

# What is deaccentuation?

Arto Anttila (Stanford) & Michael Wagner (McGill)

GLOW Targeted Collaborative Debate

What do phonology/focus interactions tell us about deaccentuation?

### Perspective A: Prosodic focus as a metalinguistic operator (MW)

Capturing phonological effects using focus theory

Parallel 1: Form and meaning are each sufficient triggers by themselves

Parallel 2: Deaccentuation is (sometimes) preferred when possible

Parallel 3: The contrast requirement

Parallel 4: The need for a semantic alternative

Prosodic focus operates over linguistic alternatives

### Perspective B: Deaccentuation is phonology (AA)

# Outline

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# Deaccentuation can be phonologically motivated

- (1)
- a. 'This whiskey,' said O'Reilly, sampling spirits that claimed to be from his homeland, 'was not exported from Ireland; it was deported.' (Bolinger, 1961, 83)
  - b. John is more concerned with AFfirmation than with CONfirmation. (Chomsky, 1971, 205)
  - c. John expected to be promoted, and was shocked at being DEmoted (Wennerstrom, 1993, 311)
  - d. Greek divers have found the wreck of the British liner Britannic, sister ship of the Titanic. . . (Ladd, 2008, 234)

(SMALL CAPS = accented; underlining = deaccentuation)

## What do we mean by deaccentuation?

Cases where an accent is not placed where default stress usually falls, reflecting (or giving rise to) a marked prosodic prominence relation between words/constituents

# Phonological/phonetic effect?

*Reduction due to prior activation of a phonetic form:*

Jacobs et al. (2015): “The results suggest that repetition reduction occurs when there is a recently experienced auditory memory of the item.”

*Constraint against accents on homophonous words in adjacent intonational units:*

Williams (1981, 1997): “**The Rhyming law:** The final nucleus of an Intonation unit (roughly, clause) cannot be identical to any final portion of the preceding intonation unit.”

# Phonological effects on deaccentuation

- ▶ Do we need a phonological/phonetic constraint in addition to a semantic theory of deaccentuation?
- ▶ Or do we need to rethink apparently semantically driven cases of deaccentuation?
- ▶ We present two perspectives

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# Capturing phonological using focus theory

- ▶ [Williams \(1997, 619\)](#): 'two sorts of disanaphora (referentially based and phonetically based)'
- ▶ [Artstein \(2004, 3\)](#): phonological focus involves functions from phonological representations to meanings

A focus account of semantic focus/givenness:

(2) [Rooth \(1992\)](#) (simplified)

- Syntax:  $\sim$ [Ede-F wants coffee]
- Prominence: EDE wants coffee
- Semantics: Requires antecedent(s) with meaning  $x$  *wants coffee*, where at least one  $x \neq Ede$

A focus account of phonological focus/givenness could be (we will see why this does not work, and instead an analysis similar to [Artstein \(2004\)](#) is needed):

(3) Phonological Alternatives

- Syntax:  $\sim$  [de-F ported]
- Prominence: DEported
- Semantics: Requires antecedent(s) of phonological form  $x$  *ported*, where at least one  $x \neq [di]$

**Expectation:** Parallels between meaning-only and form-only antecedents



# Parallel 1: Form and meaning are each sufficient triggers



*Salience of meaning is sufficient for deaccentuation:*

- (4) a. I went to see the dentist, I could KILL the butcher. *butcher = dentist*  
(cf. [Ladd, 1980](#))  
b. Amal gave up. Then FRANKIE threw in the towel. ([Wagner, 2021](#))

*Can homophone antecedents cause deaccentuation?*

(Wagner 2020 Psychonomics; Wagner & Coumel, in prep)

*Joint work with [Marion Coumel](#), Warwick University*



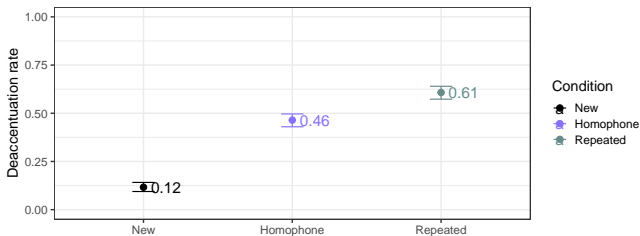
# Parallel 1: Form and meaning are each sufficient triggers

Example recordings from each condition: y/n deaccented

**New:** Robin was very scared. He really did not like that bear. *no; yes*

**Homophone:** The fear was hard to bear. He really did not like that bear. *no; yes*

**Repeated:** Robin was attacked by a bear. He really did not like that bear. *no; yes*



- To our knowledge the first study that shows that homophone antecedents can cause deaccentuation (32 participants, 15 item sets. note that it could be that people deaccent, but then the utterance is infelicitous, more on this below)

*Jacobs et al. (2015) already show a gradient reduction effect due to homophone antecedents, but argued does not involve deaccentuation. However, the relevant constituents were sentence-initial, which may explain why deaccentuation did not happen*



## Parallel 2: Deaccentuation is preferred when possible

*Same form/different meaning: Williams Effect Williams 1981/1997*

- (7) ?John does not usually give advice to his SON,  
but he did recently tell him not to look at the SUN.

**Sounds like one should have deaccented—but can one ?**

- ▶ Yes, in the sense that it happens (see above)
- ▶ But according to Williams (1997) no—deaccenting sounds odd because meaning not given (but says this is relatively weak effect)

**Experimental evidence:** Wagner (2020 Psychonomics); Wagner & Coumel (in prep): Naturalness ratings are somewhat inconclusive, we could elaborate on this

## Parallel 2: Deaccentuation is preferred when possible

A clearer Williams effect Williams (1981, 1997):

**Contrast, full NP:**

Jordan kissed Lane, and then Lane kissed JORDAN.

**Contrast, pronoun:**

Jordan kissed Lane, and then he was kissed by HER.

**Williams, full NP:**

# Jordan kissed Lane, and then Jordan was kissed by LANE.

**Williams, pronoun:**

# He kissed her, and then he was kissed by HER.

**Experimental evidence:** Perception: [Wagner and McCurdy \(2010\)](#). Production: [Wagner \(2012\)](#). *Speakers avoid the problem by placing stress elsewhere, or else rate the utterance as less felicitous*

	<i>Passive</i>	<i>Active</i>
by	66 (74.2%)	<i>na</i>
Verb	19 (21.3%)	65 (98.5%)
Auxiliary	0	<i>Na</i>
Subject	4 (4.5%)	1 (1.5%)

**So: deaccentuation can be obligatory when possible also for phonological reasons**

## Parallel 3: The contrast requirement

Deaccentuation requires a semantic contrast:

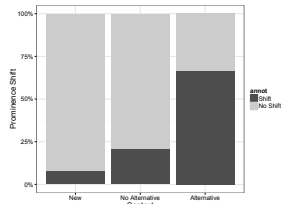
- (8)
- a. *New*  
Guess what Jody's aunt, who is incredibly generous, brought for his birthday: a new BICYCLE!
  - b. *No Alternative*  
Guess what Jody's aunt, who produces expensive bicycles, brought for his birthday: a new BICYCLE!
  - c. *Alternative*  
Guess what Jody's aunt, who deals with used bicycles, brought for his birthday: a NEW bicycle!

- ▶ Repetition of *bicycle* and even antecedent of form  $x$  *bicycle* is not sufficient for deaccentuation (deaccentuation is rare)
- ▶ Antecedent and focused constituent have to be 'true' alternatives of each other

(Wagner, 2005, 2006; Büring, 2008; Katzir, 2013; Büring, 2016; Gotzner et al., 2016; Gotzner, 2017)

Experimental evidence: Wagner (2016):

18 participants, 12 item sets

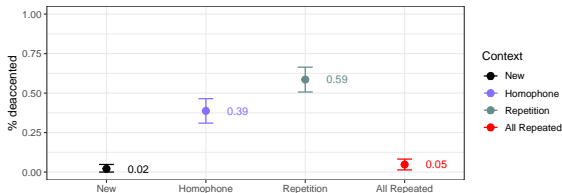


## Parallel 3: The contrast requirement

No deaccentuation in complete repetitions:

(Coulme & Wagner, in prep; cf. [Klassen and Wagner 2017](#)), as well as discussion in [Schwarzschild \(1999\)](#):

- (9) They were surprised by a bear.  
Despite their best efforts, they were surprised by a BEAR.



Coulme & Wagner, in prep: 42 participants; 15 item sets

*Speakers could avoid accenting the same word, but they do not*

Actually not clear that deaccentuation without phonological contrast is bad in the presence of semantic contrast. One could try to test with homophones. But here's a different kind of example [Wagner \(cf. 2021\)](#):

- (10) A: Drew wants coffee.  
B: DREW wants coffee! (...of all people...)

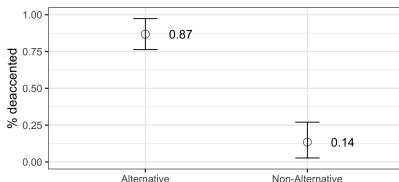




## Parallel 4: The need for a semantic alternative

*Deaccentuation is rare if words are not used to convey contrast:*

- (11) a. Their methods of oppression were very refined.  
Many critics soon found themselves confined.
- b. She was proud of the letter she composed.  
In it, all the lies were exposed.
- c. She had had a nightmare that she just remembered.  
She had dreamt she fought aliens whom she all dismembered.



preliminary annotation of 10/24 participants; 12 word pairs used as alternatives, 12 not used as alternatives

- ▶ Marking a phonological contrast WITHIN a word requires a semantic contrast TO the word



# Prosodic focus operates over linguistic alternatives

- ▶ Even phonological contrast involves semantic alternatives
- ▶ This is unexpected if phonological contrast involves phonological alternatives
- ▶ It is expected if phonological focus generates linguistic alternatives whose meaning is contrasted (Artstein 2004)
- ▶ I propose that in fact all prosodic focus involves linguistic alternatives (see [Katzir, 2013](#), for a very different argument for linguistic alternatives)
- ▶ Syntactic/phonological substitutions of the focused piece are used to generate a set of linguistic expressions
- ▶ The set of meanings these denote have to be contextually relevant alternatives to each other ( $\sim$ )

In the version presented at the conference, I erroneously said that Artstein's account doesn't predict that a semantic contrast is needed when marking phonological contrast—but the analysis actually works beautifully for these cases! I updated the slides accordingly on April 22 2021.

# Prosodic focus operates over linguistic alternatives

There's nothing special about phonological contrast:

(13) EDE wants coffee

→ *requires linguistic antecedent of the form x wants coffee, such that  $\llbracket x \text{ wants coffee} \rrbracket$  is contextually a relevant pragmatic alternative to  $\llbracket \text{Ede wants coffee} \rrbracket$*

(14) DISmember

→ *requires a linguistic antecedent of the form x member, such that  $\llbracket x \text{ member} \rrbracket$  is contextually used as a semantic/pragmatic alternative to  $\llbracket \text{dismember} \rrbracket$*

- ▶ The Williams effect suggests phonology of antecedents can't be ignored
- ▶ This makes sense if prosodic focus always looks for a linguistic antecedent

# Prosodic focus operates over linguistic alternatives

- ▶ Prosodic focus is a metalinguistic operator in the sense that it operates over linguistic alternatives
- ▶ Linguistic alternatives are compatible with metalinguistic uses of focus ([Horn, 1985](#); [McCawley, 1991](#)) or with expressing ‘expression focus’ ([Krifka, 2008](#); [Mankowitz, 2020](#))...
- ▶ ...but evoking alternatives through linguistic objects is also compatible with non-metalinguistic uses of focus
- ▶ The *salience* requirement of focus antecedents is typical of anaphoric relations that require a linguistic antecedent (e.g. VP ellipsis and other ‘surface anaphora’ [Hankamer and Sag 1976](#))
- ▶ [Göbel \(2020\)](#) shows evidence that focus-sensitive but not non-focus-sensitive presuppositions require salient local antecedents

*One could imagine a givenness-based version of this account, translating ([Schwarzschild, 1997, 1999](#)) into requiring linguistic pieces, rather than meanings, to be contextually ‘given’—but not having access to alternatives would clearly similar issues that make the givenness theory problematic (see [Wagner, 2021](#), for arguments and a review)*

## Focus as operating over linguistic alternatives

Many questions not addressed here... but one is particularly pressing:

## What about purely semantic antecedents?

(4-b) Amal gave up. Then FRANKIE threw in the towel

## Accommodation?

- ▶ Maybe we can treat *Amal gave up* as if it had been *Amal threw in the towel*.
- ▶ Accommodation of linguistic antecedents also possible for VP ellipsis

(15) *Robin was getting bludgeoned during the boxing fight. Out of the corner of her eye she saw her coach reach for the white towel. She said: Please don't!*

- ▶ Accommodating the antecedent *throw in the towel* for ellipsis is possible here (Merchant cf. 2004, for a review, Geiger and Xiang 2017; Geiger 2020 for experimental evidence)
- ▶ In (4-b), accommodation may be even easier, since there's a linguistic antecedent with the target meaning

*Thanks to Alex Göbel and Marion Coumel for comments on this presentation, and as well as the members of Rose-Marie Déchaine's seminar on syntax/prosody at UBC, Alex Nastevski, Bruce Oliver, Zachary Gilkison*

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# Deaccentuation is phonology

ARTO ANTILA  
STANFORD UNIVERSITY

Targeted Collaborative Debate with Michael Wagner

Part B

April 16, 2021



## Inaugural addresses

Based on joint work with Timothy Dozat, Daniel Galbraith, and Naomi Shapiro

- (a) You meet heroes across a COUNTER,  
and they're on both SIDES of that counter. (Ronald Reagan 1981)
  - (b) We will build our defenses beyond CHALLENGE,  
lest weakness INVITE challenge. (George W. Bush 2001)
- (Anttila, Dozat, Galbraith & Shapiro 2020, Shapiro & Anttila to appear)

What deaccentuation is not

Is deaccentuation a cognitive universal?

Or maybe just common sense? Why emphasize given information?

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Problems:

- (a) Language-specificity (Ladd 1996: 175, Cruttenden 2006):  
Not all languages/dialects have it.

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Not all languages/dialects have it.
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Given can be accented, new can be deaccented.  
Deaccentuation applies to meaningless strings.

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Not all languages/dialects have it.
- (b) Independence of meaning (Terken and Hirschberg 1988):  
Given can be accented, new can be deaccented.  
Deaccentuation applies to meaningless strings.
- (c) Strange phonological consequences (Ladd 1980):  
Deaccentuation results in automatic PRE-accentuation.

## Defining deaccentuation

To be deaccented means

to be **PERCEIVED** with less stress than **EXPECTED**

What is **PERCEIVED** stress? Ask native speakers.

What is **EXPECTED** stress?

The normal stress based on structure (syntax, phonology).

≈ The Nuclear Stress Rule / Compound Stress Rule of *SPE*

(Chomsky & Halle 1968)

## Expected and perceived stress (Ladd 1980, Shapiro & Anttila to appear)

Expected stress (computed by MetricalTree)

						X										X
	X			X		X			X	X				X		X
	X			X	X	X		X	X	X		X	X	X		X
X	X		X	X	X	X		X	X	X	X	X	X	X		X

\*I brought her a bottle of WHISKY . But it turns out she doesn't like WHISKY .

Perceived stress

						X								X		
	X			X		X			X	X				X		X
	X			X	X	X		X	X	X		X		X		X
X	X		X	X	X	X		X	X	X	X	X	X	X		X

I brought her a bottle of WHISKY . But it turns out she doesn't LIKE whisky .

## Quantifying deaccentuation

Accentuation Index = Perceived Stress – Expected Stress

We will build our defenses beyond challenge ,

Perceived stress:

			<b>x</b>	
		x	<b>x</b>	<b>x</b>
	x	x	<b>x</b>	<b>x</b>
lest	weakness	invite	<u>challenge</u>	.

Expected stress (= SPE):

			<b>x</b>	
		x	<b>x</b>	<b>x</b>
	x	x	<b>x</b>	<b>x</b>
lest	weakness	invite	challenge	.

**Accentuation Index:**

<b>0</b>	<b>0</b>	<b>1</b>	<b>-1</b>
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Accented given, deaccented new (Shapiro & Anttila to appear)

- a. Well, I believe we, the Americans of today, are ready to act worthy of ourselves, ready to do what must be done to ensure happiness and liberty for ourselves, our CHILDREN, and our CHILDREN's children. (Ronald Reagan 1981)

- b. Expected stress (computed by MetricalTree)

	X		X			X		X
X	X	X	X	X		X		X
X	X	X	X	X	X	X		X

\*for ourselves , our CHILDREN , and our children 's CHILDREN .

- c. Perceived stress

						X		
			X			X		
X			X			X		X
X	X	X		X	X	X		X

for ourselves , our CHILDREN , and our CHILDREN 's children .

Accented given, deaccented new (Shapiro & Anttila to appear)

... our CHILDREN<sub>1</sub> and our CHILDREN<sub>2</sub>'s children<sub>3</sub>

- CHILDREN<sub>2</sub> should be deaccented  
because it is GIVEN and REPEATED, but it has nuclear stress.
- children<sub>3</sub> should be accented  
because it is NEW, but it is deaccented.

## Deaccentuation applies to meaningless material

1a. How old are you? I'm sixTEEN.

1b. FIFteen, SIXteen, SEVenteen, EIGHteen, NINEteen  
(Ladd 1996: 178)

2. I get ABC on channel 7 and NBC on channel 11.  
(Will Leben, p.c.)

## Two conflicting phonological generalizations (Shapiro & Anttila to appear)

1. Avoid stress peak on a word with a copy in the preceding context.  
Distance matters: The closer the copies, the worse the result.
2. Stress peak falls as close to the right phrase edge as possible.

## Two conflicting phonological generalizations (Shapiro & Anttila to appear)

1. Avoid stress peak on a word that has a copy in the left context.  
Distance matters: The closer the copies, the worse the result.
2. Stress peak falls as close to the right phrase edge as possible.

### \*STRESS-COPY

Assign a violation to a word that carries a stress peak and has a string-identical copy in the left context.

### RIGHTMOST $\approx$ Chomsky & Halle's (1968) NSR

Assign a violation to each word between a stress peak and the phrase edge.

## Deaccentuation as minimal stress retraction (Shapiro & Anttila to appear)

I brought her a bottle of <b>WHISKY</b>	*STRESS-COPY	RIGHTMOST
a. But it turns out she doesn't like <b>WHISKY</b>	1!	
☞ b. But it turns out she doesn't <b>LIKE</b> <u>whisky</u>		1
c. But it turns out she <b>DOESN'T</b> <u>like</u> <u>whisky</u>		2

## Stress retraction with multiple copies (Shapiro & Anttila to appear)

our <b>CHILDREN</b>	*STRESS-COPY	RIGHTMOST
a. and our children's <b>CHILDREN</b>	2!	
☞ b. and our <b>CHILDREN</b> 's <u>children</u>	1	1

## Williams Effect (Williams 1997; Wagner 2012): Expected stress

(a)

			<b>x</b>		x	x	x	<b>x</b>
			<b>x</b>					<b>x</b>
	x	x	<b>x</b>	x	x	x	x	<b>x</b>
	John	saw	<b>Mary</b>	,	and	then	Mary	saw <b>John</b> .
SPE:	3	3	2		3	2	2	2

(b)

			<b>x</b>		x	x		x	<b>x</b>
			<b>x</b>						<b>x</b>
	x	x	<b>x</b>	x	x	x	x	x	<b>x</b>
	John	saw	<b>Mary</b>	,	and	then	John	was	seen by <b>Mary</b>
SPE:	3	3	2		3	2	2	3	2



## Williams Effect as \*STRESS-COPY avoidance

		*STRESS-COPY	RIGHTMOST
John saw <b>MARY</b> and then	☞ a. Mary saw <b>JOHN</b>	1	
	b. Mary <b>SAW</b> <u>John</u>	1	1
	c. <b>MARY</b> <u>saw</u> <u>John</u>	1	2
John saw <b>MARY</b> and then	a. #John was seen by <b>MARY</b>	1!	
	☞ b. John was seen <b>BY</b> <u>Mary</u>		1
	c. John was <b>SEEN</b> <u>by</u> <u>Mary</u>		2
	d. John <b>WAS</b> <u>seen</u> <u>by</u> <u>Mary</u>		3
	e. <b>JOHN</b> <u>was</u> <u>seen</u> <u>by</u> <u>Mary</u>	1	4

cf. Wagner 2012: 1447, Table 15

No deaccentuation if the repetition is complete

They were surprised by a bear. Despite their best efforts,	*STRESS-COPY	RIGHTMOST
☞ a. they were surprised by a <b>BEAR</b>	1	
b. they were surprised <b>BY</b> <u>a</u> <u>bear</u>	1	2
c. they were <b>SURPRISED</b> <u>by</u> <u>a</u> <u>bear</u>	1	3

Wagner, this talk

## Deaccentuation with a minimally different repetition

Putting America back to work	*STRESS-COPY	RIGHTMOST
a. means putting all Americans back to <b>WORK</b>	1!	
b. means putting all Americans back <b>TO</b> <u>work</u>	1	1
c. means putting all Americans <b>BACK</b> <u>to</u> <u>work</u>	1	2
d. means putting all <b>AMERICANS</b> <u>back</u> <u>to</u> <u>work</u>	1	3
☞ e. means putting <b>ALL</b> <u>Americans</u> <u>back</u> <u>to</u> <u>work</u>		4
f. means <b>PUTTING</b> <u>all</u> <u>Americans</u> <u>back</u> <u>to</u> <u>work</u>	1	5
g. <b>MEANS</b> <u>putting</u> <u>all</u> <u>Americans</u> <u>back</u> <u>to</u> <u>work</u>		6!

Reagan 1981, Sentence 38

## Accentuation Indices for one annotator

Putting		America	back	to	work	means
0		1	1	0	0	-1
putting	all	Americans	back	to	work	
-1	3	0	0	-1	-1	

## The role of focus (Rooth 1992, Shapiro & Anttila to appear)

### FOCUS $\supset$ STRESS

Assign a violation to a focused constituent that does not contain a stress peak.

Growing rice under broad focus

People who grow rice	FOCUS $\supset$ STRESS	*STRESS-COPY	RIGHTMOST
a. eat <b>RICE</b>		1!	
☞ b. <b>EAT</b> rice			1

“People who grow rice eat RICE; people who grow beans eat BEANS.”

Narrow focus blocks deaccentuation

People who grow rice	FOCUS $\supset$ STRESS	*STRESS-COPY	RIGHTMOST
☞ a. eat <b>RICE</b> <sub>FOC</sub>		1	
b. <b>EAT</b> rice <sub>FOC</sub>	1!		1

## Statistical modeling (Shapiro & Anttila to appear)

Dependent variable:

- **Accentuation Index**

Fixed effects:

- **Repetition:** Distance between a repeat and its antecedent, labeled on the repeat (continuous variable)
- **Retraction:** A repeat's repetition value, labeled on the content word closest to the repeat (continuous variable)

Random intercepts:

- **President, Annotator, Word type**

Separate models for different parts of speech

## Model summary (Shapiro & Anttila to appear)

Fixed effects	Estimate	SE	p-value
<i>Nouns</i>			
Repetition	$3.34 \times 10^{-2}$	$5.56 \times 10^{-3}$	$< 0.001$
Retraction	$-4.84 \times 10^{-2}$	$5.62 \times 10^{-3}$	$< 0.001$
<i>Adjectives</i>			
Repetition	$9.96 \times 10^{-2}$	$8.98 \times 10^{-3}$	$< 0.001$
Retraction	$-2.47 \times 10^{-2}$	$1.34 \times 10^{-2}$	0.065
<i>Verbs</i>			
Repetition	$4.68 \times 10^{-2}$	$8.08 \times 10^{-3}$	$< 0.001$
Retraction	$-3.28 \times 10^{-2}$	$8.40 \times 10^{-3}$	$< 0.001$
<i>Function words</i>			
Repetition	$6.97 \times 10^{-3}$	$2.75 \times 10^{-3}$	0.011

**Table 1.** Associations with the Accentuation Index.

## Pragmatic effects (Shapiro & Anttila to appear)

- Deaccentuation is sometimes possible without a \*STRESS-COPY violation:

John called Mary a XXX and then SHE insulted HIM.

where XXX = Republican, Democrat, linguist,...

- The entailment is not semantic, but speaker-defined.  
(van Deemter 1994, Rochemont 2016: 47)

Proposal: Here deaccentuation is put into productive rhetorical use:

- Deaccentuation invites the hearer to identify two strings.
- When identity of form fails, the hearer infers identity of meaning.
- This interpretation pivots on shared phonological knowledge.



## Summary

- a. Deaccentuation is a phonological rule of English.
- b. Deaccentuation means to be perceived with less stress than expected.
- c. Deaccentuation is stress retraction (Ladd 1980).
- d. “Decay” effects suggest that processing matters (Jacobs et al. 2015).

## Questions

### Questions from A to B

- Why are antecedents that have the same meaning but not the same form valid antecedents for deaccentuation?
- Why is there a contrast requirement on deaccentuation?
- Why is there a need for a semantic antecedent?

### Questions from B to A

- *I can't imagine what it would be like to be a dentist -- but I am awfully glad there are guys who want to **BE dentists*** (Ladd 1980: 81).
- Is it circular to say focus determines the location of accent if the only way to identify focus is the location of accent?
- How can we identify focus independently of accent, so as to be able to genuinely predict accent from focus?

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