

# Integration in the mental lexicon

## English verbal roots in Pennsylvania Dutch participles

Emmeline Wilson & Deborah Adeyeye

Penn State University

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**Goal:** we investigate the notion of integration of borrowing in the bilingual mental lexicon.

**Empirical Focus:** Pennsylvania Dutch **participial allomorph preference** of borrowed American English verbal stem

- Borrowing: is conceptualized as a process rather than a state that occurs **when bilinguals reproduce a pattern of one language in another** (Haugen 1950; Winford, 2010; Poplack, 2018).
- Bilingual lexicon: Weinreich (1954) proposed that the lexicon can only be **shared by compound bilinguals** and that **sequential bilinguals** have two separate lexicons.
- Recent studies in Psycholinguistics reveals that the bilingual mental lexicon is a **dynamic and an integrated cognitive space** in which there is a **parallel activation** of a bilingual's two languages **at all times** (Hartsuiker et al., 2004; Myers-Scotton & Jake, 2014; Libben & Goral, 2015; Williams, 2015).

- Crosslinguistically, **items in open classes** are most receptive to borrowing than items in closed classes (Muysken, 1981; Loudon, 2019).
- Language contact literature posits a **strong dispreference for the borrowing of inflectional morphology** hence the low ranking on all well-known borrowability scales (Matras, 2007; Gardani, 2008, 2018).

# Cross-linguistic borrowing

Igbo-English (Poplack, 2018:102)

- (1) Ha **chang-iziri** ihe niile  
They chang-PAST thing all  
They changed everything

German-English (Myers-Scotton & Jake, 2014:521)

- (2) Die werden **gedraftet** von einer High School  
They are drafted from a high school  
They are drafted from a High School

PD-English (Louden 2019:388)

- (3) Mamma, **supposing** ich deet scharrewe, gingt ich in der Himmel?  
Mama, supposing I would die, would I go to heaven?

# Pennsylvania Dutch (PD)

- PD is a North American language in close contact with North American English with an increasing lexical borrowing from English (Louden, 2019).
- Recent literature in Germanic posit that participle inflections are circumfixes (Rolle, 2022). In this talk we are considering the participial exponents as separate pieces.
- **Weak verbs:**
  - no umlaut
  - *g(e)-/-t* inflection
- **Strong verbs:**
  - unpredictable vowel changes
  - *g(e)-/-e* inflection

Infinitive	PD Participle
taxe	getaxt
schpelle	gschpellt
schmoke	gschmokt
<b>weare</b>	<b>gwore</b>

# Integration in borrowing

- Integration refers to the process by **which borrowed words, phrases, or structures from one language are adapted and absorbed into another language** (Gardini, 2018; Poplack, 2018).
- **The process of integrating a borrowed item is influenced by the linguistic properties of the recipient language's grammar.** The borrowed item must be assigned a syntactic category and incorporated into the syntactic structure, receiving appropriate morphology and adhering to the syntactic rules of the recipient language (Poplack, 2018).
- We focus on the integration of **participial allomorphs**, i.e prefix, suffix, full circumfix, in PD-English borrowing.

- RQ1 What is the participial allomorph preference by speakers of PD in Ohio in borrowing situations?
- RQ2 To what extent does the selection of allomorph indicate the perceived integration of a borrowed root?

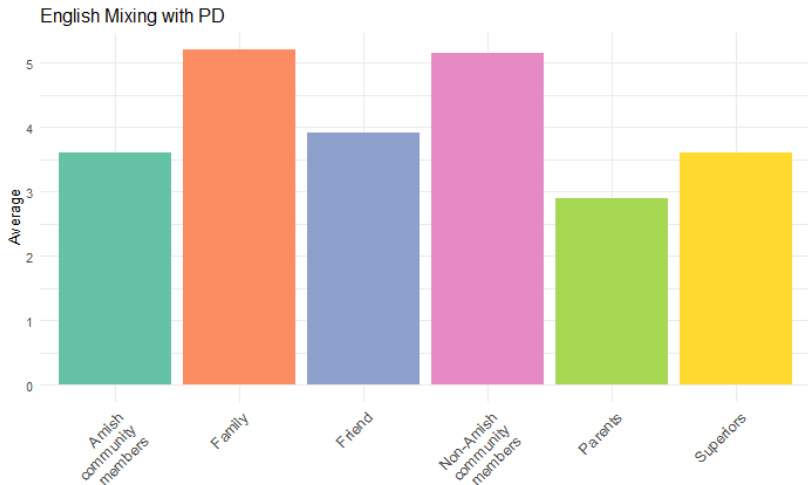
# Methods

- 1 **Acceptability Judgment Task**
  - a Practice Block
  - b Experimental Block
- 2 **Production Task**
  - a Practice Block
  - b Experimental Block
- 3 **Language Background Questionnaire**

# Participants

- $n = 13$
- Male: 6, Female: 7
- Mean age: 40.3 (range: 11-72)
- Location: Holmes, Coshocton, and Tuscarawas counties in Ohio
- Highest level of Education: 8th Grade
- Occupation: Farmers and home makers.
- Languages in order of dominance: PD, English, German

# Language Mixing



# Acceptability Judgment Task

# Acceptability Judgment Task (AJT)

## Task

- Participants rated the acceptability of the last word in an utterance. The last word on experimental trials was a participle.
  - Likert scale 1-7

## Stimuli

- 3 practice trials, 18 filler trials, 32 experimental trials

## Blocks

- Participants were assigned one of 8 blocks

# Acceptability Judgment Task: Stimuli

Variables:

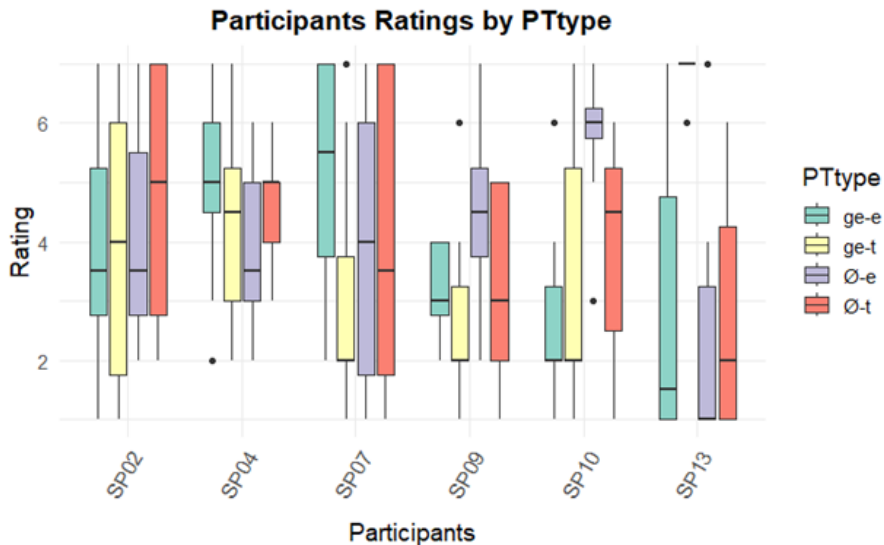
- stem vowel change
- prefix (overt *ge-* or covert/bare  $\emptyset$ )
- suffix (weak *-t* or strong *-e*)

Experimental (present tense) tokens were sourced from Albright & Hayes (2013). For each infinitive (e.g., *snelle*), eight participles were created.

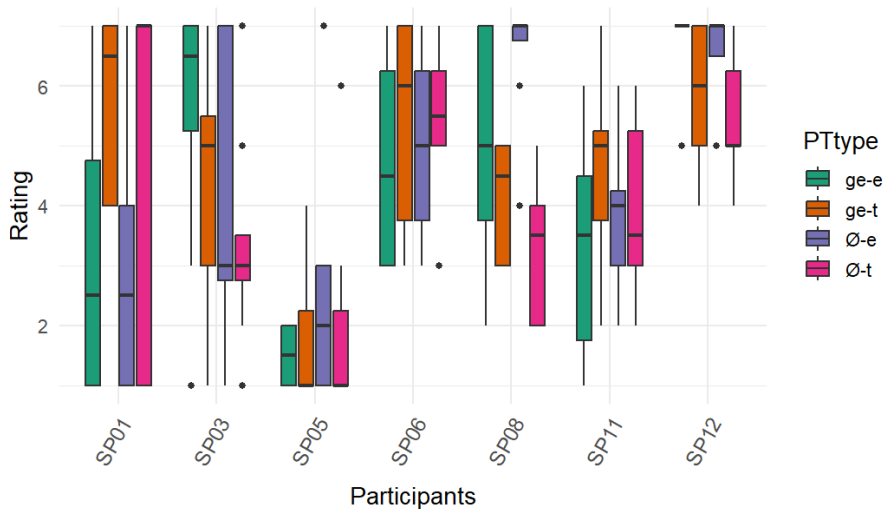
	Stem Change		No Stem Change	
Suffix	Weak	Strong	Weak	Strong
Overt Prefix	gesnoldt	gesnolde	gesnellt	gesnelle
Covert Prefix	snoldt	snolde	snellt	snelle

- (4) Die Fraa duht als **snelle** alli Woch. Die Fraa hot als  
The woman did as **snelle** every week. The woman had as  
alli Woch **gesnolde**.  
every week **gesnolde**.  
The woman usually **snell** once a week. The woman **snelled** once a  
week.

# AJT Analysis: Circumfixes I



## Participants Ratings by PTtype



# Acceptability Judgment Task: Preference Results by Participant

Participant	Preferred	Less Preferred	
SP01	ge-t	ge-e, $\emptyset$ -t, $\emptyset$ -e	
SP02	$\emptyset$ -t	ge-t, ge-e, $\emptyset$ -e	
SP03	ge-e	ge-t, $\emptyset$ -t, $\emptyset$ -e	
SP04	ge-e	ge-t, $\emptyset$ -t, $\emptyset$ -e	
SP05	$\emptyset$ -e	ge-t, ge-e, $\emptyset$ -t	
SP06	ge-t	$\emptyset$ -t	ge-e, $\emptyset$ -e
SP07	ge-e	$\emptyset$ -t, $\emptyset$ -e	ge-t
SP08	$\emptyset$ -e	ge-e	ge-t, $\emptyset$ -t
SP09	$\emptyset$ -e	ge-e, $\emptyset$ -t	ge-t
SP10	$\emptyset$ -e	ge-t, $\emptyset$ -t	ge-e
SP11	ge-t	ge-e, $\emptyset$ -t, $\emptyset$ -e	
SP12	ge-e	$\emptyset$ -e	ge-t, $\emptyset$ -t
SP13	ge-t	ge-e, $\emptyset$ -t	$\emptyset$ -e

Inference from the generalizable trend observed in the AJT at this stage:

- PD speakers **mostly prefer three of the participle allomorphs** *ge-t*, *ge-e*, *Ø-e* with English verbal roots.
- The participle allomorph *Ø-t* is **the least preferred**, with only one preference in the data.

**Most critically: Speakers do not universally prefer *ge-t*.**

# Production Task

# Production Task: Participants

- $n = 6$
- Male: 4, Female: 2
- Mean age: 45.5 (range: 31-72)

## Task

- Participants heard a sentence in the present tense. They were asked to repeat the sentence in the past tense.

## Stimuli

- 3 practice trials, 15 filler trials, 35 experimental trials
- Sentences contained a verb borrowed from English
  - Selected while taking in mind variables of source, whether attested in literature, number of syllables, and stress on the initial segment.

- (5) Duscht du dei local Feierhaus **supporte**?  
Do you your local fire station support  
Do you support your local fire station?
- (6) Die Martha duht so scharick **teipe** uff der Keyboard!  
The Martha does so quickly type on the keyboard  
Martha types so quickly on the keyboard!

# Production Task: Stimuli (Subset)

<b>ENG</b>	<b>PD</b>	<b>Source</b>	<b>Inclusion Factors</b>
to paint	painte	B, FM	Attested; 1 expected PT form
to teach	tietsche	B, FM	Attested; 1 expected PT form
to consider	kunsidere	B	Attested; multiple expected PT forms
to wear	weare	B	Attested; 1 expected PT form; irregular
to sneeze	sniesse	B	Attested; unknown PT form
to type	teipe	B	Attested; unknown PT form
to time	teime	FM	New
to abandon	abandone	None	Not PD; 3 syll; unstressed; V
to interrupt	interrupte	None	Not PD; 3 syll; stressed; V
to disappear	disappeare	None	Not PD; 3 syll; stressed; C
to collapse	collaps-e	None	Not PD; 2 syll; unstressed; C
to argue	argu-e	None	Not PD; 2 syll; stressed; V
to worry	worrye	None	Not PD; 2 syll; stressed; C
to appear	apeare	None	Not PD; 2 syll; unstressed; V
to buzz	buzze	None	Not PD; 1 syll; C

# Production Task: Trial Exclusions

Trials were excluded if the participant 1) did not use the target verb in the past tense, 2) provided no response to the stimuli, 3) used a different verb in place of the target.

Some stimuli did not elicit a participle response from any participant.

- abandone (to abandon)
- feede (to fade)
- ketsche (to catch)
- schappe (to shop)
- seeme (to seem)

→ **5/35 experimental stimuli excluded. Remaining: 30**

→ **99/210 individual trials excluded. Remaining: 111**

## For each target participle, we coded:

- 1 Transcription
- 2 Stress of the initial syllable of the participle
- 3 Whether the prefix is bare or overt
- 4 If an overt prefix included schwa or not (ge- or g-)
- 5 Category of suffix
- 6 Stem change
- 7 Number of syllables
- 8 Level of integration based on AJT results

## Suffix Categories

- Weak (/t/ or /d/)
- Strong (/ə/)
- Null or Truncated
  - /fiks/ (fix),  
/taɪm/ (time)
  - /ʃpɛn/ (spend),  
/dɛsaɪ/ (decide)
- Ambiguous
  - interrupt, avoid

# Production Task: Tokens Produced by Participant

Participant	Preferred	Less Preferred	# PTs Produced*
SP02	∅-t	ge-t, ge-e, ∅-e	24
SP04	ge-e	ge-t, ∅-t, ∅-e	23
SP07	ge-e	∅-t, ∅-e, ge-t	19
SP09	∅-e	ge-e, ∅-t, ge-t	23
SP10	∅-e	ge-t, ∅-t, ge-e	17
SP13	ge-t	ge-e, ∅-t, ∅-e	5

\* out of a maximum 30

# Production Task: Results

*Attested with one expected participle form*

ENG	PD	PT Produced	Expected
to paint	painte	<i>gepaint</i>	✓
to smoke	schmoke	<i>(s)chmok(t)</i>	✗
to fix	fixe	<i>(variable)</i>	★
to teach	tietsche	<i>getietsch(t)</i>	✓
to can	kaene	<i>gekaen(t)</i>	✓
to wear	weare	<i>gwore</i>	✓

→ Most produced participles match those with the previously documented participle.

Exceptions:

- *schmoke* – expected *gschmokt* but participants produced *schmokt*
- *fixe* – expected *gfixt* but participants produced:

SP02 gfixt

SP09 fixt

SP13 gfix

SP04 gfixt

SP10 fix

# Production Task: Results

*Attested with multiple attested participle forms*

ENG	PD	PT Produced
to consider	kunsidere	<i>kunsidert</i>
to spend	schpende	<i>gschpen(d)</i>

→ We found, consistently, one participle form produced for those with multiple attested options.

# Production Task: Results

*Attested with unknown participle forms*

offende

2x *offende*

∅-e

ordere

1x *gorder*

1x *gorer*

slaisse

1x *chlaest*

∅-t

1x *schlaest*

∅-t

1x *sleisst*

∅-t

sniesse

2x *chnies*

2x *schniesst*

∅-t

1x *schniese*

∅-e

teime

1x *geteim*

1x *teim*

teipe

3x *geteip*

2x *geteipt*

ge-t

1x *teip*

# Production Task: Results

*Unattested*

apeare

1x *apeart*

∅-t

1x *apear*

aproache

2x *aproatscht*

∅-t

2x *aproach*

argue-e

4x *argyut*

∅-t

1x *argyu*

buzze

4x *gebusst*

ge-t

1x *gebuss*

collapse

2x *collapst*

∅-t

1x *collaps*

destroye

3x *destroyt*

∅-t

1x *destroy*

1x *destroye*

∅-e

disappeare

1x *disappeare*

∅-e

1x *disappear*

1x *disapeart*

∅-t

explain

3x *exschplain*

1x *exschplaint*

∅-t

worry

3x *gworryt*

ge-t

# Production Task: Results

*Unattested, with ambiguous results*

avoid

3x *avoid*

1x *avoi*

contribut-e

1x *contribut*

donat-e

3x *doneet*

2x *gedoneet*

interrupte

4x *interupt*

supporte

2x *suport*

1x *supor*

# Production Task: Results

By Participant

Part.	# PTs	# Bare* PTs	# Amb. PTs	# PTs w/ Morph.
SP02	24	1	3	20
SP04	23	4	4	15
SP07	19	3	3	13
SP09	23	5	4	14
SP10	17	5	3	9
SP13	5	1	0	4

*\*completely bare (e.g., exschplain)*

- Participants still generally add a prefix and/or suffix to the verb stem in order to form a participle.

## Attested Verbs

- Most produced participles match those with the previously documented participle. Exceptions:
  - *schmoke* – expected *gschmokt* but participants produced *schmokt*
  - *fixe* – expected *gefixt* but participants produced *gfixt*, *fixt*, *fix*, *gfix*
- We found, consistently, one participle form produced for those with multiple attested options.

## New, Unattested Verbs

- There exists much variation with the PD participle allomorph selected. Exception: *worry–gworryt*
- Participants still select for and expone PD participle allomorphs on English verbs that may not be fully integrated into the PD language.
  - *buzze–gebusst*, *destroy–destroyt*, *disappear–disappeare*

- Data from AJT and Production task shows **variation in participle exponents in PD** for borrowed roots, suggesting a **lack of consensus on any particular PD participle allomorph**.
- Our data shows **no default *ge-t* allomorph** application. This is **contrary to previous claims** of it acting as the default allomorph for English-borrowed verbal roots.
- The **selection** of participle allomorph in PD is **being renegotiated at the intra- and interspeaker levels**.

- **Language mixing** is an integral part of PD grammar.
- **English verbal roots are easily integrated into PD**, but there is a fuzzy connection between allomorph and features of tense and aspect, regardless of the root.
- Our analysis suggests that **all participle allomorphs are available in an integrated cognitive space** for PD speakers.

- With constant contact and mixing of English in PD, PD grammar is evolving and there is rampant variation in exponency for new and borrowed roots.
- For the Ohio speakers of PD, there is no generalizable, default participle allomorph. We cannot use patterns of exponency as a metric by which to test integration and borrowing.

- Due to lack of generalizable default, future research will explore language change in real time among PD speakers.
- Determine how to analyze the ambiguous production results (e.g., interrupt, avoid, ...)
- Explore integration of English verbal roots in other varieties of PD.

Thank you!

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# Appendix

<b>ENG</b>	<b>PD</b>	<b>Source</b>	<b>Inclusion Factors</b>
to paint	painte	B, FM	Attested; one expected PT form
to smoke	schmoke	B	Attested; one expected PT form
to fix	fixe	B, FM	Attested; one expected PT form
to teach	tietsche	B, FM	Attested; one expected PT form
to can	kaene	B, FM	Attested; one expected PT form
to consider	kunsidere	B	Attested; multiple expected PT forms
to catch	ketsche	B	Attested; multiple expected PT forms
to spend	schpende	B	Attested; multiple expected PT forms
to fade	feede	B	Attested; multiple expected PT forms
to wear	weare	B	Attested; one expected PT form (irregular)
to decide	deseide	Dict	Bare ; (-dt vs -t)
to cultivate	kolldewee'de	B	Bare ; (-dt vs -t)
to sneeze	sniesse	B	Attested; unknown PT form
to shop	schappe	B, FM	Attested; unknown PT form
to type	teipe	B	Attested; unknown PT form
to slice	schleisse	B	Attested; unknown PT form
to order	ordere	B	
to offend	offende	B	
to time	teime	FM	New

<b>ENG</b>	<b>PD</b>	<b>Source</b>	<b>Inclusion Factors</b>
to abandon	abandone	None	Not PD; 3 syll; unstressed; V
to contribute	contribut-e	None	Not PD; 3 syll; unstressed; C
to interrupt	interrupte	None	Not PD; 3 syll; stressed; V
to disappear	disappeare	None	Not PD; 3 syll; stressed; C
to avoid	avoide	None	Not PD; 2 syll; unstressed; V
to destroy	destroye	None	Not PD; 2 syll; C
to support	supporte	None	Not PD; 2 syll; C
to collapse	collaps-e	None	Not PD; 2 syll; unstressed; C
to argue	argu-e	None	Not PD; 2 syll; stressed; V
to worry	worrye	None	Not PD; 2 syll; stressed; C
to donate	donat-e	None	Not PD; 2 syll; stressed; C
to explain	explaine	None	Not PD; 2 syll; stressed; V
to appear	apeare	None	Not PD; 2 syll; unstressed; V
to approach	aproache	None	Not PD; 2 syll; unstressed; V
to seem	seeme	None	Not PD; 1 syll; C
to buzz	buzze	None	Not PD; 1 syll; C