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מרכז אדמונד י. ספרא לחקר המוח בלקויות למידה
Edmond J. Safra Brain Research Center for the Study of Learning Disabilities
مركز أدموند ج. سفرا لبحوث الدماغ في عسر التعليمي

THE MORPHOLOGICAL DISTANCE IN ARABIC DIGLOSSIA: INSIGHTS FROM A LONGITUDINAL STUDY (K – G3)

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STUDY 1

STUDY 2

CONCLUSIONS & IMPLICATIONS

Background – Morphology

➢ Morphology is often regarded as one of the three cornerstones of literacy development [1].

➢ It also serves as a binding agent entangling the essential aspects of the word to each other [2].

➢ This connection facilitates the acquisition of multiple literacy skills and explains the relationship between oral and written language [2].

[1] McBride, 2017; Seidenberg & McClelland, 1989; Harm & Seidenberg, 2004; Kirby & Bowers, 2017
[2] Kirby & Bowers, 2017

*Morphology=
The study of how morphemes are created and combined into words.

Background – Morphology

➤ The role of morphology may vary across languages [1].

➤ Typological difference: analytic and synthetic [3].
  ➤ Analytic languages, such as *English*, rely heavily on lexical and syntactic notions.
  ➤ Synthetic languages, such as *Arabic* and *Hebrew*, encode grammatical and lexical notions within their word-internal structures.

➤ Native speakers of specific languages are attuned to their mother tongues' typological features [4].

➤ In synthetic languages, the attention of children is directed to the morphological arena [5].

[1] Aronoff & Fudeman, 2011
[2] Duncan, 2018; Ravid, 2019
[3] Berman, 1978, 1982
[4] Ravid, 2019
[5] Ravid, 1995

Arabic Language

➢ **Arabic language**
  ➢ A synthetic language with complex and rich *morphology*.
  ➢ *Diglossia*, where native Arabic speakers use two varieties of Arabic: Spoken Arabic and Standard Arabic.

➢ There are linguistic differences between these two varieties, encompassing all **language aspects**, including morphology [1].

➢ It warrants an in-depth understanding of the linguistic distance and its impact on the development of morphological awareness.

[1] e.g., Holes, 2004; Saiegh-Haddad, 2018

The Present Study

The impact of morphological distance between Spoken Palestinian Dialect (SPD) and Standard Arabic (MSA) on the development of morphological awareness

1 *Mapping the morphological distance from Spoken Palestinian Dialect (SPD) to Modern Standard Arabic (MSA)*

2 *Examining the impact of the morphological distance on morphological awareness from a longitudinal perspective (K – G3)*

1

Mapping the morphological distance from
Spoken Palestinian Dialect (SPD) to Modern Standard Arabic (MSA)
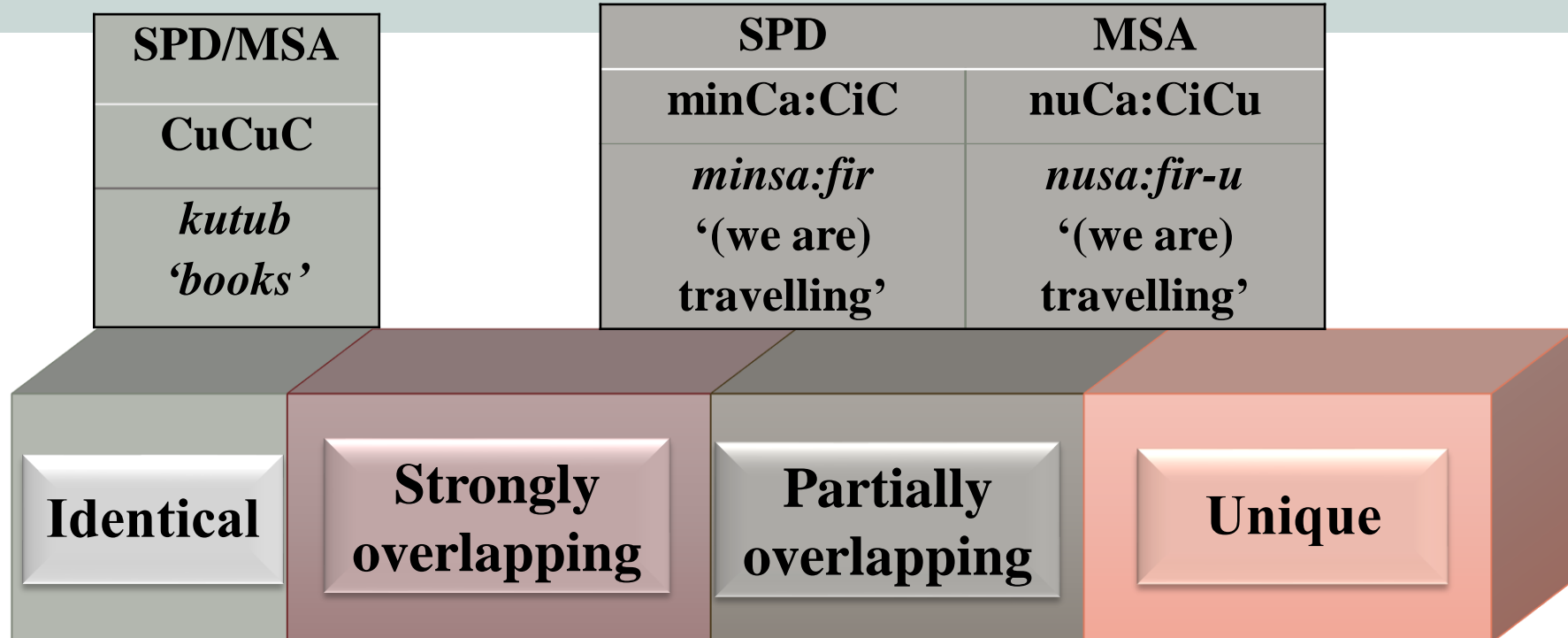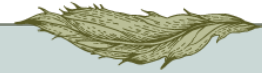
The aims of the study

➢ To describe, analyze, and quantify the distance of morphemes in content words from spoken Palestinian dialect to Modern Standard Arabic.
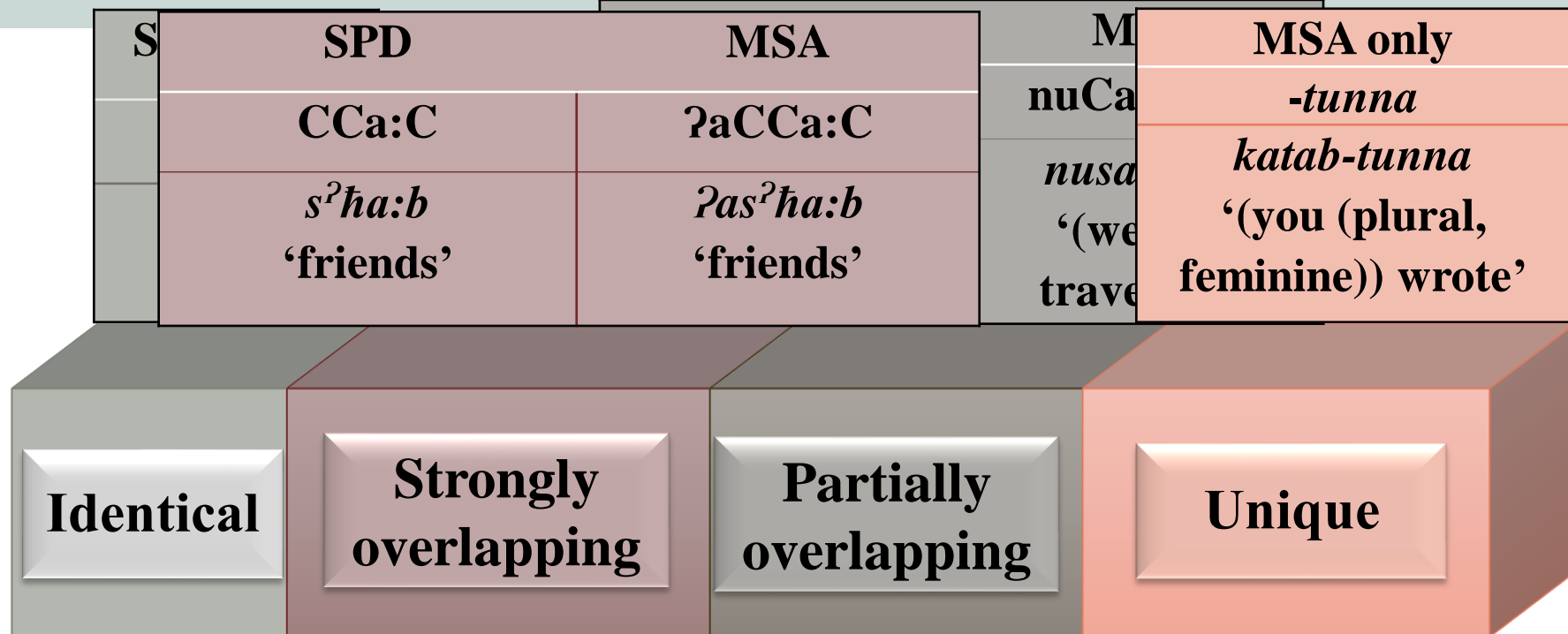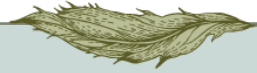
Joubran-Awadie, N., & Shalhoub-Awwad, Y. (2023). Morphological distance between spoken Palestinian dialect and standard Arabic and its implications for reading acquisition. *First Language, 43*(2), 200-230. https://doi.org/10.1177/01427237221145375

The morphological distance axis

SPD/MSA
CuCuC
kutub *'books'*

SPD	MSA
minCa:CiC	nuCa:CiCu
minsa:fir '(we are) travelling'	*nusa:fir-u* '(we are) travelling'

Identical | **Strongly overlapping** | **Partially overlapping** | **Unique**

1

The morphological distance axis

	SPD	MSA		MSA only
	CCa:C	?aCCa:C	nuCa	-*tunna*
	s^?ħa:b 'friends'	*?as^?ħa:b* 'friends'	*nusa* '(we trave	*katab-tunna* '(you (plural, feminine)) wrote'

Identical	**Strongly overlapping**	**Partially overlapping**	**Unique**

1

Main Results

➢ The distribution of morphological structures in terms of distance degrees.

81%   **63%**

18.6% — Identical
28.6% — Strongly overlapping
25.2% — Partially overlapping
27.6% — Unique

0.0   10.0   20.0   30.0   40.0   50.0   60.0   70.0   80.0   90.0   100.0

Identical (N=78)   Strongly overlapping (N=120)   Partially overlapping (N=106)   Unique (N=116)
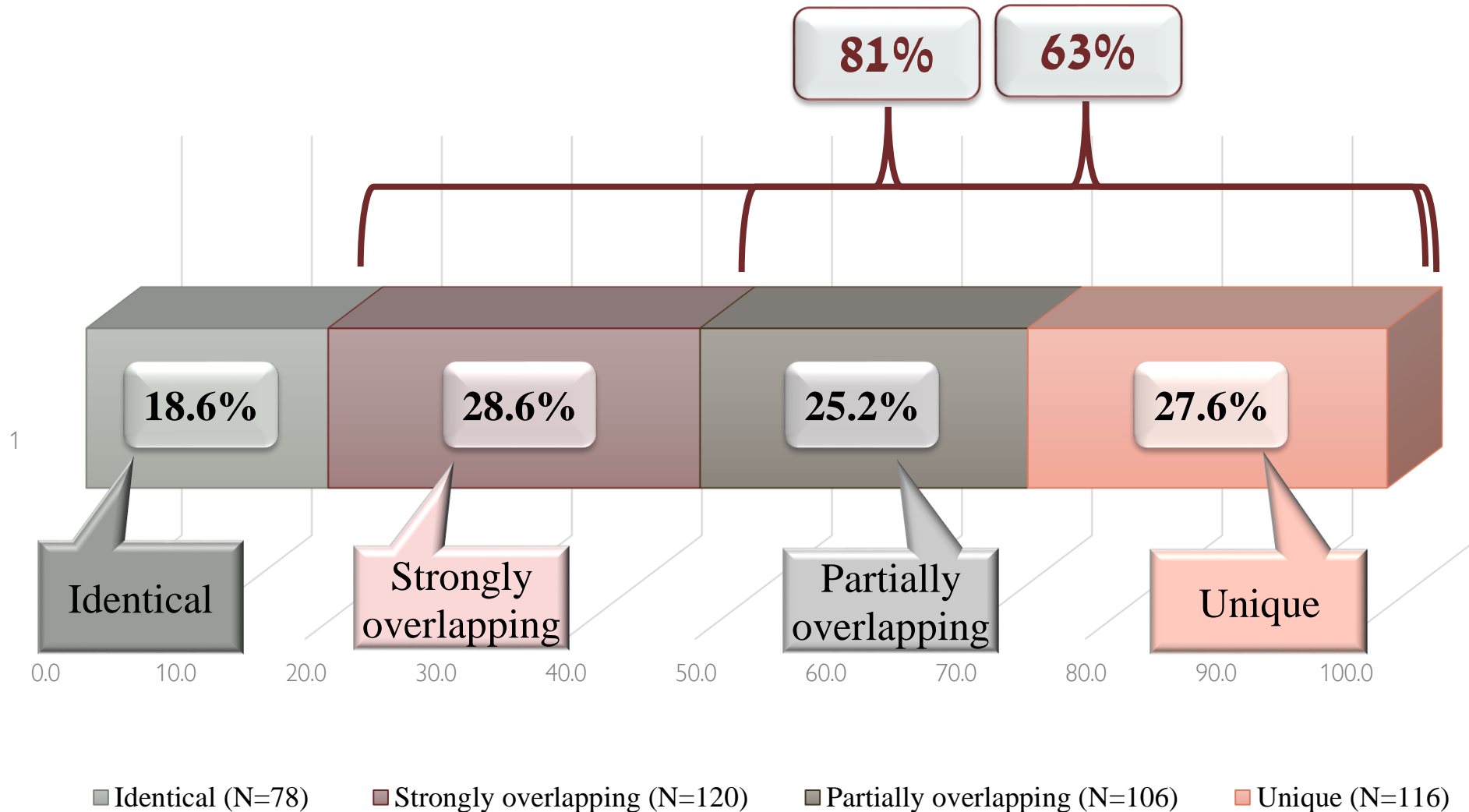
Main Results

➢ The distribution of the five morphological/lexical categories along the distance axis.

Joubran-Awadie & Shalhoub-Awwad, 2023

2
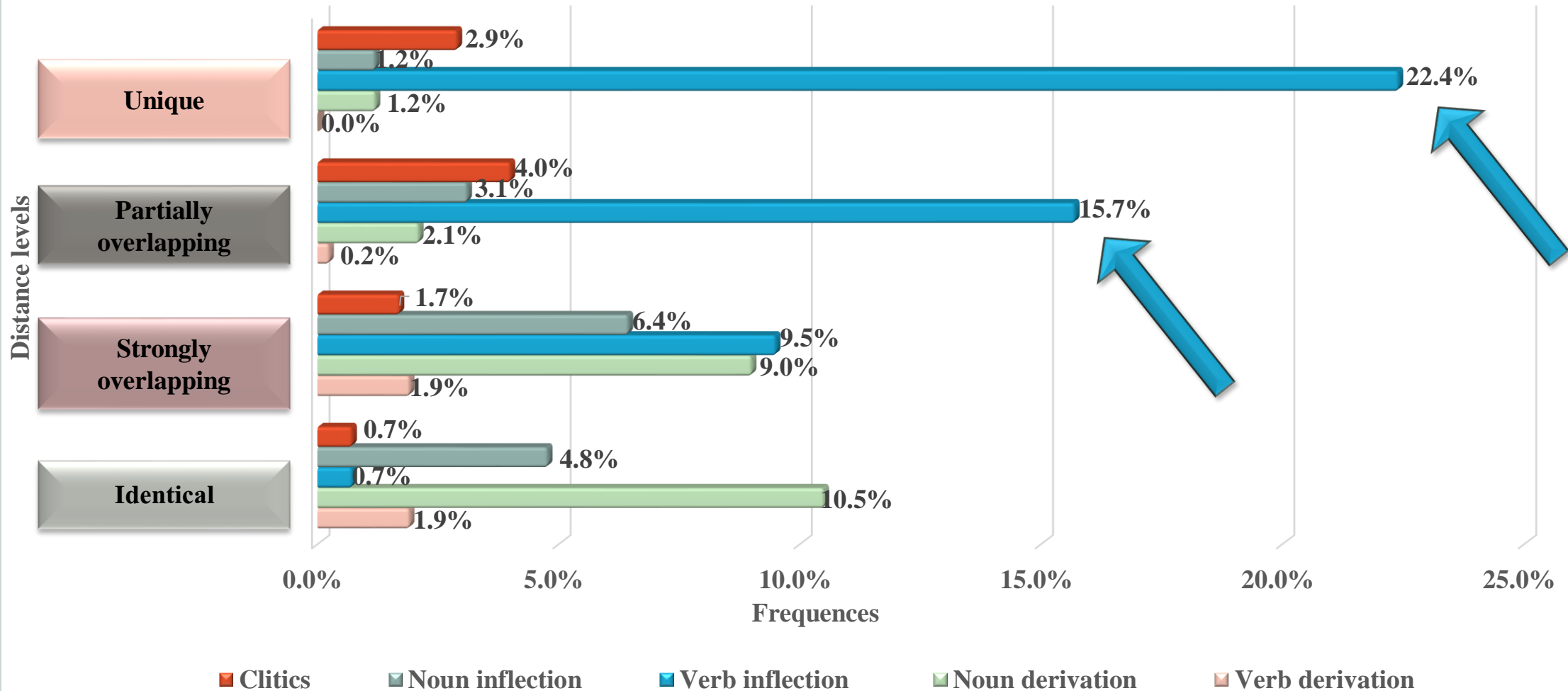
The Impact of Inflectional Distance on Morphological Awareness in Arabic Diglossia:
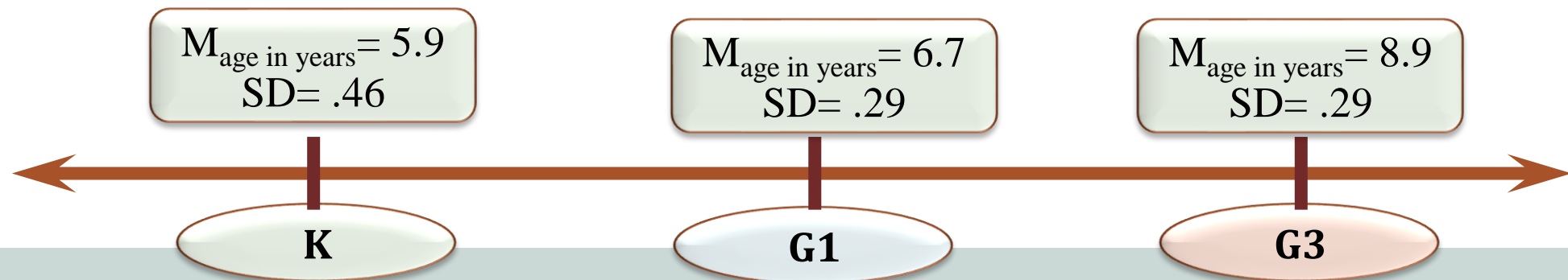*Insights from a Longitudinal Study (K – G3)*

The aims of the study

➢ To examine the longitudinal impact of verb inflectional distance on morphological awareness among Arabic-speaking children from K to G3.

➢ To investigate the impact of testing children in two language varieties (SPD vs. MSA) on their morphological awareness from K to G3.

➢ **Longitudinal study conducted at Edmond J. Safra Brain Research Center for the Study of Learning Disabilities at the University of Haifa**.

➢ All children were **Arabic-speaking** residing in the greater **Haifa** region and other nearby towns and villages in **northern Israel**.

➢ **N=62** (33 girls)

➢ All children were assessed **at three-time points**:

➢ **Four main Palestinian dialects**: rural, urban, Druze, and Bedouin.

$M_{age\ in\ years} = 5.9$
SD= .46

$M_{age\ in\ years} = 6.7$
SD= .29

$M_{age\ in\ years} = 8.9$
SD= .29

K

G1

G3

PSEUDO-ROOT VERB INFLECTION TASKS

➤ The morphological awareness in SPD and MSA was tested orally using two similar inflectional pseudo-verb tasks in each of the three time points: K, G1, and G3

➤ The pseudo-verbs were made by adding a non-existent root *f.l.z* to real common verbal patterns, in past or present tense.

➤ Each child was asked to complete sentence frames by inflecting a pseudo-verb following grammatical agreements: gender, number, tense, or person, per specific time expression and subject pronouns.

PSEUDO-ROOT VERB INFLECTION TASKS

Examples

In SPD

imbariħ iħna ʃalazna, issa iħna...

'Yesterday we *ʃalazna*, now we are…'

The expected answer: *mniʃliz*

Adapted to Arabic by Shalhoub-Awwad et al. (2021) based on Shalev-Leifer and Breznek (2016)

In MSA

ʔams naħnu ʃalazna, ʔalʔa:n naħnu…

'Yesterday we *ʃalazna*, now we are…'

The expected answer: *naʃluzu*

Adapted to the MSA version of Arabic by Shalhoub-Awwad & Joubran-Awadie (2021) based on the spoken version

Grade	Reliability - ʃalaz in SPD	Reliability - ʃalaz in MSA
K	.78	.84
G1	.82	.81
G3	.91	.91

Morpho-Distance
Joubran-Awadie & Shalhoub-Awwad

PSEUDO-ROOT VERB INFLECTION TASKS

Examples

	SPD	MSA
Different form:	**mniCCiC**	**naCCuCu**
ʃ.l.z.	*mniʃliz*	*naʃluzu*
k.t.b.	*mniktib*	*naktubu*
Same function:	Present tesnse	
	1ˢᵗ person, dual/plural, masculine/ feminine	

imbar...u...

'Yesterd...'...'

The

Awadie (2021) based on the spoken version

Identical

Strongly overlapping

Partially overlapping

Unique

The distance axis of the current study

Identical & S.O.

P.O. & Unique

Identical | Strongly overlapping | Partially overlapping | Unique
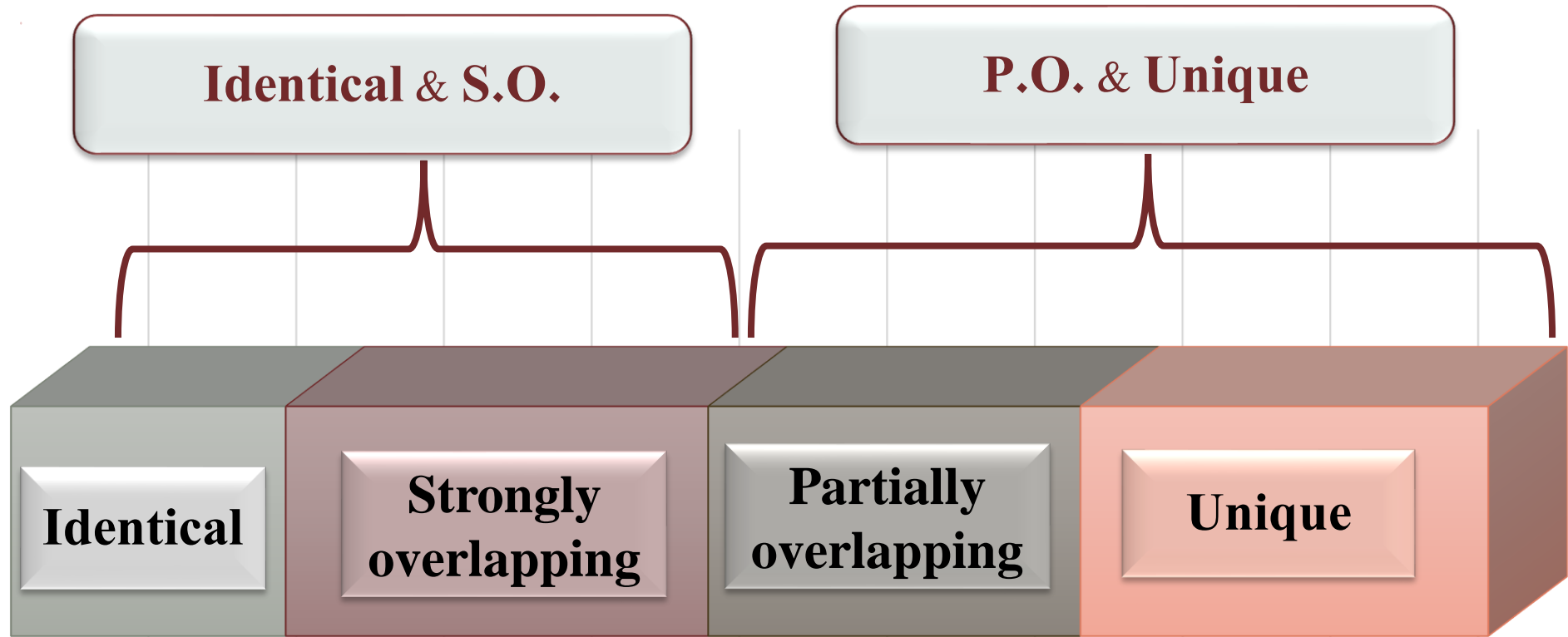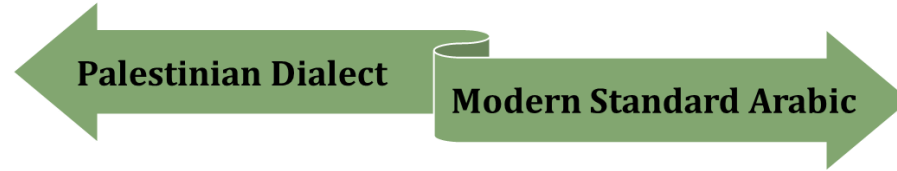
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The questions

1) What is the impact of verb inflectional distance on morphological awareness from a developmental perspective?

2) To what extent does testing children in different language varieties affect their morphological awareness?

3) What is the impact of the different distance levels and language variety on the developmental trajectory of morphological awareness?

Results – Main Effects

Distance effect	Identical & S.O.	P.O. & Unique
Mean (SD)	61.5%	40.5%

F(1, 61)=339.592, p <.0001

Grade effect	K	G1	G3
Mean (SD)	37.9%	50.9%	64.3%

F(2, 60) =52.871, p <.0001

Language variety effect	SPD	MSA
Mean (SD)	60.4%	41.6%

F(1, 61) = 146.513, p < .0001

Main Results – Interactions

DISTANCE LEVELS * LANGUAGE VARIETY

MSA
- 25.9
- 57.3
- **31.5%***

SPD
- 55.2
- 65.7
- **10.4%**

Legend: ■ P.O. and unique ■ Identical and S.O.

Axis: 10 20 30 40 50 60 70 80
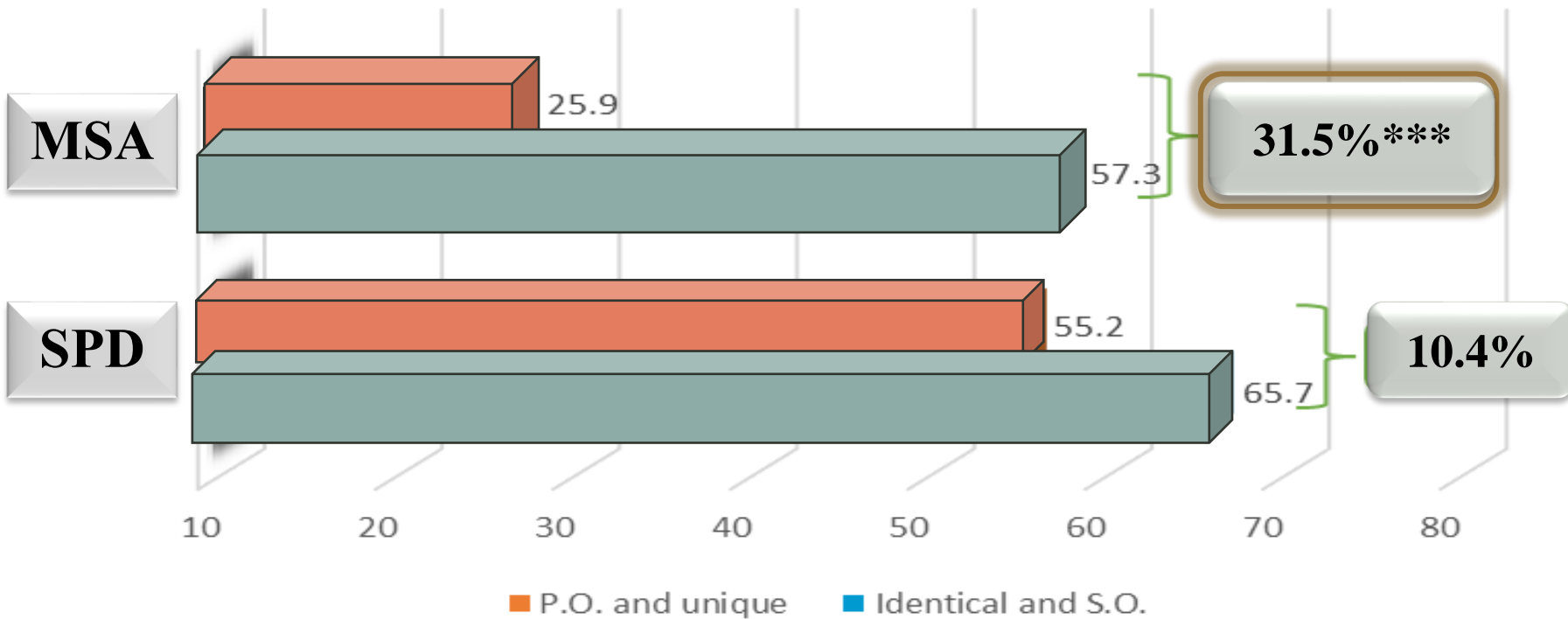
F(1,61) = 111.613, p <.001

Main Results – Interactions

DISTANCE LEVELS * GRADE

F(2, 60) = 4.949, p =.01

Morpho-Distance
Joubran-Awadie & Shalhoub-Awwad
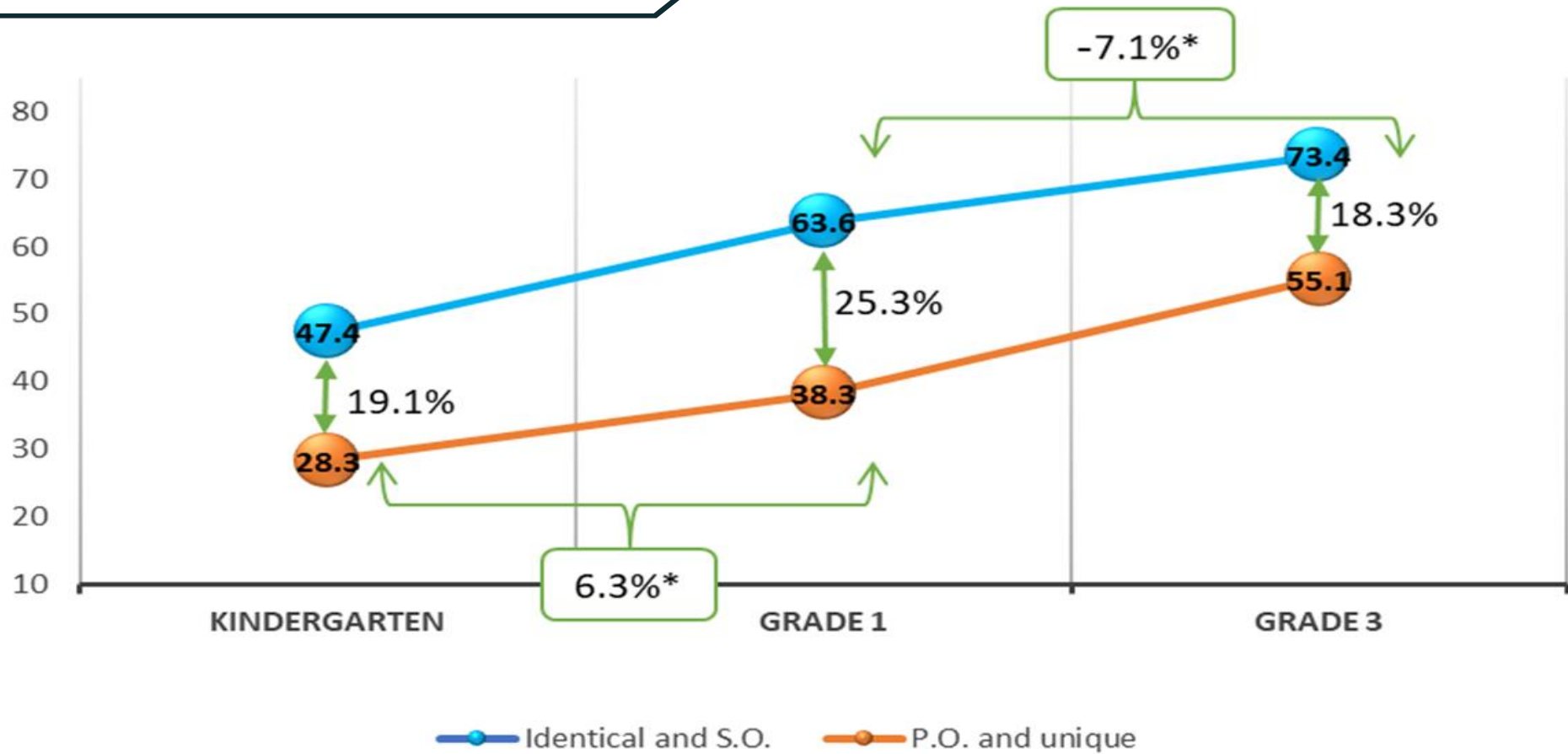
Main Results – Interactions

LANGUAGE VARIETY * GRADE
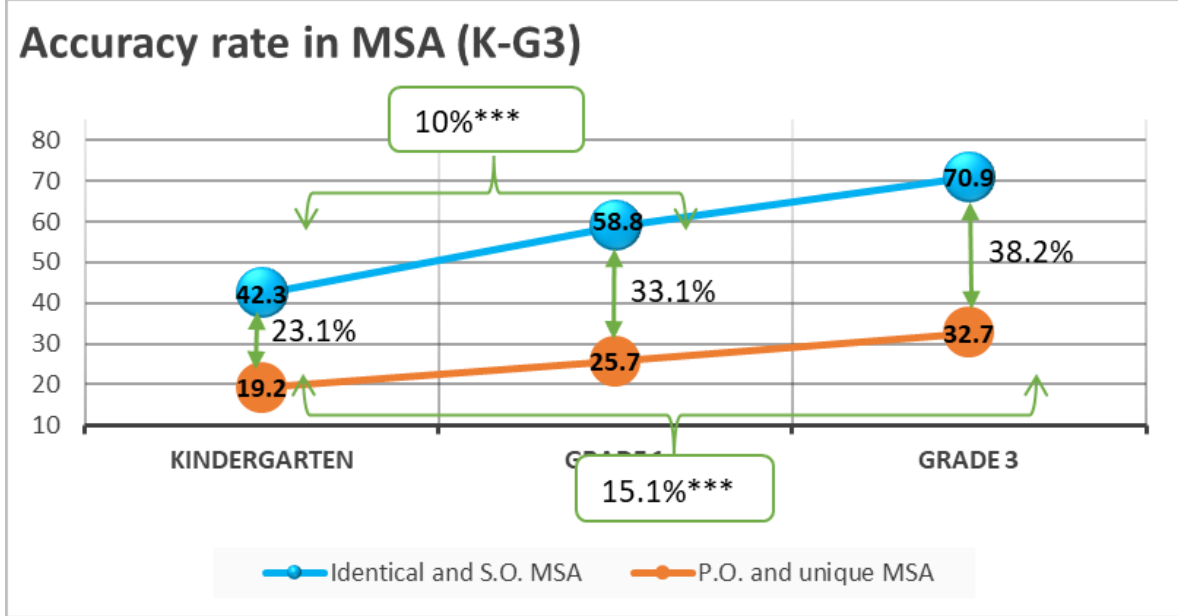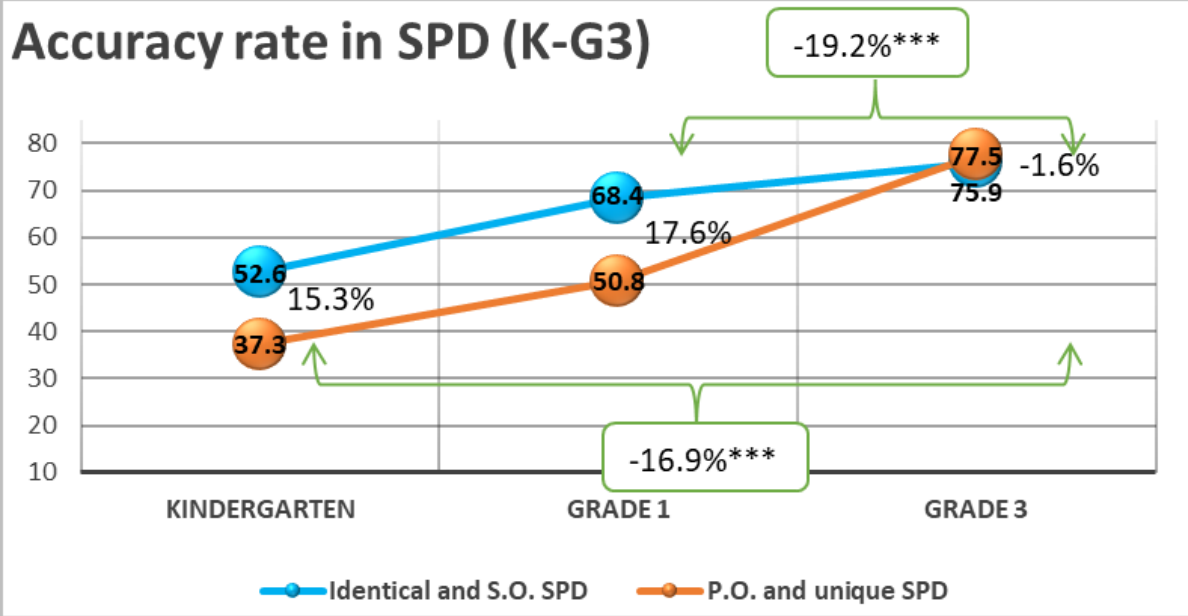
F(2, 60) =6.984, p =.002

Morpho-Distance
Joubran-Awadie & Shalhoub-Awwad
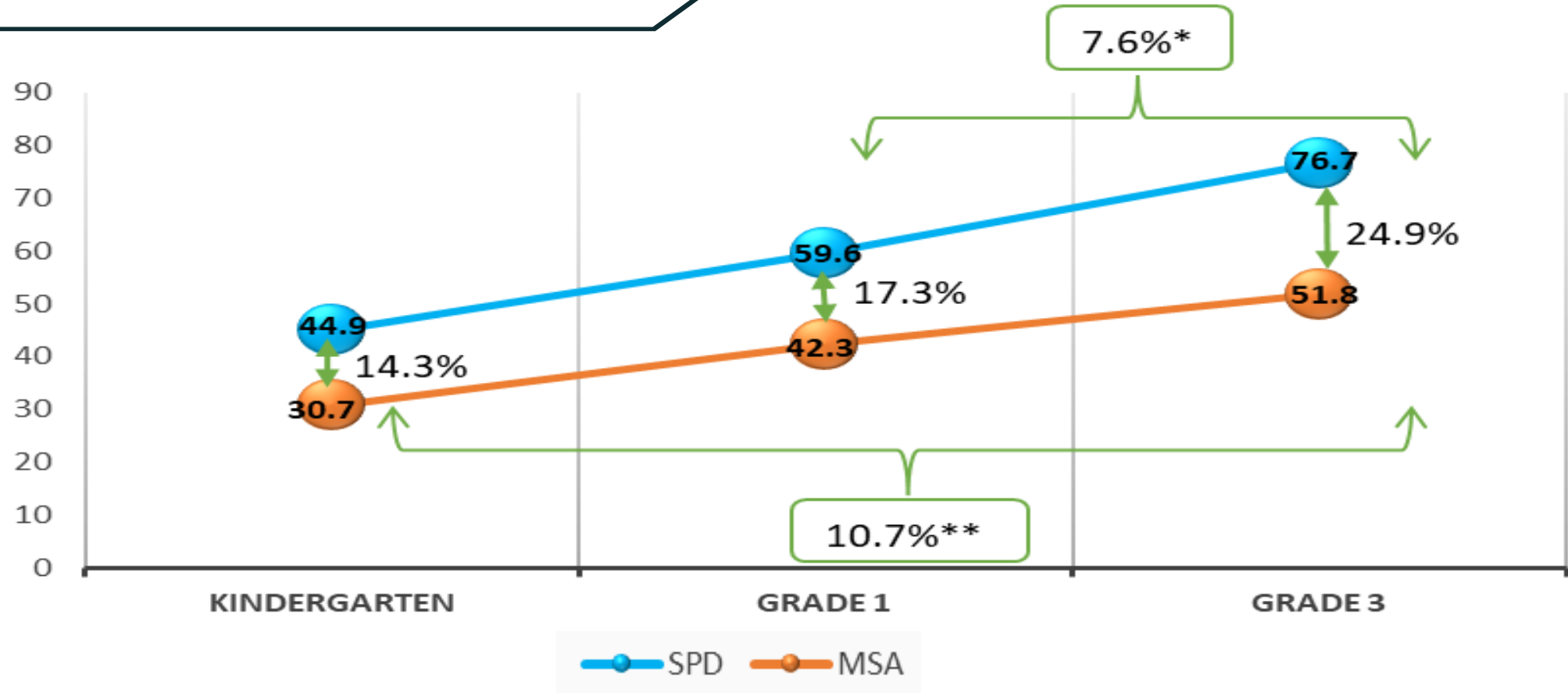
Main Results – A triple interaction

DISTANCE LEVEL * LANGUAGE VARIETY * GRADE

In SPD

With increasing age, the distance "disappeared"

Accuracy rate in SPD (K-G3)

-19.2%***

77.5
-1.6%
75.9

68.4

17.6%

52.6

50.8

15.3%

37.3

-16.9%***

KINDERGARTEN — GRADE 1 — GRADE 3

Identical and S.O. SPD   P.O. and unique SPD

In MSA

With increasing age, the distance "retained"

Accuracy rate in MSA (K-G3)

10%***

70.9

58.8

38.2%

42.3

33.1%

23.1%

25.7

32.7

19.2

15.1%***

KINDERGARTEN — GRADE 1 — GRADE 3

Identical and S.O. MSA   P.O. and unique MSA

Morpho-Distance
Shalhoub-Awwad & Joubran-Awadie

$F(2,60) = 21.018, p < .0001$

Conclusions

➤ Substantial impact of morphological distance on morphological awareness was revealed during the crucial stages of literacy acquisition.

➤ Verb inflectional distance makes morphological awareness of morphemes situated at an extreme distance on the axis *more difficult* than morphemes that are placed in close proximity.

➤ Dissimilar effects of the inflectional distance as a result of the language variety.

➤ Affirming that linguistic distance is a distinct factor that exerts a detrimental impact on the development of metalinguistic processing skills that are foundational to reading [1].

➤ The global research agenda concerning the interplay of *language-specific factors* (morphological richness), *socio-linguistic aspects* (e.g., diglossia), and *meta-linguistic awareness* (e.g., morphological awareness).

[1] e.g., Myhill, 2014; Saiegh-Haddad, 2018, 2022

Implications

➤ Our research can provide valuable insights into Arabic education policies and practices.

➤ Language instruction

➤ Develop suitable evaluation, assessment, and intervention tools in morphological awareness.

➤ To raise the awareness of verb inflectional distance paramount for young children in preschool and early elementary school.

➤ The need to update both curriculums in preschools and elementary schools along with the need to update the teachers' training programs in pre-service and in-service syllabuses [1].

[1] e.g., Tibi & Fumero, 2020; Saiegh-Haddad & Everatt, 2017.