

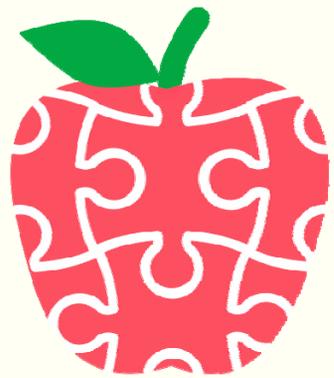


## **MORPHOLOGICAL USE AND AWARENESS:**

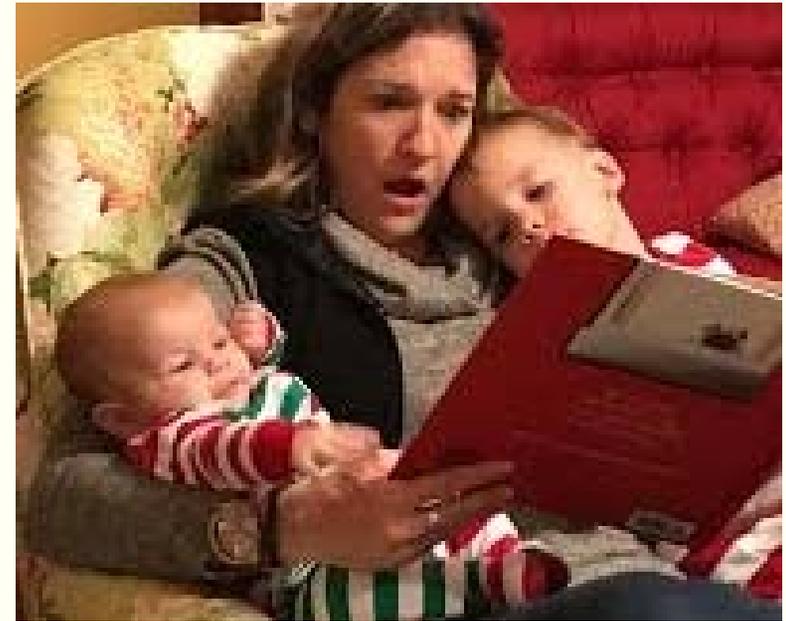
## **WHAT'S THE DIFFERENCE AND HOW DO I ASSESS THEM?**

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Power Up Outcomes with Evidence Based Practice  
August 5, 2021





**AUTISM,  
PEDIATRIC  
LANGUAGE &  
LITERACY LAB**



## Disclosures:

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- **Consulting Fees:** Some of the research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305A170065 to the University of South Carolina. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education. *I have received consulting fees for my work on this grant.*
- **Authorship:** I am an author on some of the research that will be referenced within this presentation.
- **Membership/Certification:** I am a certified member of the American Speech-Language-Hearing Association (ASHA)
- **Honorarium:** I am receiving an honorarium for this presentation.

## **This presentation will be INTERACTIVE!**

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- Attendees will be asked to participate in the presentation via the Zoom chat box
- Attendees are welcome to ask questions via the Q and A feature on Zoom

In the chat box.... where are you?



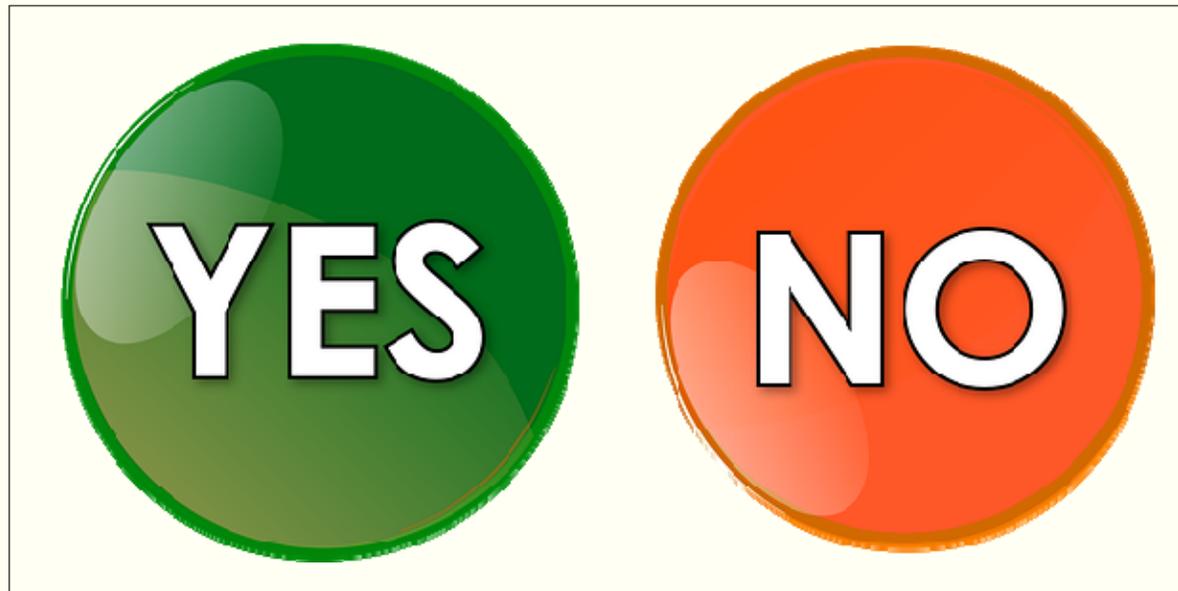
In the chat box..

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Tell me about your current work setting and caseload including age ranges and diagnoses

**Do you work on literacy skills with your clients? In the chat box...**

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Do you work on morphological awareness? In the chat box...



## ASHA's Position Statement

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It is the position of the American Speech-Language-Hearing Association (ASHA) that speech-language pathologists (SLPs) play a critical and direct role in the development of literacy for children and adolescents with communication disorders,<sup>[1]</sup> including those with severe or multiple disabilities. SLPs also make a contribution to the literacy efforts of a school district or community on behalf of other children and adolescents. These roles are implemented in collaboration with others who have expertise in the development of written language and vary with settings and experience of those involved.<sup>[2]</sup>

As with difficulty in learning to listen and speak, difficulty in learning to read and write can involve any of the components of language—phonology, morphology, syntax, semantics, and pragmatics. Problems can occur in the production, comprehension, and awareness of language at the sound, syllable, word, sentence, and discourse levels. Individuals with reading and writing problems also may experience difficulties in using language strategically to communicate, think, and learn. These fundamental connections necessitate that intervention for language disorders target written as well as spoken language needs.

# ASHA's Position Statement

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SLPs' knowledge of normal and disordered language acquisition, and their clinical experience in developing individualized programs for children and adolescents, prepare them to assume a variety of roles related to the development of reading and writing. Appropriate roles and responsibilities for SLPs include, but are not limited to (a) preventing written language problems by fostering language acquisition and emergent literacy; (b) identifying children at risk for reading and writing problems; (c) assessing reading and writing; (d) providing intervention and documenting outcomes for reading and writing; and (e) assuming other roles, such as providing assistance to general education teachers, parents, and students; advocating for effective literacy practices; and advancing the knowledge base. These roles are dynamic in relation to the evolving knowledge base and have implications for research and professional education.

American Speech-Language-Hearing Association. (2001). *Roles and responsibilities of speech-language pathologists with respect to reading and writing in children and adolescents* [Position Statement]. Available from [www.asha.org/policy](http://www.asha.org/policy).

## Did you Know? (Good, 2019)

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- **Of 105 SLPs survey from SIG 16-School-based Issues**
- 36.2% reported they regularly work on written language (i.e., literacy skills)
- 83.5% reported that morphological awareness was one of the areas they addressed
- 32.4% reported high confidence in teaching morphological awareness, 46.7% moderate, and 21% minimal
- 76.7% reported satisfaction with morphological awareness instruction
- 52.4% reported that were taught about morphological awareness in their coursework, 30.5% said no, 17.1% were unsure
- 56.2% said they learned more about morphological awareness through continuing education—*woohoo! That's you!*

# Agenda and Outcomes

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## Session Agenda

- 1) **What is Morphological Use (and comprehension) and how is it different from Morphological Awareness**
- 2) **Why we care about morphological awareness**
- 3) **What are the components of Morphological Awareness**
- 4) **Strategies and tasks for assessing the 4 components of morphological awareness**
- 5) **Key considerations for morphological awareness assessment**

## Expected Learning Outcomes

- 1) **The learner will compare and contrast morphological use and morphological awareness.**
- 2) **The learner will name and describe the four components of morphological awareness.**
- 3) **The learner will describe the relation between morphological awareness performance and literacy achievement.**
- 4) **The learner will identify tasks/tests that measure morphological use and morphological awareness.**
- 5) **The learner will apply key considerations when making decisions for morphological awareness assessment**



**1) WHAT IS MORPHOLOGICAL USE (AND COMPREHENSION) AND HOW IS IT DIFFERENT FROM MORPHOLOGICAL AWARENESS**

What is morphology? In the chat box

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# MORPHOLOGY

The rules for how morphemes in a language are used (Language in Brief, ASHA.org)

<https://www.asha.org/practice-portal/clinical-topics/spoken-language-disorders/language-in-brief/>

## A quick review

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- A **morpheme** is the smallest unit of meaning in language (e.g., dog)
- A **base word** is a morpheme that can stand alone (e.g., dog)
- An **affix** is a morpheme that must be bound to a base word (e.g., dogs)
- Both base words and affixes are morphemes because they carry meaning

## Affixes

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- **Inflectional morphemes** provide information about time or quantity without changing the meaning or class of the word.

Time > “walked, walking, walks”

Quantity > “cats” “boxes”

- **Derivational morphemes**, which can be *prefixes* or *suffixes*, change the meaning and/or the word class

Word class > “teach, teacherer”

Meaning > “fair, unfair”

Word class and meaning > “exploration”

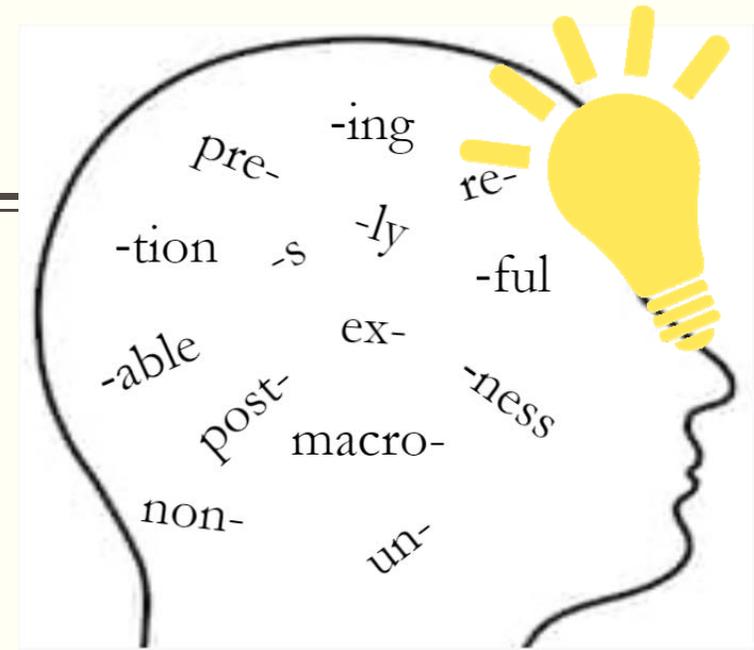


# MORPHOLOGICAL USE AND COMPREHENSION

The production and understanding of morphology as it occurs in a communicative context (Bloom & Lahey, 1978)

# What is morphological awareness?

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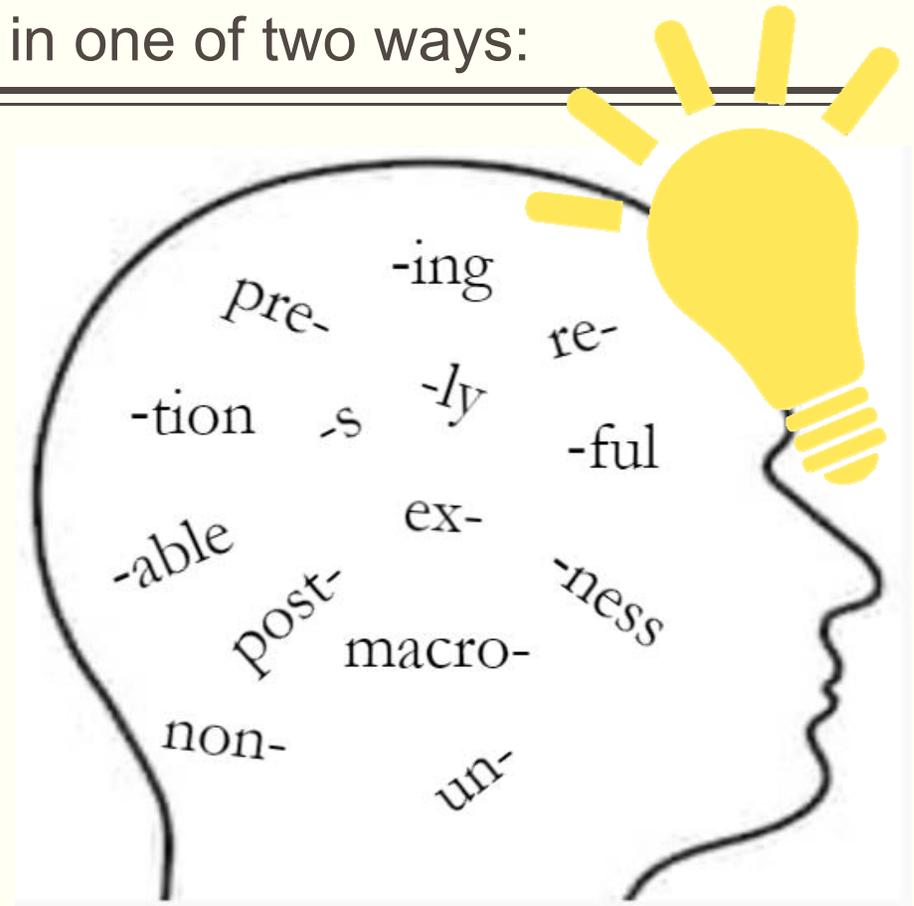
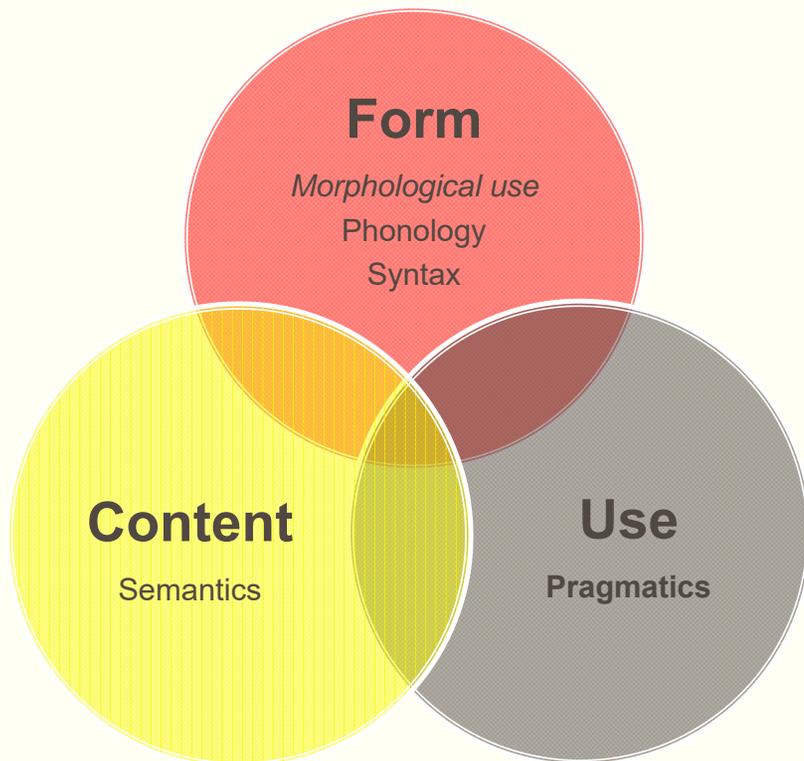


# MORPHOLOGICAL AWARENESS

The ability to consciously consider and manipulate the smallest units of meaning in language, including base words and affixes (Apel, 2014; Carlisle, 1995)

## We can think about morphology in one of two ways:

- Bloom and Lahey 1978



## Related, but different...

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### Morphological Use

- Morphological production as it occurs in a communicative context
- Is learned implicitly; requires **no conscious attention** to morphemes
- Is measured via a language sample analysis taken within a communicative context
- Difficulty with morphological use (e.g., tense marking) is a clinical marker for spoken language impairments

### Morphological Awareness

- The ability to consciously consider and manipulate the smallest units of meaning in language, including base words and affixes
- **Requires conscious attention** to how morphemes operate in a language
- Is measured outside of a communicative context via tasks that require an individual to consciously think about and manipulate morphemes in a number of different ways
- Lack of morphological awareness has consequences for literacy achievement
- Requires instruction

## Fast Facts about Morphological Awareness

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- Inflectional morphological awareness may begin to develop as early as preschool years and continues to develop throughout the early elementary-age years (Berko, 1958, Carlisle, 1995)
- Children as young as 1<sup>st</sup> grade had different spelling omission patterns depending on whether the consonant was part of the same or different morpheme (Treiman, Cassar, & Zukowski, 1994; Treiman & Cassar, 1996)
  - Children are less likely to omit the *n* of a word like *tuned*, than the *n* of a word like *brand*
- Derivational morphological awareness is more difficult compared to inflectional morphological awareness for young elementary-age students (Carlisle & Nomanbhoy, 1993; Deacon, 2008), though elementary-age students **DO** demonstrate derivational morphological awareness (e.g., Apel & Thomas-Tate, 2009; Desrochers et al., 2018; Levesque et al., 2017; Spencer et al., 2015).

Invented morphology....becoming morphologically aware!

“I rememberized you”

4-year-old

“Make it go radly”

4-year-old

“You be the lister”

3-year-old

“Yesternight”

3-year-old

“I’m not joking, I’m realing.”

## Morphological Awareness: What happens when words are “affixed”

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**Transparent Derivations**: the semantic link between the base word and the derived word is clear, or *transparent*.

- Derivational forms do not affect spelling of the base word “friend, friendly”
- Derivational forms alter the base word orthographically OR phonologically  
“silly, silliness”, “magic, magician”

**Opaque Derivations**: The semantic connection between the base and derived form is less clear because **BOTH** phonological and orthographic properties of the base word change

“busy, “busily”, “admit, admission”

## More Fast Facts

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- Children in grades 2-6 were more successful completing morphological awareness tasks when the items on the tasks were transparent (i.e., no phonological or orthographic changes; e.g., friend > friendly) vs. those that were orthographically and phonologically opaque (e.g., admit > admission; Apel, Henbest, & Petscher, in preparation)
- Although steep growth in MA occurs in the early elementary-age years, growth does occur beyond the elementary-age grades (Berko, 1959; Carlisle, 1995; Berninger et al., 2010)
- Middle school students are less accurate on items that are phonologically opaque compared to items that are completely transparent (Goodwin et al., 2013)



## **2) WHY DO WE CARE ABOUT MORPHOLOGICAL AWARENESS**

## Children who are more morphologically aware are better readers and spellers!

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- **Correlations between MA and reading/spelling range from .46-.77; MA is sometimes THE unique predictor for some literacy skills** (e.g., Apel et al., 2012; Deacon et al., 2018; Kirby, Deacon, Bowers, Izenberg, Wade-Woolley, & Parrila, 2012; Roman, Kirby, Parrila, Wade-Woolley, & Deacon, 2009).
- **Affixed words outnumber root words 4 to 1.**
- **Morphological awareness intervention improves MA and literacy skills, particularly in younger children and children considered “at-risk”** (e.g., Apel, Brimo, Diehm, & Apel, 2013; Apel & Diehm, 2014; Bowers, Kirby, & Deacon, 2010; Goodwin & Ahn, 2013; Kirk & Gillon, 2009)
- **Is a powerful tool for helping students think about sounds, patterns, and meaning**
- **Typically is overlooked in curricula, yet it is expected that students demonstrate the skill (e.g., Common Core State Standards; Gabig & Zaretsky, 2013)**



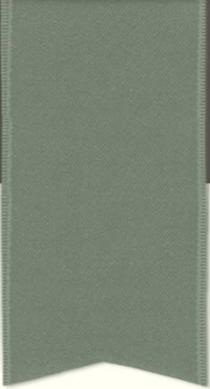
### **3) WHAT ARE THE COMPONENTS OF MORPHOLOGICAL AWARENESS**

## Apel (2014) proposes a 4 component definition of Morphological Awareness (MA)

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Awareness of:

- 1) what morphemes sound like (spoken language) and look like (written language) (e.g., plural 's' sounds like /s/, /z/, /əs/, /əz/ and looks like ('s', 'es'))
- 2) the meaning of affixes and the alterations in meaning (e.g., unlike) and sometimes grammatical class they bring to base words (e.g., exploration) (spoken and written)
- 3) the spelling of written morphemes including how the addition of morphemes can affect base word spellings (e.g., pat > patted; admit > admission)
- 4) the relation of base words to their inflected and derived forms (e.g., "Does mother come from moth?") ("Does pleasure come from please?") (spoken and written)

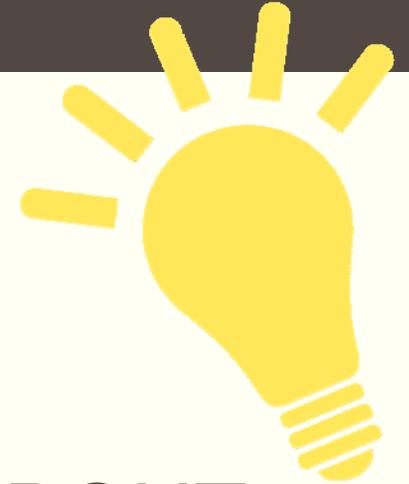


## **4) STRATEGIES AND TASKS FOR ASSESSING THE 4 COMPONENTS OF MORPHOLOGICAL AWARENESS**



WE ASSESS MORPHOLOGICAL  
AWARENESS WITH TASKS THAT  
**REQUIRE STUDENTS TO THINK ABOUT**  
MORPHEMES

For fun, let's check out your morphological awareness!



In the chat box... *How many  
morphemes?*

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Salamander

*How many morphemes?*

---

unbelievable

(Moats, 1994; Henbest, Apel, & Mitchell, 2019)

*How many morphemes?*

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finger

(Moats, 1994; Henbest, Apel, & Mitchell, 2019)

*How many morphemes?*

---

inscription

(Moats, 1994; Henbest, Apel, & Mitchell, 2019)

*How many morphemes?*

---

refunded

(Moats, 1994; Henbest, Apel, & Mitchell, 2019)

*How many morphemes?*

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recycle

(Moats, 1994; Henbest, Apel, & Mitchell, 2019)

## More morphological awareness fun!

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Which of the following words has a prefix?

1. Mistletoe
2. Distance
3. Removed
4. Interest
5. Furnishing

## More morphological awareness fun!

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Which of the following words has a suffix?

1. Dependent
2. Reflex
3. Fantasy
4. Indent
5. Garden

And more...

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**Read the sentence and choose the nonsense word that best fits the sentence.**

Desert animals are not normally \_\_\_\_\_.

- 1) commalianization
- 2) commalious
- 3) commalianism
- 4) commalianize

Henbest, Apel, & Mitchell, 2019; Mahony, 1994; Wilson-Fowler & Apel, 2015

And more...

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**Read the sentence and choose the nonsense word that best fits the sentence.**

Please \_\_\_\_\_ these forms as soon as possible.

- 1) Scribsumptist
- 2) scribsumptious
- 3) Scribsumptian
- 4) scribsumptize

Henbest, Apel, & Mitchell, 2019; Mahony, 1994; Wilson-Fowler & Apel, 2015

## Standardized Tests for Assessing Morphological Awareness

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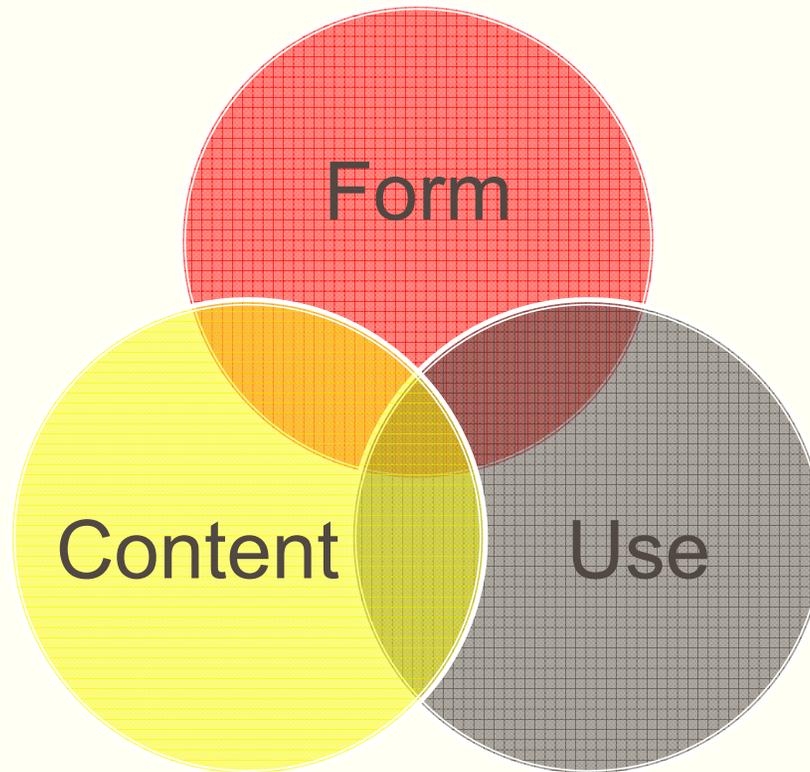
- To date, there are no standardized tests designed to assess the 4 components of morphological awareness (Apel, 2014)
- One such test is currently in development, the *Morphological Awareness Test for Reading and Spellings (MATRS)*.  
Technical Report: <https://psyarxiv.com/ty2pe/>
- Some commonly used standardized tests have subtests which measure morphological awareness
  - In practice, we have been using these subtests to measure the other aspect of morphology: morphological use and comprehension

Measure	Description
Test for Examining Expressive Morphology (Shipley, Stone, & Sue, 1983)	<ul style="list-style-type: none"> <li>•Assesses awareness of five inflections (present progressive –ing, plurals, possessives, third person singular, past tense) and two derivational forms (the comparative ‘er and the superlative ‘est).</li> <li>•Students complete a sentence with an affixed word (e.g., here is one boat, here are two ____ [boats]).</li> </ul>
Test of Language Development-Primary:4 (Hammill & Newcomer, 2008a) Subtest: Morphological Completion	<ul style="list-style-type: none"> <li>•Assesses awareness of 13 inflections (7 plurals, 4 possessives, and 2 past tense) and five derivational forms (3 agentive and 2 comparative).</li> <li>•Students complete a sentence with an affixed word (e.g., “Carla has a dress, Denise has a dress. They have two ____ [dresses]).</li> </ul>
Assessment of the Learner – Second Edition (Berninger, 2007)	<ul style="list-style-type: none"> <li>•Students view printed words and identify those containing inflectional and derivational affixes</li> <li>•Students determine whether two words presented share the same root.</li> <li>•Identified as a measure of morphological awareness</li> </ul>
Test of Language Development-Intermediate: 4 (Hammill & Newcomer, 2008b) Subtest: Morphological Comprehension	<ul style="list-style-type: none"> <li>•Some of the target items tap into inflectional and derivational knowledge, while others rely more on syntactic awareness.</li> <li>•Students read a sentence and must judge whether the sentence sounds grammatically correct (e.g., “Those boys is happy.”).</li> </ul>
Illinois Test of Psycholinguistic Abilities: 3 (Hammill, Mather, & Roberts, 2001) Subtest: Morphological Closure	<ul style="list-style-type: none"> <li>•Assesses awareness of 13 inflections (6 plurals and 7 past tense) and 13 derivational forms (4 superlatives, 3 comparative, and 6 others).</li> <li>•Students asked to fill in a final missing part (e.g., “big, bigger, ____ [biggest]).</li> </ul>
Clinical Evaluation of Language Fundamentals:4 (Semel, Wiig, & Secord, 2003) Subtest: Word Structure	<ul style="list-style-type: none"> <li>•Assesses awareness of 12 inflections (2 plurals, 2 third person singular, 3 possessives, 4 present progressive –ing and 1 past tense) and 4 derivational forms (1 superlative, 2 comparative, and 1 other).</li> <li>•Students complete a sentence with an affixed word (e.g., “This man sings. He is called a ____ [singer]).</li> </ul>

# The only way to measure morphological use is via a language sample analysis

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Bloom and Lahey 1978





## So how do we assess morphological awareness?

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- As a starting point: we can give a subtest from a standardized test that measures morphological awareness, but that won't give us the whole picture...
- To **assess to inform treatment**, we need to assess using criterion-referenced tasks that **measure all 4 components** of morphological awareness, which require children to think about:
  - 1) what morphemes sound and look like
  - 2) the meaning of affixes and the alterations in meaning and sometimes grammatical class they bring to base words
  - 3) the spelling of written affixes including how the addition of morphemes can affect base word spellings
  - 4) the relation of base words to their inflected and derived forms



# MORPHOLOGICAL AWARENESS TEST FOR READING AND SPELLING (MATRS)

Tasks that assess each of the 4 components of morphological awareness  
Apel, Petscher, & Henbest (2021)

# 1) what morphemes sound and look like (*MATRS*)

Sounds like (spoken language)



## SEGMENTING

Instructions:

This is a listening task. I need your help listening to the meaningful “parts” that you hear in words. I will say a word and you will tap this block (show block) for each meaningful part you hear in the word.

How many meaningful parts do you hear in the word.....teacher, dogs, recycle



Looks like (written language)



## AFFIX ID

Instructions:

This activity has lots of silly words you’ve never seen before. These words have real add-ons (prefixes or suffixes) at the beginning or end of the word. You use and have seen many of these add-ons (prefixes or suffixes) before.

Your job is to find these real add-ons (prefixes or suffixes) and circle them.

meckness

retage

gretting

(Apel et al., 2013)

## 2) the meaning of affixes and the alterations in meaning and sometimes grammatical class they bring to base words (*MATRS*)

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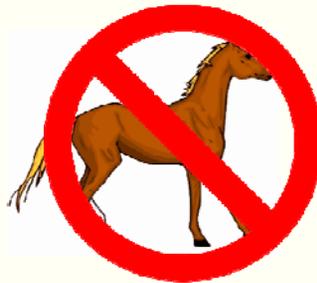
### AFFIX MEANING TASK (spoken and written)

Instructions:

This activity has lots of silly words you've never seen or heard before. You will hear and see a made-up word in a sentence and then circle a new made-up word that best fits the description in the sentence. Don't worry that you have not heard of the words before or are not sure what they mean; just choose the answer you think is best.

*If wame means horse then which word means without a horse?*

- a) *wameful*
- b) *wameless***
- c) *wamely*
- d) *wamer*



(Apel, Petscher, & Henbest, 2021; Mitchell & Brady, 2014)

### SUFFIX CHOICE (written only)

Instructions:

For this activity, you will read the sentence and find the correct word to fill in the blank.

Yesterday, I \_\_\_\_\_ french fries with my hamburger.

- a) ordered
- b) orderly
- c) orders
- d) ordering



### 3) the spelling of written affixes including how the addition of morphemes can affect base word spellings (MATRS)

#### **SPELLING MULTI-MORPHEMIC WORDS**

(spoken and written)

Instructions:

I will say each word, say it in a sentence, and then say the word again. Then, I want you to spell the word on your paper.

Rarity: The coin he found on the beach was a *rarity*.

Direction: The driver needs to go the other *direction* to get to the store.

Hardly: I *hardly* know what to do now.

#### **DERIVATIONAL SPELLING** (spoken and written)

Instructions:

For this activity, you will read the sentences as I read them aloud and then you will find the correct spelling of the add-on (ending or suffix) to complete the word.

1. The couple were engaged in a heated argu\_\_\_\_\_.

a) ment

b) ement

c) mint

## 4) the relation of base words to their inflected and derived forms (MATRS)

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### **SPOKEN RELATIVES** (spoken only)

Instructions:

For this activity, I will say a word and then you will say it. Then I will say a sentence that is missing a word. Use the first word I give you to think of the missing word in the sentence.

**Act.** When he grows up, he wants to be an \_\_\_\_\_ . (actor)

**Eating** The baby shook his head because he did not want to \_\_\_\_\_. (eat)

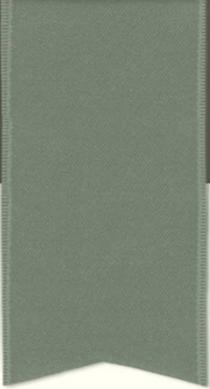
### **WRITTEN RELATIVES** (written only)

Instructions:

For this activity, you will see a word. Read the word, and then you will read the sentence that is missing a word. Use the word you read before the sentence to help you think of the missing word to fill in the blank line. You then will write that word on the blank line.

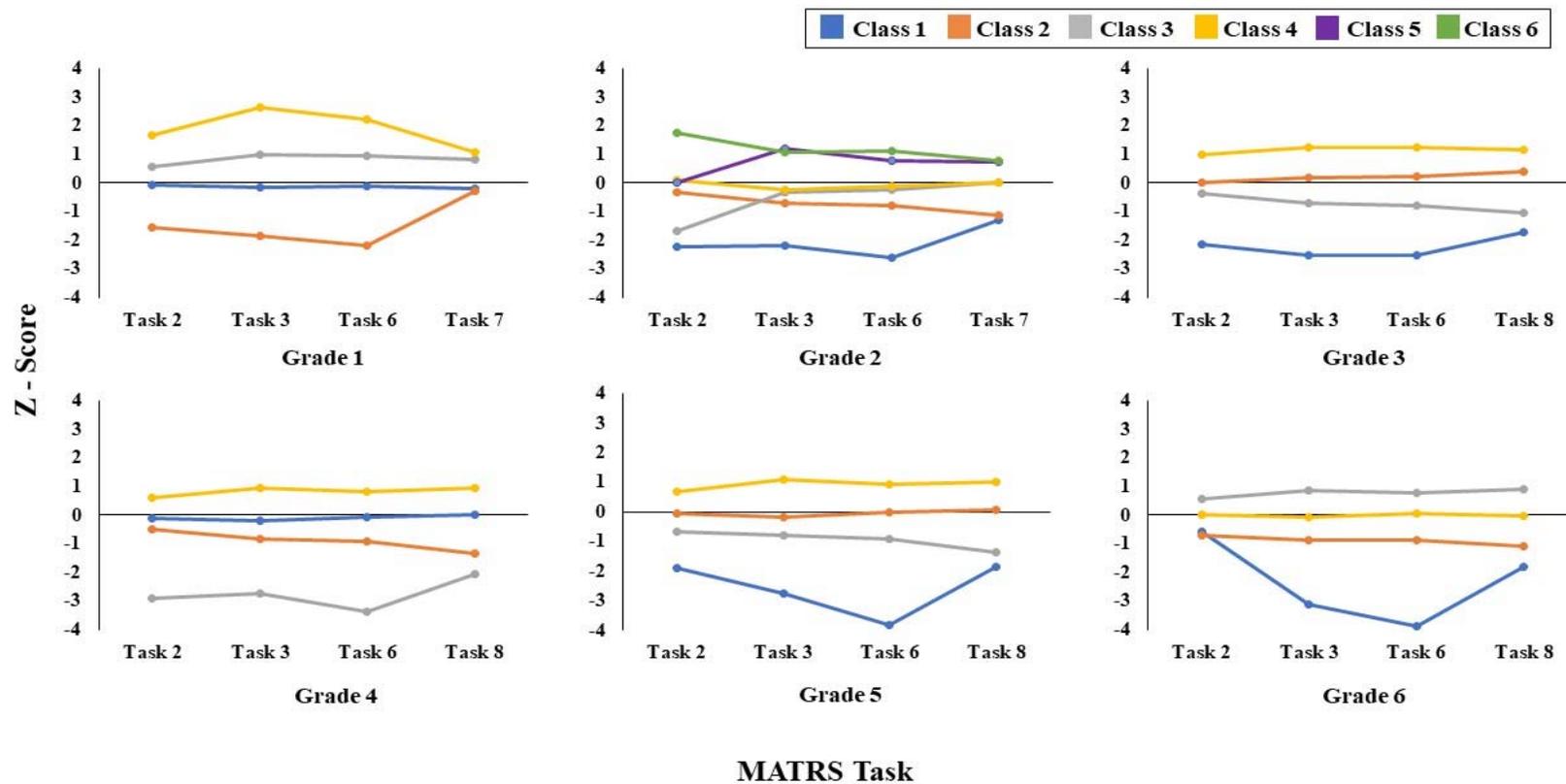
**Achieve.** When she realized how much needed to be done, she realized the goal was not \_\_\_\_\_. (achievable)

**Drivable.** I had to \_\_\_\_\_ my car to the market. (drive)



## **5) KEY CONSIDERATIONS FOR MORPHOLOGICAL AWARENESS ASSESSMENT**

# That's a lot of tasks...do I need to give all of them? (Apel, Henbest, & Petscher, in revision)



How do I know if I need to assess a child's morphological awareness?

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- Child has a spoken language impairment
- Child has a learning disability
- Child's teacher or parent reports difficulty with word reading, spelling, or reading comprehension
- You notice morphological errors in the child's spelling attempts (e.g., friendlee/friendly; housiz/houses; recommendashun/recommendation)

## How do I choose which words, affixes, and tasks?

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- Consult grade-level texts/curriculum
- Consult classroom vocabulary expectations
- Use Grade-level word generators:  
<https://learningbydesign.com/word-study-products/instruction/word-list-maker/>
- Consider child's grade-level/abilities
  - Written language abilities
  - Spoken language abilities
- Consider affix type
- Consider transparency

### Common prefixes:

- re-, in-, dis-, im-

### Common suffixes:

- -tion, -y, -ly, -ant, -less, -er, -ment, -ful, -ness, -able, -ous, -ish, -ist,
- -ive, -ic, -ary, -ern, -ship, -ent, -ing, -or, -al, -en, -ity, -ward

- Baumann et al. (2002)
- Baumann et al. (2003)

## Let's Consider two cases...

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- 1st grade child with a spoken language impairment has difficulty with morphological use (does not mark past tense –ed, (e.g., he jump), has inconsistent use of present progressive-ing (he run) and plural forms (two boy). Undoubtedly, this child is struggling in the classroom including with learning to read words. The teacher notes poor phonological awareness skills and letter-sound correspondence.
  - 1) Will you assess morphological awareness?
  - 2) If so, how? Will you use all tasks? If not, which tasks will you use? What types of affixes will you include?
  - 3) Will you integrate other types of literacy instruction?
- 6<sup>th</sup> grade child is struggling to keep up with the readings and assignments in her class. Her teacher is concerned that she never learned to read “properly” and that her vocabulary is very low. Her teacher shares a spelling sample with you:
  - Happynes/happiness
  - Jumpt/jumped
  - siting/sitting
  - operashun/operation
  - skiping/skipping
  - 1) Do you suspect morphological awareness issues?
  - 2) Is so, how will you assess? What types of affixes will you include? How will you vary transparency?

## Resources

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- Grades 5-8 MONSTER PI

<http://worddetectives.com/>

- Word List Maker

<https://learningbydesign.com/word-study-products/instruction/word-list-maker/>

- SPELL-2

<https://learningbydesign.com/word-study-products/assessment/spell-2/>

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## Q and A

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