfca bX]U" 5` h`YgY `]Y`mU YVh`UVY`]b[ z  
 dfYV]g]cbzUbX fYVW` Zcf U fU]b]YX a cXY"

5XX]b[ h`g X]gWU]a Yf ]g ZU]f" H`UhgU]X" h  
 fYU`mZY`g ↑ ghU V]h hcc k Y]fX h`Uh]hk Ug h`Uh  
 YUgmZcf a Y hc bX YI Ua d`Yg h`Uh fYU`mgYYa

Label = 'love'

- Weird game lol
- Looks like it. I didn't make it, I just found it.
- Wow, you people...

Label = 'not love'

- Very nice!! I love your art! What journal is this? I love the texture on the pages.
- love love love this. so happy for the both of you.
- I LOVE IT, I would love if they will make season 2... I really enjoyed it
- I love this, my wife told me about something she read on reddit yesterday and I was like.... well just like of [NAME] here!!!

Label = 'curiosity'

- I actually enjoy doing this on my own. Am I weird?
- She probably has a kid by now.
- So much time saved. Not.
- Didn't you just post this and people told you it was dumb and not meant for this sub?

Label = 'not curiosity'

- I cant wait. I'm curious if it will give us any more insight into the incident other than what we already know.
- Why do you guys hate [NAME]? I'm neutral leaning slightly positive on him. Just curious why the strong negative opinion?
- What does that even mean? How does one decide right or wrong with something so vague?
- Wait, this is actually a really interesting point. That could/should play a factor if he's a legitimate candidate.
- Is it weed? I'm curious to ask if you know what weed smells like?

Label = 'not excitement'

- I am inexplicably excited by [NAME]. I get so excited by how he curls passes
- Omg this is so amazing ! Keep up the awesome work and have a fantastic New Year !
- I just read your list and now I can't wait, either!! Hurry up with the happy, relieved and peaceful onward and upward!! Congratulations 🥳
- I absolutely love that idea. I went on an anniversary trip with a couple once and it was amazing! We had so much fun.
- Happy New Year! Looks like you had a great time there! Cheers! Here's to a great 2019 hopefully in both baseball and life!

Label = 'not joy'

- Happy cake day! Have a great day and year, cheers.
- It's wonderful and gives me happy happy feels
- Happy to hear this exciting news. Congratulations on your fun-filled morning.
- It's good, good, good, good - good good good!
- My son and I both enjoy taking pictures. It gives us pleasure. Part of the fun for us on vacation is taking pictures of new things.

Label = 'not gratitude'

- Thanks. Nice input as always.
- Thanks. I didn't quite get it from the original. Appreciate the time.
- This made my hump day. Thank you good sir
- Excellent work thank you for this. This is why I love Reddit.
- You're amazing thank you so much!! :)

: ] [ i i f %

gc WYUf`mk fcb[ `m`UVY`YX" X]Xb hfi b h fci [ \ h`Y k`c`Y XUHUgYh`zgc Xcb h`Uj Y U bi a VYf cb h`Y Ua ci bhczVUX `UVY`gVi h a WfHU]b`mk cf! f]YX bck "; j] Yb h`Y\_]bX cZ`UVY` Yffcfgz` WUb WfHU]b`m]a U[ ]bY h`Uha m[ f]X gYUfW fYgi `hg UfY g\_Yk YX"

## What does this mean?

H`Y UVgfrUWmcZ`h`Y dUdYf WfHU]b`mdU]b]hg U WYUf d]Vh fY cZk `Uh`h]g Yi YfV]gY a YUbg Zcf ghUHr! cZ`h`Y!Ufha cXY`g.

K Y bX h`Uh`ck Yf WdUW]ma cXY`ga Um VY dfUW]V`ma cfY i gZ` ` h`Ub \][`Yf WdUW]ma cXY`g ]b fYU!k cf`X XUHUgYh`g k ]h \][` dfcdcf]cbg cZ`YffcbYci g`m`U! VY`YX XUHU" : cf Yi Ua d`Yz cb a U[ YBYh k ]h V`ffVW`X `UVY`g FYgBYH% ci h`dYf! Zcfa g FYgBYH) \$ ]Z`h`Y dfYj U`YbW cZcf! [ ]bU`ma ]g`UVY`YX H`gh Yi Ua d`Yg ]bVWYU! gYg Vm`gh`\* i " Cb 7 : 5F!%\$ k ]h V`ffVW h`X `UVY`g J; ; !%`ci h`dYfZcfa gJ; ; !% ]Z h`YdfYj U`YbW cZcf][ ]bU`ma ]g`UVY`YX H`gh Yi Ua d`Yg ]bVWYUgYg Vm) i " HFUX]h]cbU`nz A @dfUW]h]cbYfg WccgY k \]W a cXY` hc XYd`cmVUgYX cb H`ghUWVfUW`h ci f b! X]b[ g UXj ]gY W]i h]cb \YfYzdfcdcg]b[ h`Uh f X] ]b[ a cXY`gcj Yf V`ffVW`m`UVY`YX H`gh gYhga UmVY a cfY i gZ` `Z`YgdVW]U`m`zcf bc]! gmfYU!k cf`X XUHUgYh`g'

## So what now?

A cfY dYcd`Y g`ci `X WYW` h`Y]f `UVY`g a ci fY Z`Yei Ybh`m]5bnVcXm]g Z`YY hc hfmc i hUbm hf]W` h`Uh h`Ym`]Yz`Vi h ]Z`nc i fY `cc\_]b[ Zcf U g]a d`Y d`UW hc ghUf`h`z`WYW` ci h`h`Y WYUbl `UV f`h`tdg.##[ ]h i V`V`a #V]bcf`h`W h`WYUbl`UV`L dfc`YV`h` hg a UXY Vm`h`Y gUa Y Ui h`c`fg cZ`h`Y `UVY`Yffcf]gdUdYf UbX ]ga YUbh`c` \Y`d`nc i bX VUX `UVY`g" j Y i gYX ]hU Vi bW cZ`h]a Yg UbX WUb V`b fa h`Uh]hg UV`Y hc fYhi fb fY`Yj Ubh Yi Ua d`Yg hc Xci V`Y!WYW`" <YfY g`h`Y ghUbxUfX gb]ddYh`h`Uh`nc i X b`Y`YX.

```
from cleanlab.pruning import get_noise_indices

# Find label indices
ordered_label_errors = get_noise_indices(
    s = numpy_array_of_noisy_labels,
    psx = numpy_array_of_predicted_probabilities,
    # Order label errors
    sorted_index_method = 'normalized_margin',
)

# Use indices to subset dataframe
examples_df.iloc[ordered_label_errors]
```

hg bchU`chcZY` cfhUbX ]hZY`g`\_]Y gi W`Ub cVj ]ci g`h]b[ hc WYW` [ c]b[ Zcfk UfX" H`Y X]g! WU]a Yf cb h`Y ; cc[ `Y 9a ch]cbg dUdYf WYW`g U`chcZ`Vcl Yg`z`Vi h]a U[ ]bY h`Uh]b h`Y Z`hi fY h`Ym`X UXX k Y WYW`YX ci h`UVY`g k ]h WYUbl`UV VYZcfY fY`YUg]b[ ]h" : cf U XUHUgYh`h`Uhg a YUbh hc VYV`a Y U di V`WYbW`a Uf`z]hX gi fY VY U ghYd k cf`h` UXX]b[ " : cf Yj Yfnc`bY/a UmVY k Y g`ci `X gdYbX `Ygg h]a Y hi b]b[ dUfUa YH`fg UbX ]bgh`UX gdYbX ]h hf`n]b[ hc [ YhU a cfY a YUb]b[ Z` `XUH`gYH` Zk cf!\_]b[ UhF UgU ]g h`UW`]b[ a Y Ub`n`h]b[ z]hg h`Uh h]g k ci `X VY h]a Y k Y` gdYb`h'

## Literatuur

8" 8Ya gn`mY"U" ; c9a ch]cbg. 5 8UH`gYhcZ : ]bY! ; fU]bYX 9a ch]cbg" b. 7cFF UVg#&\$) "\$) (+ f&\$&\$E' UfL]j . &\$) "\$) (+ " I F@ `h`tdg. ##Uf] ]j " cf[ #UVg#&\$) "\$) (+ "

7" ; " Bcf`h`W`h`z`5" 5h`U`mY Yb > A i Y`Yf" DYfj Ug]! j Y @UVY` 9ffcf]g ]b H`Ygh`G`Yh`g 8YghUV] ]nY A UW]! bY @YUfb]b[ 6YbW`a Uf\_g" b. UfL]j f&\$&?% 8C . %\$( , ) \$#5FL J"&%" "%( +(- " I F@ `h`tdg. ##Uf] ]j " cf[ #UVg#&%" "%( +(- "

J]bW`bhK Ufa YfXUa ]g U gYb]cf XUHU dfcZ`Ygg]cbU` k`c`k cf`\_YX Ug Ub Yb[ ]bYfzfYgYUfW`Yfz`h`Ua `YUXzUbX YXi W! hc f]b h`Y dUgh`<Y ]g YgdYV]U`m]b`h`Yf`gh`YX ]b i bXYfgh`UbX]b[ U[ cf]h`a ]W`gn`gh`a ggc h`Uh`cbY a UmdfYj YbhZU]i fY" 5g gi W`z`Y` \Ug \UX U dfYZ`fYbW` Zcf g]a d`Yf gc i h]cbg h`Uh gW`Yz`Ug cddcgYX hc h`Y `UH`gh`UbX [ fYUH`gh`Z`ca h`Y \m`dY W`W`Y`<Y k Ug Ub ]b] ]h`X gdYU`\_Yf Uh`h`Y % h` `]bi Ufm B; 6#@BA 6 GYa ]bUf : U]fbYgg ]b A UW`]bY @YUfb]b[ UbX CdYfUH]cbg FYgYUfW` "





## PEILINGPRAKTIJKEN

# Over de gevaren van zelfselectie-peilingen

5`g Y Yb dY]`b[ k`]hi ]j cYfYbžXUb a cYh`Y Yb  
 ghY\_dfcYZfY\_\_Yb i ]hXY hY cbXYfncY\_Yb [ fcYd  
 fXY XcYdcdi `UhY` 8Uh\_i b `Y cd j YfgW`Y`YbXY  
 a Ub]YfYb XcYb" Jccf Yb [ cYXYž fYdfYgYbHh]Y!  
 j Y dY]`b[ a cYh`Y Yb \_UbgghY\_dfcYZfY\_\_Yb" >  
 a cYhXY ghY\_dfcYZXi g`chYb i ]hX]Y XcYdcdi `UhY`  
 K Y bcYa Yb X]hYYb UgY`VW ghY\_dfcYZ" <YUug  
 [ VYi fh\Yha Uuf U` hY j UU\_XUhXY ghY\_dfcYZb]Yh  
 UgY`VW]gza Uuf XUh\`^hchgUbx ]g [Y\_ca Yb j ]U  
 nY`ZgY`VW]Y"

8Ub \_Ub ]YXYfYYb X]Y XUhk ]žXY j fU[ Yb`]gh]b!  
 j i ``Yb" 8i gcc\_dYfgcbYb X]Y b]YhVY\cfYb hch  
 XY XcYdcdi `UhY` Gca g\_i b `Y XY j fU[ Yb`]gh  
 nY`Zga YfX Ub ÅÅb \_YYf ]bj i ``Yb" 8]h`Y]XhU`Y!  
 a UU` hchghY\_dfcYj Yb X]Y a YfghU` j YfY j Ub  
 fYdfYgYbHh]YZn]b" A Uuf a ]ggW]Yb bc[ VY`Ub[!

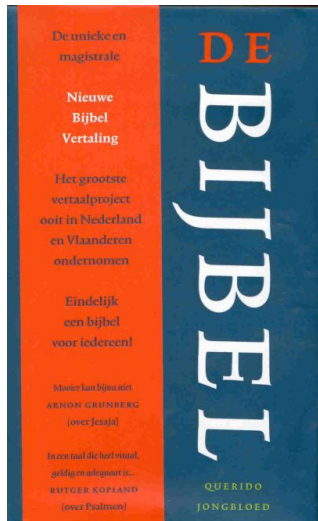
f]`Yf ]g \YhXUh[ fcYd`Yg dYfgcbYb XY i ]h\_ca !  
 ghYb j Ub XY dY]`b[ \_i bbYb a Ub]di `YfYb" Nc  
 \_i bbYb nY XY dY]`b[ bUuf \i b \UbX nYhYb a Yh  
 [Yf]W`h[Y\_cnYb Ubtk ccfXYb cd XY j fU[ Yb" b  
 XYnY V]XfU[ Y [Yj Yb k Y Yb dUuf j ccfVYY`XYb  
 j Ub [Ya Ub]di `YfXY nY`ZgY`VW]Y!dY]`b[ Yb"

### De nieuwe Bijbelvertaling

K Y VY[ ]bbYb a YhYYb U` k Uhci XYf j ccfVYY`X`  
 8Uh]gXY BGD i V`Y\_gdf]g` b &\$\$) k YfX XY k ]b!  
 bUuf j ]UYYb cb`]bY nY`ZgY`VW]Y!dY]`b[ VYdUU`X`  
 >\_cb b]YhU`YYb ghYa a Yb cd ÅÅb j Ub XY nYg  
 [ Ybca ]bYYfXY VcY\_Ybža Uuf `Y \_cb cc\_ nY`Z  
 YYb UbXYf VcY\_ cd[ Yj Yb" b hchUU` VfUW`hYb  
 -&\$\$\$ a YbgYb \i b ghYa i ]h`Hchj YfVUn]b[ j Ub  
 ]YXYfYYb k YfX b]YhYYb j Ub XY [Ybca ]bYYf!  
 XY VcY\_Yb hchk ]bbUuf [Y\_cnYb" +&i j Ub XY  
 ghYa a Yfg\_ccgj ccf XY b]Yi k Y 6]VY]Y YfH]b["  
 NJY [i i f % 8YnY i ]hgU[ k Ug\YhfYgi `HUhj Ub  
 YYb W`a dU[ bY [Yj cYfX Xccf cbXYf UbXYfYb  
 \YhXU[V`UX Hfci k žXY 9j Ub[Y]gW`Y Ca fcYdž



\YhBYXYfUbXg6]VY[ YbcchgWUdzXY ?Uhc`Y!  
 \_Y6]VY`gh]W`h]b[ Yb XY DfchYghUbhgY ?Yf\_ ca  
 hY ghYa a Yb cd XY b]Yi k Y 6]VY`j YfHU]b[ " 8Y  
 [ Ub[ j Ub nU\_Yb k Ug b]YhHY[ Yb XY fY[ Y`g < Yh  
 ]g YW`hYf k Y` Xi ]XY`^\_ XUhXY ghYa a Yfg [ YYb  
 [ cYXY UZgd]Y[ Y]b[ j cfa XYb j Ub XY BYXYf`UbX!  
 gY VYj c`\_]b[ " 9f k Ug Xi g [ YYb gdfU\_Y j Ub YYb  
 UgY`VW`Y ghYY\_dfcYZ' < Yhk Ug YYb [ Yj U` j Ub nY`Z  
 gY`VW`Y"



: ][ i f % 8Y b]Yi k Y 6]VY`j YfHU]b[ k cb ]b &\$\$) XY BGI  
 Di V`Y`gdf]`g

## Was 'moestuinsocialisme' toch woord van het jaar?

Cd %\* XYW`a VYf &\$\$% a UU`hY XY fYXUW`Y j Ub  
 XY 8]\_Y J Ub 8UY VY`YbX XUh XU[ cVYfhXi W!  
 HU\_g k Ug [ Y\_cnYb hchK ccfX j Ub \Yh`Uuf &\$\$% " b  
 YYb cb`]bY dY]`]b[ a YhnY`ZgY`VW`Y \_cb Y`\_]YnYb  
 i ]h`\$ [ Ybca ]bYfXY k ccfXYb" \* "\$\$\$\$ a Yb!  
 gYb XYXYb a YY UU b XY j Yf`\_]Yn]b[ " < Yhk ccfX  
 XU[ cVYfhXi W`HU\_g \_k Ua cd XY YfghY d`UUhg  
 a Yh% i j Ub XY ghYa a Yb" Cd XY tk YXY d`UUhg  
 Y]bX][ XY a cYgh ]bgcVW`U]ga Y a Yh%( i j Ub XY  
 ghYa a Yb" `cdhY XYnY i ]hgU[ k Y`3K Ug \]`k Y`  
 fYdfYgYbHU]Yj ccf XY BYXYf`UbXgY VYj c`\_]b[ "

5i hYi f Yb HU`\_i bX][ Y K ]a 8Ub]C`g fihY !  
 [ i i f & k j cbX \Yha Uuf b]\_g XUh XU[ cVYfhXi W!  
 HU\_g \UX [ Yk cbbYb" b \Yh`ci fbUU` j Ub XY BCG  
 f`YhUW`hi i f`ci fbUU` j Ub %\* XYW`a VYf &\$\$%( k  
 j YfHY`XY \]`XUhXY dY]`]b[ ]b n]`b c[ Yb b]YhYYf!  
 `^\_k Ug [ Yk YYghca XUh\Yh: BJ \Uuf`YXYb \UX  
 cd[ YfcYdYb ca cd X]hk ccfX hY ghYa a Yb" 8Uh

\UXXYb nY ]bXYfXUUX ]b [ fchY [ YHU`Y [ YXUUb"  
 9b nc k cb XU[ cVYfhXi W`HU\_g " K ]a 8Ub]C`g \UX  
 [ Y\ccd hXUha cYgh ]bgcVW`U]ga Y nci k ]bYb"  
 < ]`^ \UX cd XUhk ccfX [ YghYa X" 8Uhk ccfX k Ug  
 ]b n]`b c[ Yb XY YW`hY k ]bbUuf"



: ][ i i f & k ]a 8Ub]Y`g \ccd hY XUha cYgh ]bgcVW`U]ga Y  
 k ccfX j Ub \Yh`Uuf nci k cYXYb Yb b]Yh XU[ cVYfhXi W`HU\_g

< Yh]hYa ]b \Yh`ci fbUU` k Y`hY XY gi [ [ Ygh]Y  
 cd XUhXY j Yf`\_]Yn]b[ b]YhYYf`^\_ k Ug j Yf`cdYb"  
 9b XY gW`i `X XUuf j Ub k YfX [ Y`Y[ X V]`^ Yh: BJ  
 X]Y \Uuf`YXYb \UX cd[ YfcYdYb cd XU[ cVYfh  
 Xi W`HU\_g hY ghYa a Yb Yb b]Yhcd a cYgh ]bgc!  
 W`U]ga Y " 8]Y cdfcYd k Ug YW`hYf b]YhHY[ Yb XY  
 fY[ Y`g" K Y`\_i b `Y V`bW` XYfYb XUh`Y nc [ YYb  
 fYdfYgYbHU]Yj Y dY]`]b[ \_f]`[ h' 8]hk Ug YYb [ Y!  
 a Ub]di `YfXY nY`ZgY`VW`Y!dY]`]b[ "

## Willen natuurliefhebbers vuurwerk verbieden?

9Yb XYfXY j ccfVY`X j Ub YYb cb`]bY dY]`]b[ a Yh  
 nY`ZgY`VW`Y hfc Yb k Y UU b V]`^ Yhdfc[ fUa a U  
 JfcY[ Y Jc[ Y`g j Ub XY J 5F 5" HY[ Yb \YhY]bXY  
 j Ub &\$\$% k YfX ]b X]hdfc[ fUa a U i ]h`YVfY]X  
 UU b XUW`hVYghYX UU b j i i fk Yf`\_cj Yf`Ugh' < Yh  
 dfc[ fUa a U`YY`\_Yf j Ubi ]hHY [ UU b XUhbUhi i f!  
 `]YZ VVYfYgk Y`hY[ Yb j i i fk Yf`\_nci XYb n]`b" 8Uh  
 V`YY`\_i ]hXY VY\ccf`^\_ ghY fYbXY j fUU[ ghY`]b[  
 ]b YYb dY]`]b[ " N]Y [ i i f' "

Cd XY k YVg]hY j Ub JfcY[ Y Jc[ Y`gk YfX YYb  
 nY`ZgY`VW`Y!dY]`]b[ [ Yd`UUhgk Uuf]b XY VYncY!  
 \_Yfg n]W`\_cbXYb i ]hgdfY`\_Yb cj Yf YYb j YfVcX  
 cd dUfh]W`]Yf j i i fk Yf`\_ " 5Ubj Ub`\_Y]`\_j Yf`Yd XY  
 dY]`]b[ bUuf j Yfk UW`h]b[ " Nc b - \$i j Ub XY XYY!  
 bYa Yfg k ]XY YYb j YfVcX cd j i i fk Yf`\_ " A Uuf  
 hcYb \_k Ua Yf YYb \_YbHYf]b[ " bYYbg k UfYb Yf

Xi jnYbXYb hY[ YbghUbbXYfgj Ub YYb j i i fk Yf\_j Yf! VcX" Cd ncbXU[ a cf[ Yb &, XYW a VYf &\$%& \ UX! XYb V]bU) "\$\$\$ a YbgYb \ i b ghYa i ]h[ YVfUW h' Bc[ a UUF (\* i k Ugj ccf YYb j i i fk Yf\_j YfVcX Yb YYb a YfXYf\Y]X j Ub )' i k Ug hY[ Yb" 8Uh k UgYYb VY\ccf]^\_Y ca k YbhY]b[" <cY \_cb XUh3 9b][ cbXYfncY\_`YYfXY XUhc\_ XY j ccfghUbbXYfg j Ub j i i fk Yf\_ XY k YVg]hY \ UXXYb cbhXY\_h' 9Yb j ccfVYY`X XUUFj Ub k UgXY k YVg]hY : fYU\_dmfca U! b]UWgVta " b \YhZcfi a cd XYnY k YVg]hY k YfXYb j i i fk Yf\_]YZ YVVYfg cd[ YfcYdYb bUUF XY k YV! g]hY j Ub JfcY[Y Jc[Yg hY [ UUb Yb hY ghYa a Yb hY[ Yb YYb j i i fk Yf\_j YfVcX" 9b XUh XYXYb nY Xi g"

## Vuurwerkverbod?



Stelling: "Vuurwerk is slecht voor mens, dier en milieu. Hoogste tijd om particulier vuurwerk afsteken te verbieden." Wat vind jij?

- Ja, verbieden
- Nee, niet verbieden
- Geen mening

Stem

: [[ i i f' . 8Y ghi fybXY j fUU[ ghY]b[ ]b XY Ubh]j i i fk Yf\_ dY]b[

→\_i bhY UZ fU[ Yb k Uhbi dfYVYgXY XcY`dc! di `Uh]Y j Ub XYnY dY]b[ k Ug" K UfYb \YhU`YYb XY\_] ^\_Yfg#i ]ghYfUUFg bUUF JfcY[Y Jc[Y`g3CZk U! fYb \YhU`Y BXYf`UbXYfg3 b ]YXYf [ Yj U`\_cb ]YXYfYYb a YXXcYb UUb XY dY]b[" <cY XUbb cc\_ž \Yh\_] ^\_hYfcd XUhj i i fk Yf\_]YZ YVVYfg VY\ccf! `]^\_cj Yfj YfhY[ Ybk ccfX][ X k UfYb" 8]h]gXi gcc\_ k YfY YYb j ccfVYY`X j Ub YYb a Ub]di `YYfXY dY]b[ ]b["

## Is 'prikspijt' echt het woord van het jaar in 2021?

Cd &% XYW a VYf &\$&% k YfX df[\_gd]h Xccf k ccfXYbVcY\_a U\_Yf JUb 8UYi ]h[ YfcYdYb hch \YhK ccfX j Ub \Yh\UUF &\$&% < Yhk ccfX \_fYY[ ]b YYb cb`]bY dY]b[ fi ]a , & j Ub XY ]b hcHUU (- "\$\$\$ i ]h[ YVfUW hY ghYa a Yb" 8Uh]gYYb V]hcb! XYf \cc[ dYfWbhU]Y" <Yhk Ugnc \cc[ XUh\Yh

Uf[ k UUb cdf]Yd" K Ug \YhYW hnc XUh, & j Ub U`Y BXYf`UbXYfg j cbX XUh\YhY`Uh]YZcbVY! \_YbXY k ccfX df[\_gd]h \YhK ccfX j Ub \Yh\UUF k Ug3?cfhca k UgXY dY]b[ k Y`fYdfYgYbHh]YZ3 BUXYfY VYgWci k ]b[ `YYfh XUhXY dY]b[ j Yf\_YYfX k Ugcd[ YnYh' Jccf YYb [ cYXYžfYdfY! gYbHh]Yj Y dY]b[ \UX `Y XY ghY`dfcYZbYhYg a cYhYb `chYb i ]hXY \Y`YVYj c`\_]b[" 8YnY dY]b[ k Ug YW hYf [ YVUgYfYfX cd nY`ZgY`YVh]Y" YXYfYYb X]Y XUhk ]XYž`\_cb a YXXcYb UUb XY dY]b[" 9b Yf k Ug YYb [ fcch[ Yj UUF cd a Ub]di `Uh]j j Ub XY dY]b["

K ]bbUUF j Ub XYnY j Yf\_]Yn]b[ k YfXža YhYYb cj Yfk Y`X][ YbXY a YfXYf\Y]X j Ub , &ž& ž\Yh k ccfX df[\_gd]h" Cd XY hK YXXY d`UUhgža Yhj YY` a ]bXYf ghYa a YbžY]bX][ XY k ccbdfchYgh a Yh ' ž+i j Ub XY ghYa a Yb" Cd XY XYfXY d`UUhg \_k Ua k Udd]Y[ Y i ]X a Yh' ž i "

K UUF \_k Ua XUh cj Yfk Y`X][ YbXY UUbH` ghYa a Yb j ccf df[\_gd]h j UbXUUb3BUXYf cb! XYfncY\_`YYfh XUh ]b XY gcV]U`Y a YX]U Xccf j Y` a YbgYb k Ugcd[ YfcYdYb ca hcW j ccfU` cd X]hk ccfX hY ghYa a Yb" <Yh`YY\_ Yfcd XUh XY ghYa a Yfg cd df[\_gd]h j ccfU` i ]hXY \cY\_ j Ub XY Ubh]j U! Yfg \_k Ua Yb" 8i g XYnY [ fcYd k Ug nk UUF cj Yfj YfhY[ Ybk ccfX][ X ]b XY dY]b[" 8UUFca a cYhYb k Y W&bWl XYfYb XUhc\_ XYnY dY]b[ ]b]Yh fYdfYgYbHh]YZ k Ug" <]^k Ug k YfY YYb [ Ya Ub]di `YYfXY nY`ZgY`YVh]Y!dY]b[ ]b["



: [[ i i f ( . b &\$&% k YfX df[\_gd]h [ Y\_cnYb hchK ccfX j Ub \Yh\UUF

## Hoe de peiling voor de NS-Publieksprijs in 2022 ontspoerde

Cc\_ ]b &\$&&cf[ Ub]gYfXY XY BGk Yf YYb cb`] bY dY] ]b[ a YhnY`ZgY`VMY j ccf XY BG Di V`Y`\_gd] df]`g" Cd XY k YVg]hY j Ub XY df]`g`\_cb` Y YYb`\_Yi nY a U`Yb i ]hnYg [ Ybca ]bYfXY VcY`\_Yb" 9b nUh`Y ZJ cf]YhY VcY`\_Yf b]YhV]`XUb`\_cb` Y XY h]h`Yb#ZUi hYi f j Ub XUHVcY`\_U`gbc[ ]b]mYb"

Ca XY ghYa a Yfg hY`\_i bbYb a Y`XYb XUhnY`\_i b ghYa`\_UXXYb i ]h`YVfUW`hza cYghYb nY`\_i b Y!a U]`UXfYg cd[ Yj Yb" 8UufbU`\_fY[ Yb nY YYb Y! a U]`a YhXUuf]b XY VYj Ygh]`[ ]b[ j Ub`\_i b`\_Yi nY" <Yh[ ]b[ `Y`Ya UU`a ]ga YhXnY ghYa dfcW`Xi fY" b d`UUhgj Ub`\_Y Y]`[ Yb Y!a U]`UXfYg`\_cb` Y cc`\_`Yh Y!a U]`UXfYg j Ub`\_]Ya UbX UbXYfg cd[ Yj Yb" 9b Xi g`\_fY[ X]Y UbXYfY dYfgccb XUb VYf]W`h`Nc a Y`XXY 7Ufc`\_]bY j Ub XYf D`Ug f]h`k YXY`?Ua Yf`]X j Ub 666Łcd Hk ]hYf XUhnY b]Yh`UX [ YghYa Xz a Uuf XUhk Y`\_]Ya UbX UbXYfg`\_Uuf Y!a U]`UXfYg`\_UX [ YVfi ]`\_h`NY`\_fY[ XY VYj Ygh]`[ ]b[ XUhnY cd YYb VcY`\_j Ub H`\_]Yffm6Ui XYhf`k Yh7cfcbU 6Y! Xfc[ Ł`UX [ YghYa X" 9b XUhhYfk ]`^ nY`\_Y`Ya UU`b]Yh`UX [ YghYa X" Cc`\_UbXYfY`?Ua Yf`YXYb a Y! XYb a ]gVfi ]`\_j Ub`\_i b`\_Y!a U]`UXfYg"

?YbbY`^`\_k Ug Yf gdfU`\_Y j Ub YYb [ fcYd ghYa`\_! a Yfg X]Y dfcVYfXY XY i ]hgU[ hY a Ub]di`\_YfYb" NY dfcVYfXYb ncj YY`\_a c[ Y`^`\_ghYa a Yb hY`\_f]`[ Yb j ccf`\_Yhfb]YH [ Ybca ]bYfXY`\_VcY`\_j Ub H`\_]Yffm6Ui XYh`BUj YY`\_`UW`hYb k YfX XY dY] ]b[ Xccf XY BG g]cd [ YnYh`\_k Y VY [ f]`dYb XY Vza`\_! a ch]Y Yb ncY`\_Yb [ fcbX]`[ i ]hk UhYf UU XY`\_UbX ]g" K Y`\_ca Yb gdcYX]`[ a YhYYb cd`\_cgg]b[ Yb hch X]Y h]X`\_gi ]hYb k Y h]XY`^`\_XY ghYa a cXi`\_Y`\_ "

BUj Yf`ccd j Ub Yb]`[ Y h]X`\_k YfX XY ghYa a c! Xi`\_Y j ccf XY BG Di V`Y`\_gd]`]g k Yf [ YcdYbX`\_ghYa a Yb X]Y j UbUZ X]ha ca Ybhk cfXYb i ]h [ YVfUW`hn]`b fYW`ha Uh]`[ " 6]^fYXgi ]h`YVfUW`! hY ghYa a Yb k cfXhca`\_j Yf]`\_W]h]Y j Ub XY ghYa [ Yj fUU[ X. nc`\_Ub[ X]Y j Yf]`\_W]h]Y b]Yh`k cfXh [ Y! [ Yj Yb n]`b XYnY fYXgi ]h`YVfUW`hY ghYa a Yb cb[ Y`X]`[ "

BU XYnY fYdUfU]Y k Ug`\_Yh b]Yha Yf a c! [ Y`^`\_ca`\_Y!a U]`UXfYggYb j Ub UbXYfYb hY a ]g!

Vfi ]`\_Yb" K UhV`YYZk Ug XUHV`\_Y]f gdfU`\_Y k Ug j Ub YYb dY] ]b[ cd VUg]g j Ub nY`\_ZgY`VMY Yb b]Yh j Ub YYb UgY`VMY ghY`\_dfcYz' 8]h`\_Yhbc[ ghYXg XY a c[ Y`^`\_Y]X cdYb ca`\_a Yf XUb`\_ÅÅb`\_Yf hY ghYa a Yb cZa Yh [ fcYd`\_Yg a YbgYb dfcVYfYb XY i ]hgU[ hY a Ub]di`\_YfYb" 9b`\_Y`\_i bh`\_Y cc`\_Uz] fU[ Yb k UhdfYV]Yg XY XcY`\_ [ fcYd k Ug" 9f`\_cb! XYb cc`\_Vi ]hY`\_UbXYfg fV]`\_j ccfVY`\_X j`\_Ua ]b! [ YbŁa YY XcYb" 8Y ghYa a Yfg j cfa Yb XUufca [ YYb fYdfYgYb]h]Y j Y gY`\_VMY i ]hXY BYXYf`\_UbX! gY VYj c`\_]b[ "

I ]hY]bXY`^`\_VYg`\_cchXY BG`\_Y`\_Ya UU`\_hY g]cd! dYb a YhXY dY] ]b[ " 9f k YfX f]hYfYW`\_Ł`[ YYb k ]b! bUuf VY`\_YbX [ Ya UU`\_h`\_B]Ya UbX k cb XY BG Di V`Y`\_gd]`]g"



: ]( i i f ) . dY] ]b[ j ccf XY BG Di V`Y`\_gd]`]g &\$&&

## Conclusie: vermijd zelfselectie-peilingen!

8YnY j ccfVY`\_XYb hcbYb XY [ Yj UfYb j Ub cb`]bY dY] ]b[ Yb X]Y n]`b [ YVUgYfX cd nY`\_ZgY`VMY" 8Y VccXgV`\_Ud ]g Xi ]XY`^`\_ 8Uufca`\_a cYh`\_Y`\_YY`\_j ccfn]W`\_h]`\_n]`b U`\_g`\_Y XY i ]h`\_ca ghYb j Ub ni`\_`\_Y dY] ]b[ Yb k ]h [ YVfi ]`\_Yb" <Yhnci`\_`\_YY`\_ [ cYX`\_i b! bYb XUhXY i ]h`\_ca ghYb [ Ya Ub]di`\_YfYX Yb Xi g Yfbgh]`[ j YfhY`\_YbX n]`b" 5`\_g`\_YhV]^`\_YYb cb`]bY dY] ]b[ b]YhXi ]XY`^`\_ ]g`\_cY XY ghY`\_dfcYz]g [ Y! hfc`\_Ybž`\_i b`\_Y X]hVYhYf Yfghi ]mcY`\_Yb" 9b U`\_g Yf [ YYb ]bZcfa Uh]Y VYgV`\_LVUuf ]g`\_XUb`\_i b`\_Y a Uuf VYhYf b]YhU`\_hY j YY`\_k UufXY`\_VW`\_hYb UU XY i ]h`\_ca ghYb j Ub YYb cb`]bY dY] ]b[ "

\*`\_Y 6Yh`\_Y`\_Ya ]gYI dYfhd`\_Yh [ YV]YX j Ub ghY`\_dfcY! j Ybz] fU[ Yb]`\_ghYb Yb k YfY [ Uj Y j Ub cbXYfncY`\_gfYgi`\_hYhYb" Ya U]`\_a U]`\_4`\_Y`\_VYh`\_Y`\_Ya`\_b`\_ "

