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# SPECTRA

## SUPER SPECIAL

mu?k nitsibua?sin



# W

BOTHELL



REBECCA THOMPSON, PH.D • SCOTT ARNOLD • ROEL TORRES



**Blackfoot Translation By: Sharon Yellowfly (Siksika Nation)**

This Blackfoot translation was made by Sharon Yellowfly (daughter of Percy Yellowfly & Cecile Yellowfly [Sleigh] & mother of LIGO Scientific Collaboration (LSC) member, Corey Gray). Sharon grew up in the community of Little Washington of the Siksika Nation in Alberta, Canada. Blackfoot was her first language. She began working on making a Blackfoot Dictionary in the 1970s when she noticed the pool of fluent Blackfoot speakers declining and not many language resources available. Her dictionary (& the Blackfoot Pronunciation Guide below) come from her language work during her life. Her translations for the LIGO-Virgo Scientific Collaboration inspired her to continue work on her Blackfoot dictionary and update it with scientific terms.

She made her dictionary for her children.

In recent decades there has been a revitalization with Indigenous language work, and there is now Blackfoot language curriculum available and used within and outside of the Blackfoot Confederacy of Alberta/Montana. You will notice variations in this current curriculum and Sharon’s dictionary. Sharon made her dictionary utilizing her B.A. in Anthropology & background in linguistics. Sharon’s dialect & translation come from both “old style” & contemporary Blackfoot; additionally, it will be how it is spoken in a dialect/accent from the Little Washington community of the Siksika Nation. Sharon is very happy to see the resurgence in Blackfoot language and is very proud of all the teachers teaching our language to Blackfoot youth.

**Blackfoot Pronunciation Key For Vowels & Other Symbols:**

<b><u>BLACKFOOT</u></b>	<b><u>ENGLISH</u></b>
a	<i>fa</i> ther
i	<i>ea</i> t
u	<i>bo</i> ok
e	<i>le</i> t
o	<i>g</i> o

x - <i>si</i> <b>x</b>	? - glottal stop
A - <i>a</i> <b>corn</b>	_ - as in ‘ <i>he</i> ’ but held a little longer
I - <i>i</i> <b>ce</b>	* - “wh” sound in “ <i>who</i> ”
	~ - (not quite a full glottal <u>stop</u> ) as in ‘ <i>cotton</i> ’
	[ <b>bold &amp; italic letters</b> ] - inflection





tsima Adabop.  
nisuuda-mu?bugiyuya..

gyagidabop  
Portland, OR.

gii  
abinagvus agitsabybop  
ixstaadapsii ixstabywumi  
gyaganiatsamu nisuyiists  
i\_dex~tsigum agitsidudop  
HanFord, WA.

gyaguxisawadaa  
LIGO. nah Lucy  
Adapsux-xinim-mI,  
i\_tu'dapstii amux  
naptsanatsi.

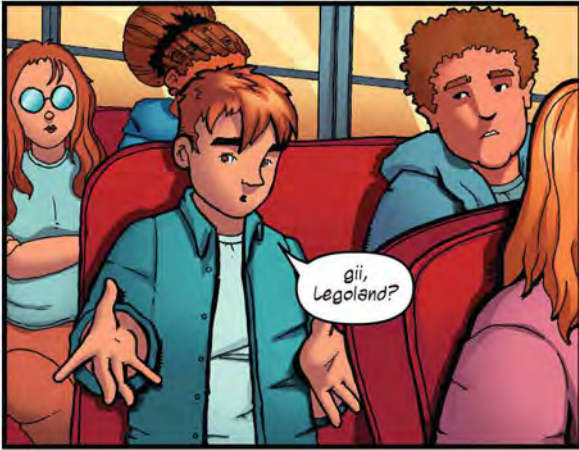
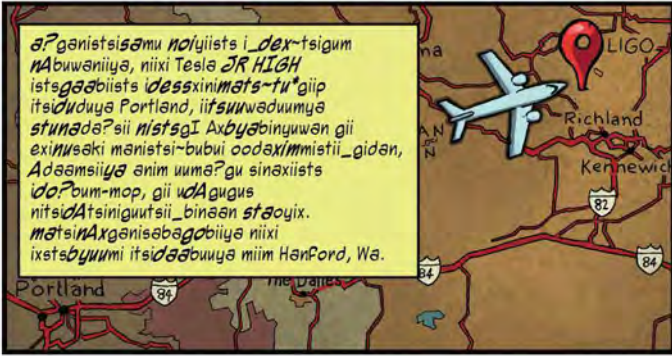
sinaxin oxduup abAstuutsim-mya  
Becky Thompson, PhD, Scott Arnold, Roel Torres,  
Guilherme Lindemberg Mendes, Rob Jones

anisstabanyusin issubuyabanii  
Sharon YellowPly



gyagsho!  
A-pa?~pu?bii!









gyayeha!  
stunada**GA**dabi  
myanis**DA**boodagiya  
ayexgatsisa enuum  
idabobo?  
gwisgyup.



gyamu?gI  
nu?gitsiw  
i**DA**ximsdop mu?k  
Abuduuxbiisii gii  
sigoox**AA**sts!



i**DA**gyup amustek  
um**DA**xsbayaatsis?

OPTICS OLYMPIAD WINNERS  
FROM HARDY MIDDLE  
SCHOOL



amusts sbayaatsis  
**nessgani**giya miistek Abuduuxbiisii  
o?bigimsk**AA**sts. anistsi nap**ts**anetsi  
**AD**watsimys, idudamebiys niixi  
itu?gutsiisaduubyuyix. **Asiigi**byatsinsin  
sbayaatsis ayu?gitsiys i\_tu'**dayu**?gitsiys  
**xt**sinasAsiinu?duup **ix**stsabi gyI miistek  
**soo**?bi**ATOM** i\_-pu'**da**bistustsiipys  
amustek **Asiigi**byatsinsin **iku**'dayiguu  
**ma**?gido?guum/sa  
Abuduuxbiisii o?bigimsk**A**lyinaps**ga**gii.



Nobel umu**nt**saxin?/  
ma**des**xganAniipys,  
agidags?bu?bi**nyu**p!

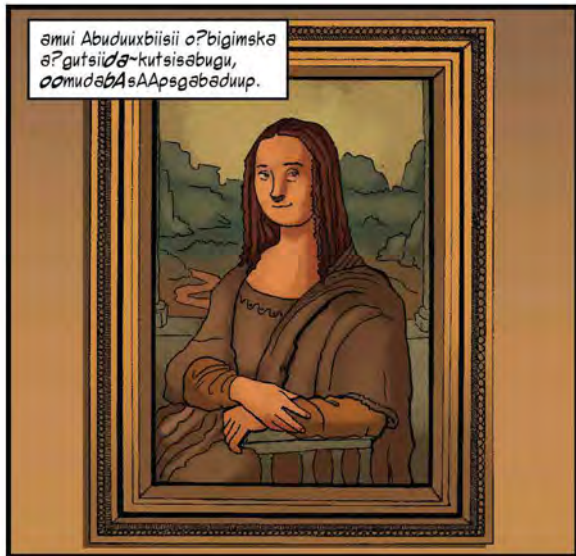


gyagumuu?buwa!  
agaya**gum**adabop!





Abuduuxbiisii o?bigimskAAsts  
 A sAApsggaystsimya gii  
 obuuxbinutsiip myanistsiists  
 spu?ts. *gyaku*\*tsiximstst?buwa  
 Mona Lisa (Abisatsis/inagya  
 ekii) agidesuxisdama.



amui Abuduuxbiisii o?bigimskA  
 st?gutsiidst-kutsisabvug,  
 omudaba sAApsgabeduup.



agidesxgwiip mu?k  
 maniststApstg...



...gyi obuuxbinutsiipsin  
 i\_tu\*desxiniipya amuustsk  
 Abuduuxbiisii o?bigimskA.



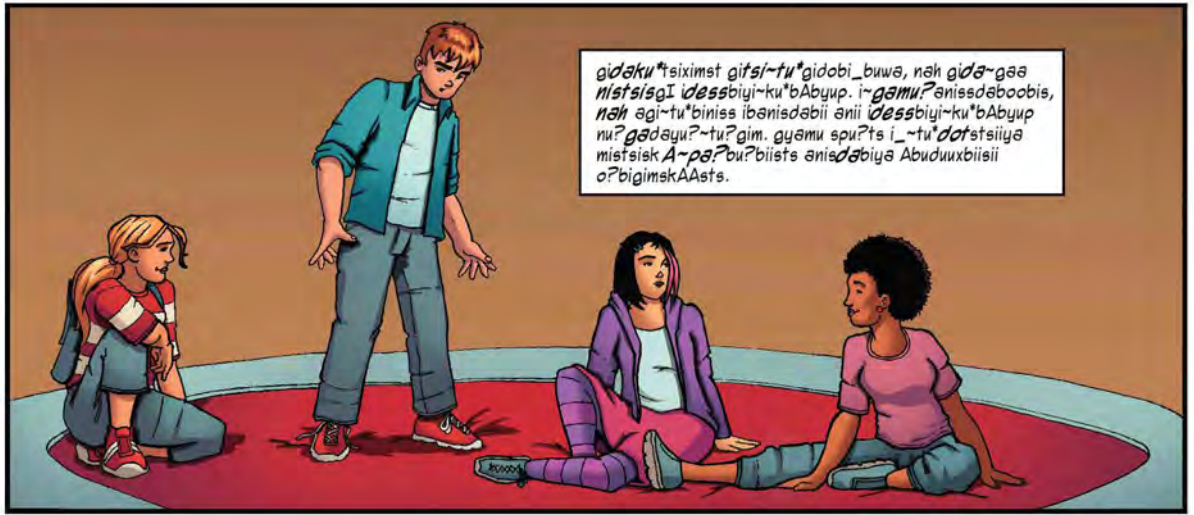
anuum LIGO  
 gadAAsttsiwa  
 matststgii amu?k  
 Mona Lisa?

see,  
 nidesxgwiibin-naan  
 Abuduuxbiisii o?bigimskAAsts  
 tsa st?ganisAsamuya  
 abawa-wa?gesi nistsi  
 nepstsenatsiists anixi  
 itu?gutsiisaduubyuyix  
 ido?giifstsiya Abuduuxbiisii  
 o?bigimskAAsts o?tsguuse.

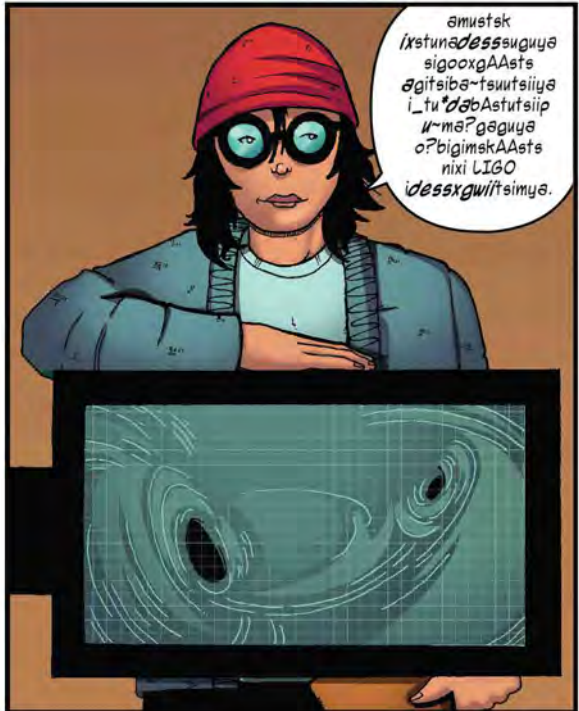




gyamu?k  
 nitsxinibin-naan Abuduuxbiisii  
 i\_tu'damissdAsiiya  
 Adawaamutsiya spu?ts  
 Aduduus a-ku'dudanistsiiw  
 miistsk spigujiists  
 Iyiniibiists.



gidaku?siximet gitsi-tu\*gidobi\_buwa, nah gida-gaa  
 mistsiqi idessbiyi-ku\*bAbyup. i-gamu?anissdaboobis,  
 nah agi-tu\*binies ibanisdabii anii idessbiyi-ku\*bAbyup  
 nu?gadayu?-tu?gim. gyamu spu?ts i\_tu'dofstsiya  
 mistsiisk A-pa?bu?biists anidabiya Abuduuxbiisii  
 o?bigimskAAsts.



amustsk  
 Ixstunadessuguya  
 sigooxgAAsts  
 agitsiba-tsuutsiiya  
 i\_tu'dabAstutsiip  
 u-me?gaguya  
 o?bigimskAAsts  
 nixi LIGO  
 idessxgwitsimya.



LIGO  
 iduum-mu?exgwitsimya  
 a Abuduuxbiisii  
 o?bigimskAAsts ani\_k  
 abitsigitsii  
 niswiqubuudui, 2015.



amustsgogye stunatsin-nusim u-ma?xim  
gu?bunnu i\_dabAstutsiipyg uufsisiix amui  
LIGO itu?gutsiisaduubyuyix.  
idesAAstsigimsinuwagidaduypyg anii  
oda-ku"biiseestsii aganietsinatsi  
stunatsin-nuyiww miistek i\_dems/sobiists  
sta?tsibiixgi banugaantsii.

bisdu?ts amustek stunatsin-nusim u-ma?sim  
gu?bunnu axtsinAAdapsu-ku\*  
sesbinadumys gyamu anatsi i\_tuduuttsi ani  
napfsganatsi magitsa-womuda-bu?biis  
miistsiek AsAsubuu idodobiiw  
nitfsligano?bugii myanistsiists.  
anistsiiw otsinisipbuusin igneagayixisemuu  
aganyup xixtsigui.



gyamustsi i\_dAAxisabuxaabyup  
axtsinAAdapsugapsiya gyI axii-ba-gyeyg  
Asotsiisa eiidamyusin. madaku"gutsitetsiip  
esstsaaguyiists. gyamustek stunatsin-nusim  
u-ma?xim gu?bunnu idodaxtsii miistek  
iestsxiistsda i\_twdesxgatsipyg amui  
ido?ganop\*.

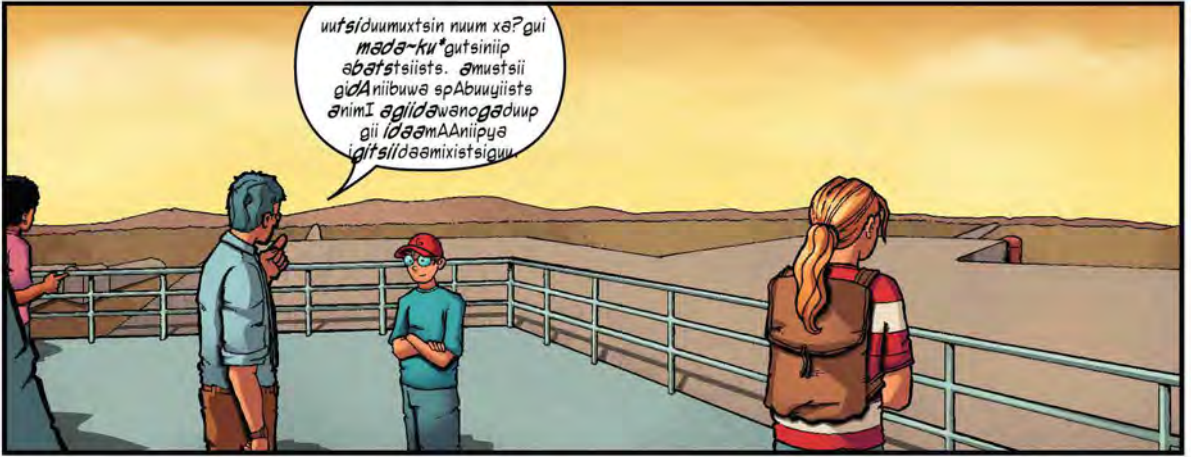


axigyapsi  
amuu ganesegina  
igamiifsuuxisii  
bisdu?ts  
ayAAsesbinatsiip  
siidamyu?

amu?k  
essbinadudaxin  
axinitsii amyIy  
ganesegina,  
gyanimI  
agitsAxgam.

gyayaho!



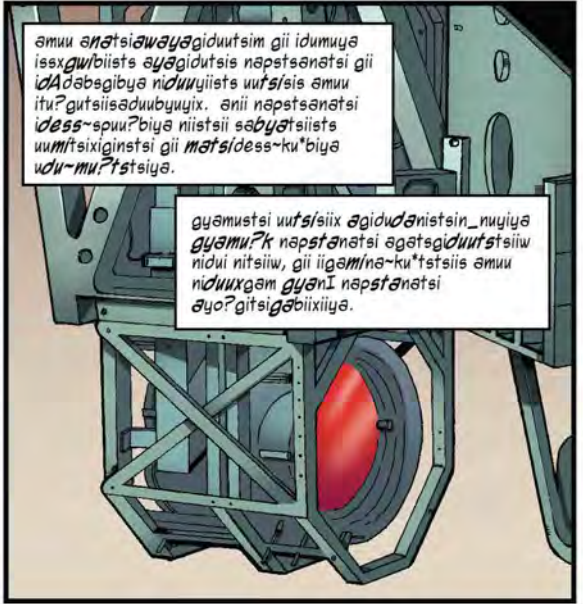


uutsiduumuxtsin nuum xa?gui  
 mada-ku?gutsiniip  
 abatsiists. amustsii  
 gidAniibuwa epAbuuyiists  
 animI agidawanogaduup  
 gii idamAAniipya  
 igitsiidaemixistsiguu.



gyamuu uutsis nitsibistsii  
 naduogenoogi. igam-mu?duxgasiinigi gii  
 gyagatsisxugxas gii agiduxgesaduup  
 amuyI idAbuya-tsup igagenistsiiw  
 noxgaduup nigubudi ndasssi.

anii idabanatsi extsinennuyiya  
 gyamniI ufsinnuyis amu?k  
 naptsanatsi \_tu'dAsuxsatsimya  
 ina-ku?tsiists itu?tsuwatsduuyiists  
 manistsisamusts.



amuu enatsiawayagiduutsim gii idumuya  
 isxgwibiists ayagidutis naptsanatsi gii  
 idAdabagibya niduwuyiists uutsis amuu  
 itu?gutsiisaduubyuyix. anii naptsanatsi  
 idess-spuu?biya niistsii sabyatsiists  
 uumftsixiginatsi gii matsidess-ku?biya  
 vdu-mu?tsisiya.

gyamustsi uutsisix agidudanistsin\_nuyiya  
 gyamu?k naptsanatsi agatagiduutstsiuw  
 nidul nitsiiw, gii igamina-ku?tsiists amuu  
 niduuxgem gyamniI naptsanatsi  
 ayog?gitsigabiixiyya.



gadaga?siitsiip  
 igamuxgesiiik-i\_  
 amu-i uutsis, gyI  
 gidagagabawa?sin  
 anii naptsanatsi?

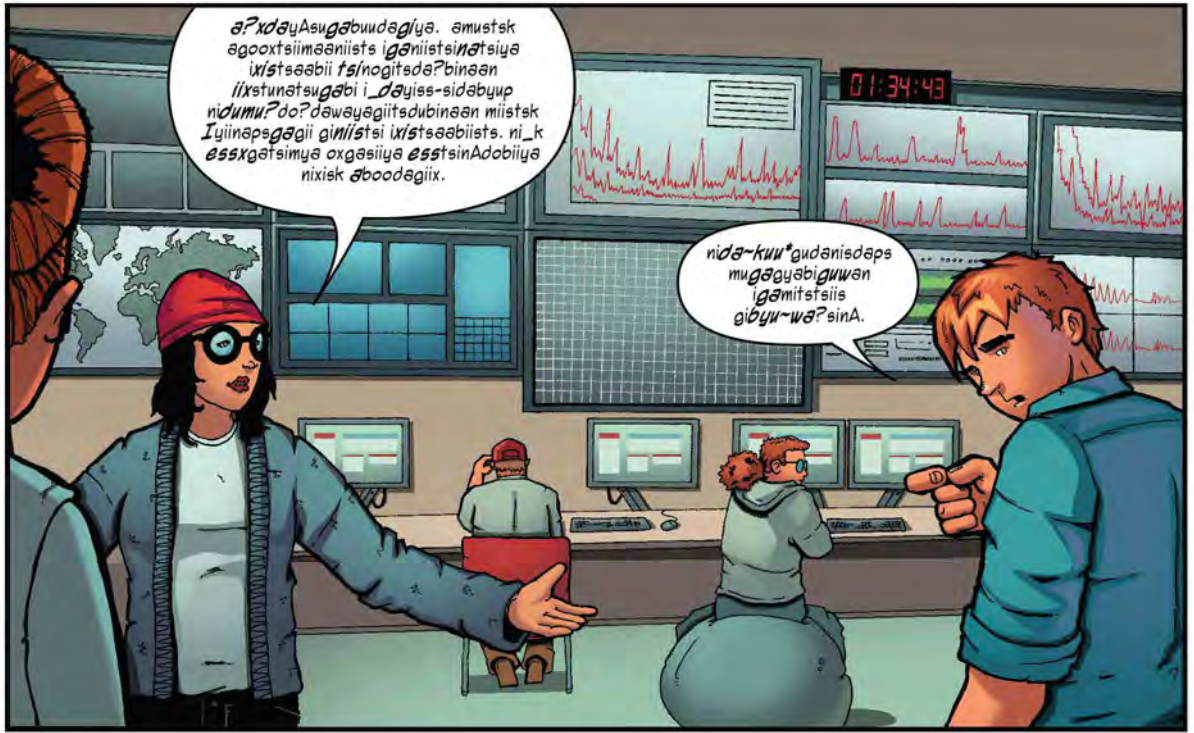
nidu-mu?dAximst  
 na?guxgas nisidui  
 ndassii  
 iiginogxas.



no?gabbiists agidapstsiuw  
 niistsi naptsanatsiists  
 manistsimuyiists  
 agi-tu?du?giitstsiya. ni\_k  
 nidayu?tsibinaen mu?k  
 agi-tu?gumii i\_dotstsiuw miitsi  
 Aleutian Islands.

gidawaen-i  
 onuum xa?gui amui  
 ixsebatssiimbisin amux  
 tsa-axinixistsiguu  
 Iyinepsguugi?





*a? xday Asugaboudagiy. amustk  
 agcoxtsiimeaniists iganiistsinotsiya  
 ixistsaabii tsinogitade? binaan  
 iixstunotsugabi i \_dayiss-sidabyup  
 nidumu? do? dawayegii tsudubinaan miistek  
 Iyiinaps g gii giniistsi ixistsaabiiists. ni\_k  
 essxgaisimya oxgasiya essstinAdobiya  
 nixiek aboodagiiix.*

*nida-kuu\* gudanisdaps  
 muggyabiguwan  
 igamitsiis  
 gibyu-wa? sinA.*



*gitsiixsu-guduu? buwa..  
 gadAsiniibuwa Agyabii  
 mixiek uuma? xtsiix  
 gagaduusiix  
 Anisse?*



*ani gagaduusi, Ade-mu? siistsiists  
 nigudAgims Abu-tu? bisa gii  
 i\_tu dabAstutsiip  
 uufsitsguu-me? guya nigudAgims.*

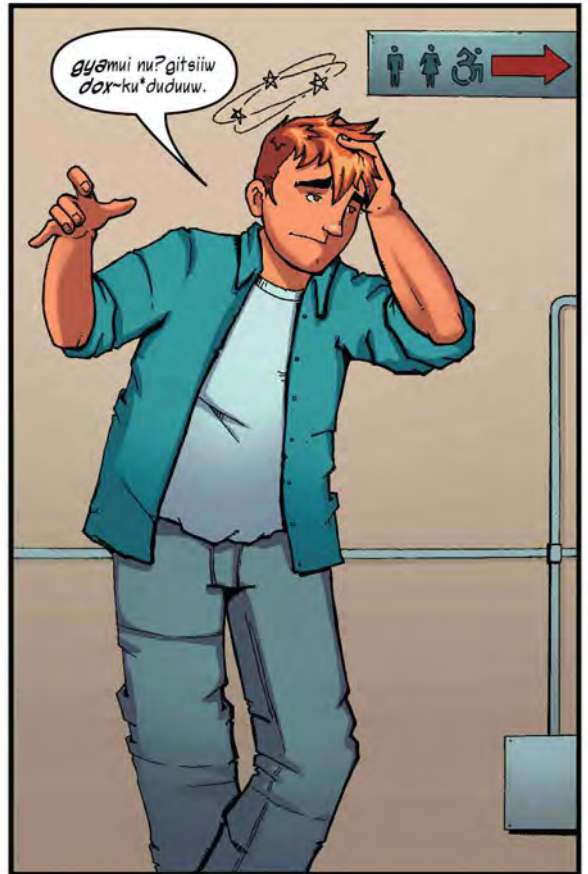


*aganistsiiw, ani gagaduusi  
 Asawa-tu? gu-tu? abidutsiidagi  
 idasi-ku? bii gyannimI id-mu? sAxge  
 nida-ni\_gaduupya notsits-ku\*sAxge  
 gagaduusi.*

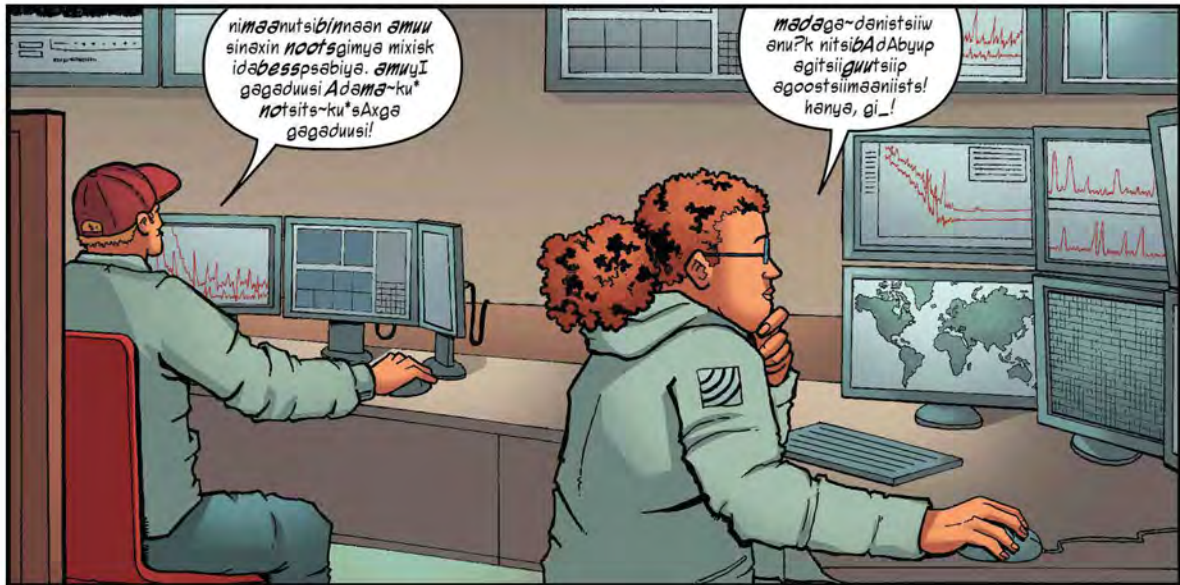


*bisadabii, nitsxniibinaan  
 ni\_gI notstsiw gagaduusi  
 aya-ku? notsits-ku\*sAxge  
 gagaduusi!*









nimaanwisi binnean amuu  
sinaxin nootsgimya mixisk  
idabesspsabiya. amuyi  
gagaduusi Adema-ku\*  
notsita-ku\*sAxga  
gagaduusi!

madaga-danistsiiw  
anu?k nitsiAdaAbyup  
agitsiihuutsiip  
agcoostsiimaaniists!  
hanya, gi\_!



amuu napetsanatsi  
madaboodagi!  
gyaysho, Agyabiil!



matsxinbinnean! ni\_k  
Asugaabudagi nu?k  
xiistsigui gya-nu?k  
nawatsagasi udayoh  
essxgatsimya  
oxgasiya!



nidotsidabifitsa-ki\_binnean  
ani napetsanatsi  
abodagi xisgenoduni.  
nitsaga?tsan-naen gii  
nimatsgaenagik,  
madabuudagi.



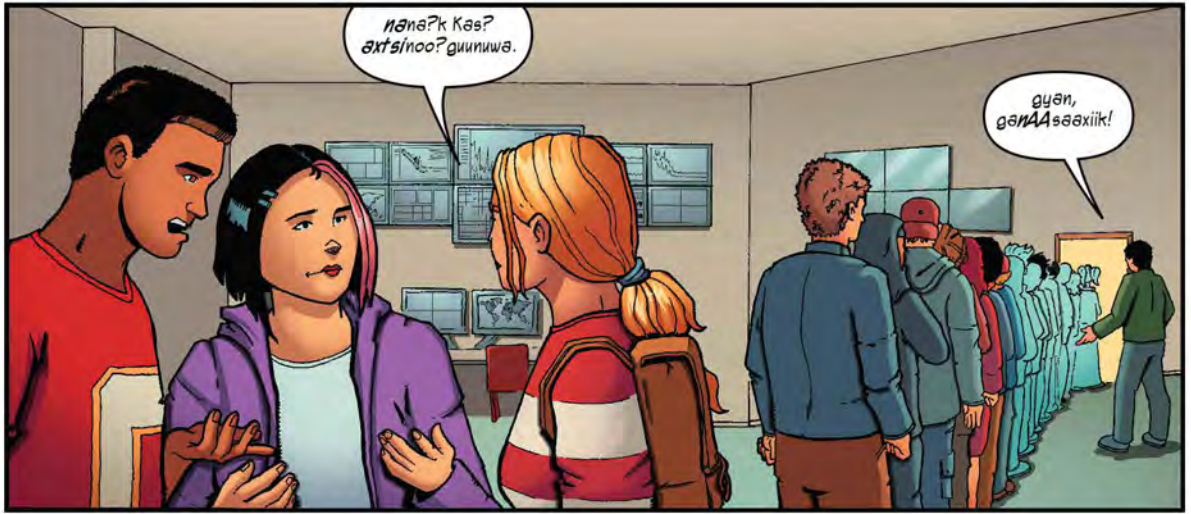
na?gaya  
aya-ku\* axinosi  
agit-tu?gwixinim  
a?xigijwatsix.



madaya?siip amu?k  
Asinadaabiists!

matsu-ku\*dagu





nana?k Kas?  
ax'sinoo? guunwa.

gvan,  
ganaA'ssaxiik!



lixgo? ganaabiitsi\_day  
a uutsawaboodagis  
amui napsfanatsi.

Kas naawastesa  
gyamu napsfanatsi  
maadaboodagi?  
matsi-pa?tsabiwa.  
a?ge-damii.



naayok!  
tsima'gitsi'abessaba?

tsiedabi?  
nidabessat'siip  
i'AsAbyu?sup.  
not'sitsisamuu.

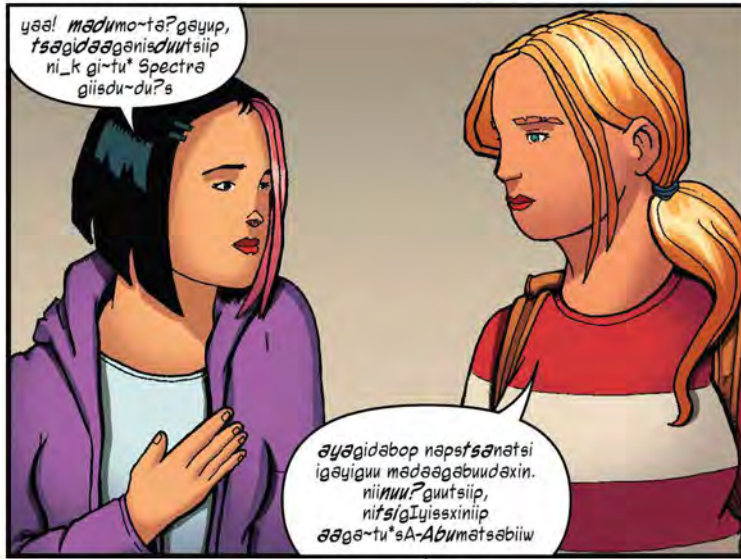


hanya. nidani'Aximst  
gidaa?ge-duxisduduwa  
nI napsfanatsi  
gidatsu?s.



g'gaa, anI napsfanatsi  
maadaboodagi!  
nidaxugaabisduduwa!





yaa! madumo-ta? geyup, tsagidaggeniduwtsiip ni\_k gi-tu\* Spectre giisdu-du?s

ayagidabop napstsanetsi igeyiguu madaagabuudexin. niinu? guutsiip, nistsigIyisxiniip aaga-tu\*sA-Abumatsabiw



do?gu-tu\*dumtsimxst omadessxinimik nidaye-ku\*xistegugu gyaysixistegugu.



gidoxtsinAatsibii nI LIGO anetsiwayegidutsim gii idumuya iesxgwubiists, gidaggitu\*-tu\*biyaa anI idabanetsi gidaggidomuda-pu\*bi gii anistsi uuf'sisix inax'samuu, gyanimI gyagetsxiwuutsu?siw.

gitsigaxskunadaps. aganyup neduwgii gib'buu iesxgwiiip babuin a?gamutsitsgu 50,000 iesstuumskuutsp notsitsxgunadabiw o?dawa-wa?genik buus. (gaddo?dAbuyiya napstsanetsi idabaayup?)



gidoxtsinomaniip 1064 nm (stu-na-tu\*bugiiw iesxgwiiip), bina-tu\*deps\_gesit. gimadaaxinu?binaan gyanmyIy o?bigimska manistsimuyi. gimadumanistxgunadaps gyI qida?gidAda-pu\*soboyapsii.

amu?k o?gunda'tsiip iganistsinatsi matu?gagumabiw, misganistsiiw amuu skunadapsin gii soboyapsin i\_tu'daayigabiw. gya?gidabaaya-ku\*axinos gii muuf'sagut!



han, nidaxtsinAAsuyugebuuda-ki gii nidaagawa-dabess. gyI, nidaxda-mu'dootsits-ku'daniissda ps "nistuwa."

a-mu?gI iguma?guu gii (xstunadabiw gii igagayimya essdagaawutsimya, istunadaabisiiists madasigatsuk. gyan?





nidoxtsinAAbuwada  
miixsk  
idepstsgwixiniidagiya  
nidaqitsuxxiiniip  
Asetsi-ku\*dagu gii  
a?gidogamuduya.

nida-ku\*gu-tu\*danisdudu  
wa biedu?risis gu?duugis  
a?gi-tu\*ba-ba?buyi  
amusti nidaqistsiibiists  
nihaa skuunaabbiists!



ago?dAbuyop  
amustsk  
napsfsanstaists,  
axdamabuudagi.

na?k Kes  
gadayAsuuxxim  
amustsk ogagiisin  
ogagiiiniistsiists.



binabitsi\_daak-  
nidaaganisda na?k  
Kes ma?gani\_p.  
nidaganisduutsiip.

niistsi  
uugagyabiidel\_daguyup  
sinaxin miim  
idepstsgwixiniidagiya  
agAstamats-tu\*gi  
igamaabAstutsiip.

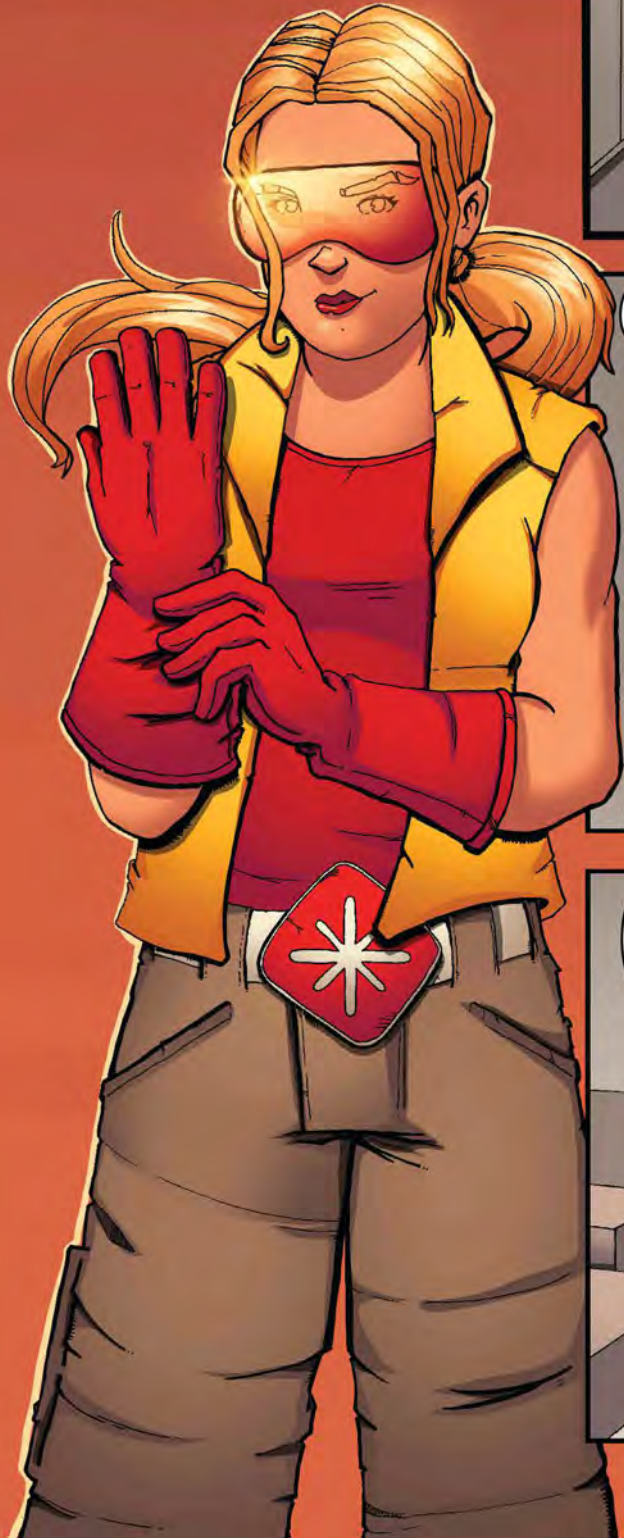
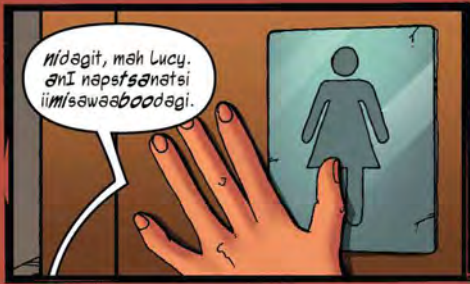


nitsiguupu\*  
na?ganisduutsis  
amu?k,  
nimadagu-duu?giip.

aniststsiuw  
Awaysqstuyidaguyup  
gii agidAaguyup\*  
ma-tu\*gwiiigi.  
axdamanisduutsiip.











niduum~mu\*do?bii amustsi  
stunatsin-nusim u-ma?xim  
gu?bun-nu ni?anisdaps  
napstsanatsidabi  
tsixi~maatsii-de-ki!



amuyok idabanatsi  
ayagi-tu\*tu\*biiw!

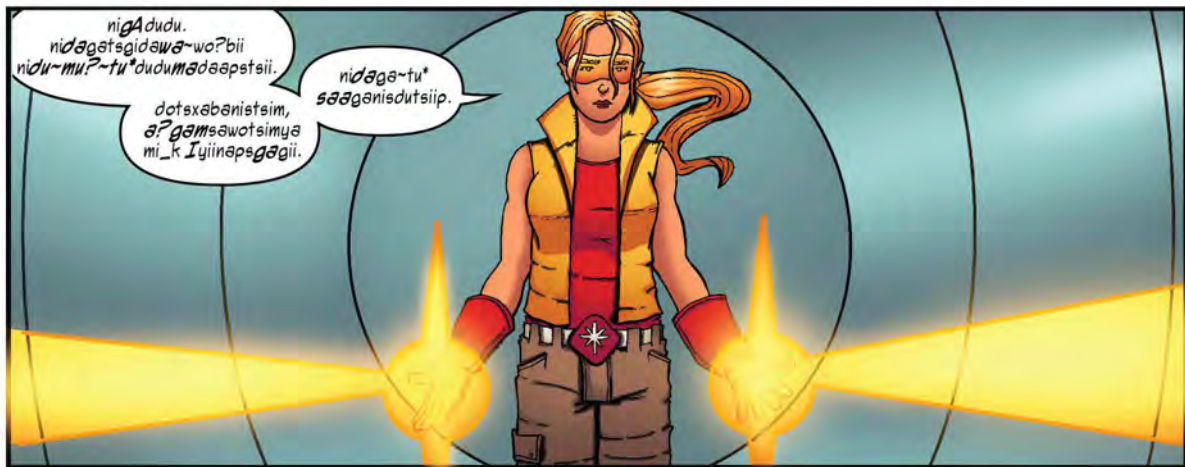
nigomada-pu\*  
ayagi-tu\*tu\*bii!!



ho-an,  
nistuwonok.  
okii, nistu!



okii  
nistu!

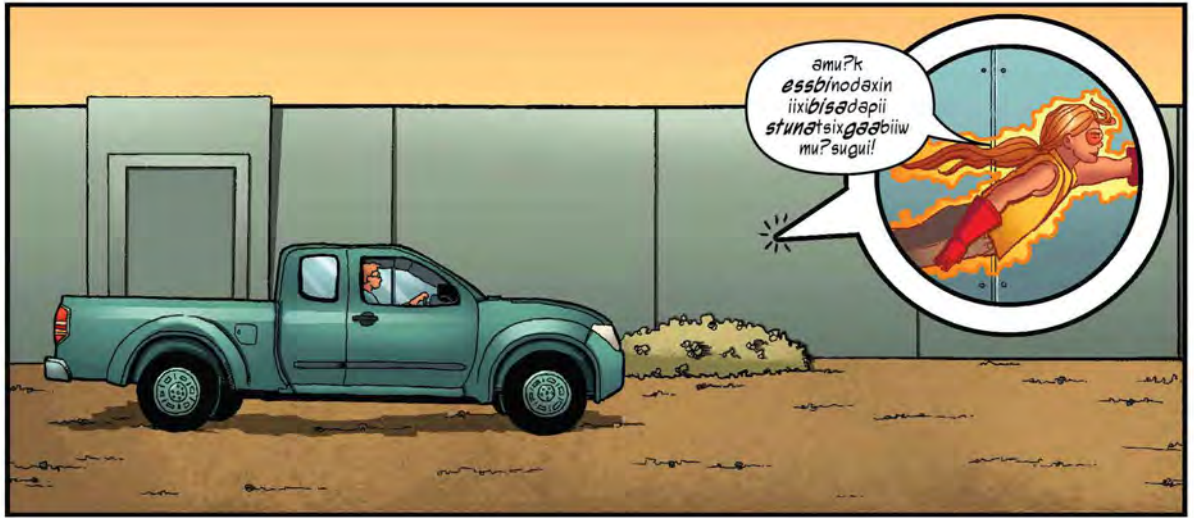


nigadudu.  
nidagatsgidawa~wo?bii  
nidu~mu?~tu\*dudumadaaptsii.

dotxabanistsim,  
a?gamsawotsimya  
mi\_k Iyiinapsagii.

nidage-tu\*  
saganisutsiip.





amu?k  
essbinodaxin  
iixibisadapii  
stunatsixgagbiw  
mu? sugui!



nidatsgidudu  
amuu idabanatsi  
ayagitu\*tu\*bii  
gye-a natsix na?k  
matsisik nistwaa?



gitsiixsugaps,  
gidoxsinAsugabisduwa  
anI gitu\*o?bigimska  
iesxgwiip ina-ku\*tsisii.

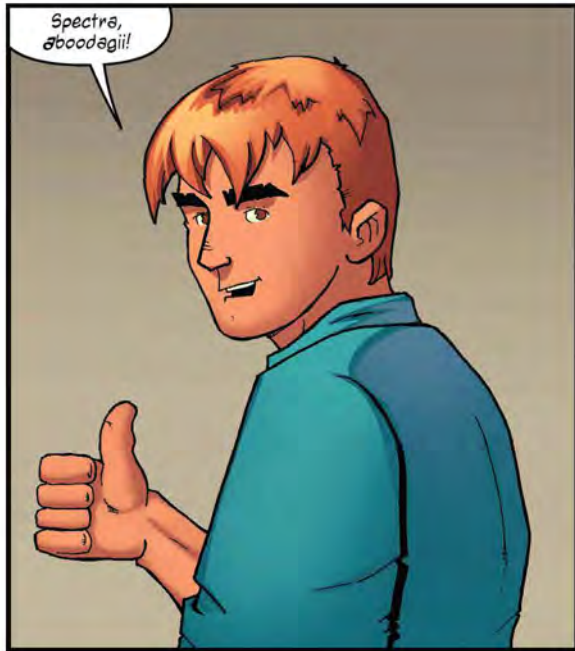


nidextsinAsugenisduisiip,  
amu?k gagaduusi  
Adamagotsis-ku\*sAxga  
agidaniedapsiww  
maenudagaduusi!



nidanidem-mu?s  
nigomada-pu\*skuna  
daps!









*əbɔdɑgii!*  
*mɑdʌnɔwɛssɡunɑdɑps ɡyɪ*  
*nɑ? ɡi-tu\*stʌnɑts-sɔbɔjɑps.*



*kɑn!*  
*ɡyən-nyɪ!*



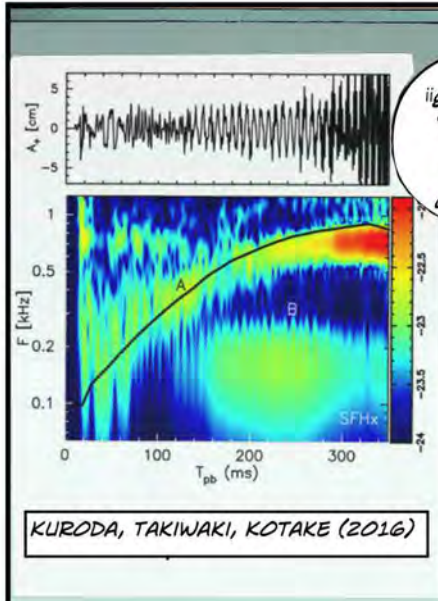
*ɡyɑyɑhɔ!*  
*e-ɡyɔɡɑniɪp ɑmyɪɪ*  
*ɑbʊdʌxbiisiɪ*  
*o?biɡimskɑɑts*  
*i-ʌtʊwɪtstsi ɑmʌstɛk*  
*nɔtsits-ku\*sɑxɡɑ.*



*ənɪ nɑpstɑnɑtsi*  
*stsgɑbʊdɑgiɪw*  
*ɡyɛ-ɡɑɡʊdʊ*



*ɡɑnsɑ-mɑyɑ nixi*  
*stɑyixiists*  
*myɑnɪsɑɑsɪxiniɪbɑ*  
*isstsgɑ itʊ?*  
*ɡɪtsiisɑdʊbʊyɪx*  
*ɑ?xɔdɔɡɑnyɪdɛxsimyɑ.*



KURODA, TAKIYAKI, KOTAKE (2016)



*ɪɡɡɑwʊ ɑmʌstɛk*  
*ɪɡw-mɑ?xsgɑbii istsgɑbiists*  
*ɑ-ku\*dʊdɛssxiniɪp ɡyɑmʊ?k*  
*itstsiɪw ɪjɪnɑpsɡɑɡii,*  
*ɡyɑmʌstsi ɑɡooxtsiimɑən*  
*ɪɡɡɑwʊ*  
*dɑ-ku\*dɛssɡunɑdɑpsbiɑn.*





əxdomAəduup  
gʏəmuusti  
əgooxtsiiməniists?  
gədomo?du?tsimop  
miixi Livingston?

əh. Virgo  
nuu? gə-tu\*guʏtsiisəduumyəs!  
niəəbbiiv!



okii,  
gigəssgudu,  
məh Lucy!

gitsiixsugəabuudə-ki\*  
!gʏAdəps-səbumugin  
nu?k xistsigii.



gistuwas buugAax,  
gitsidAgi\_buwas?  
gi-tu\*xistsəyuumi  
əgAstəməəyistabu-mə?gəyā!

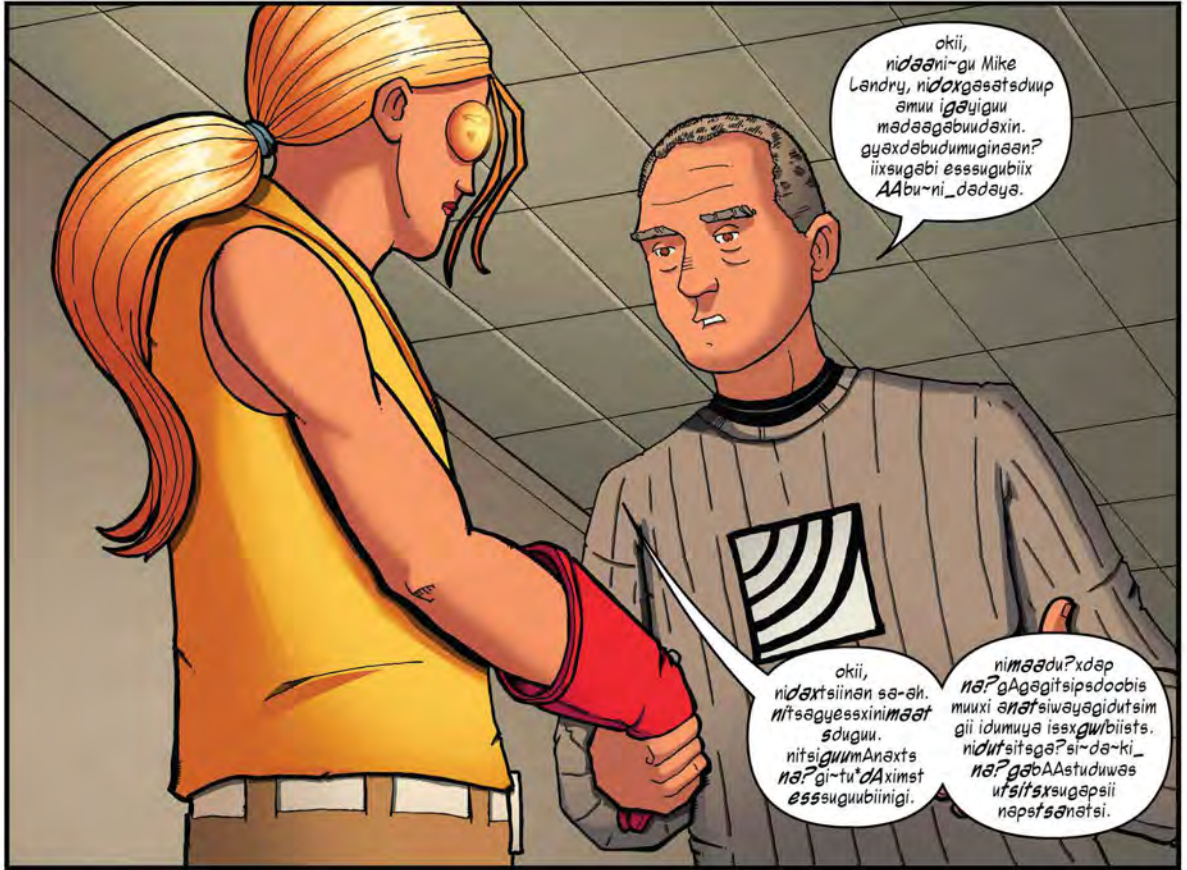
əmuuyok nitsxinuwanəən  
notsitsbisedAdəbii,  
Spectra. mədəbbiix  
ə?-gəmsə-wu?isəxinu-iyə  
i-gəmsəwidəbiss ənuum  
Indians.

Agəgo?Agəmutʏsbi  
mədəəbbiix gii  
isətsu?tsiists, gəənu?k  
məənAgəmutʏsduum  
istsəyutsiʏsinyə  
niəAximstsin.



niə-ku\*-gu-tu\* dənisdəps  
nəpətsənətsi.  
niə-mu?duxgəs wʏtsiists  
gii nitsiədəbess-pu?bii.  
niəəyəxəpumuwasəyə  
gəəmu istsəyutsiʏsinyə  
niəAximstsin gigogumə?.





okii,  
nidaani-gu Mike  
Landry, nidoxgasatsduup  
amuu igayiguu  
madasagbuudaxin.  
gyaxdabudumuginaan?  
ixsugabi esssugubiix  
AAbu-ni\_dadays.

okii,  
nidaxtsiinan sa-ah.  
nitsaguessxinimaat  
sduguu.  
nitsiguuAnaxts  
na?gi-tu\*DAximst  
esssuguubiinigi.

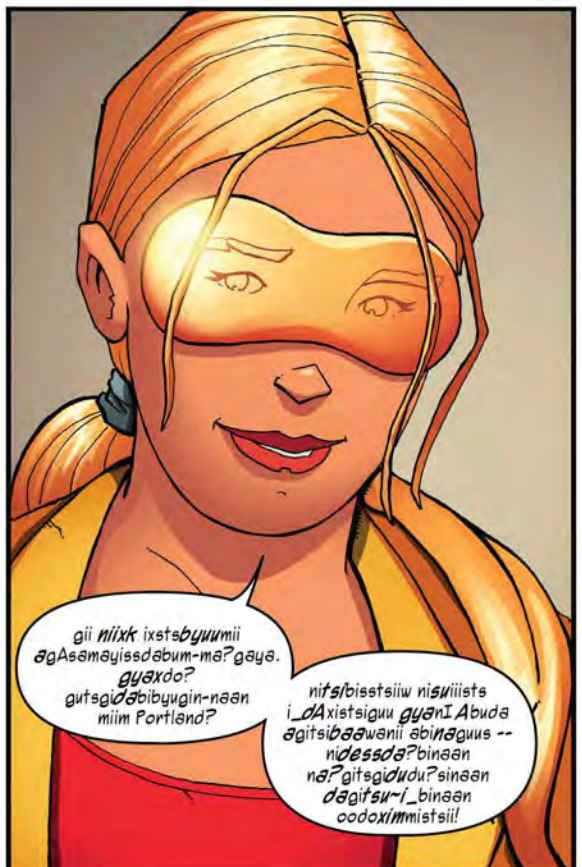
nimaadu?xdap  
na?gagagitsipsdoobis  
muuxi anatsiwayagidutsim  
gii idumuya issxgwbiists.  
niwt'sitags?si-da-ki\_  
na?gabAAstuduwas  
ut'sitsxugapsii  
napst'sanatsi.



nido'tsisdebiida-ki...  
gii Axisifapsinigi,  
gdorda-mu?kxguuduu.

meh,  
gidagutsiip amuu  
nidaabanistsii  
LIGO  
o?guduxisixigimi  
guus.

madumomadapu\*simi\_ba  
o?guduxisixigimi  
iimaganistsiiw nixsistsiiix  
igags?sitsimye! okii!



gii niix ixstebyuunii  
agAsamayissdebun-ma?gags.  
gyaxdo?  
gutsgid'abibuyugin-naan  
miim Portland?

nits'bisetsiiw nixniists  
i\_dAxietsiguu gyaxI Abuda  
agitsibagawanii abinaguus --  
nidesada?binsan  
na?gitsig'odu?sinan  
dagirsu-i\_binsan  
oodoximmistsii!









*gidaagess-satsibuwaa maniists amu?k essatsim-mya tsiima  
ii\_duuttsii naduusi gii gagaduudsiix gii na?k nitstsii napstsanatsi notsitsbisadAdabii*

# *SPECTRA*

*i\_dAAximsdop gii iidAbuyuubiists*



*gii amui idebyuup*

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