Directional syncretism without directional rules

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Introduction

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Types of syncretism (Stump 2001):

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Types of syncretism (Stump 2001):

- Unstipulated syncretism:

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Types of syncretism (Stump 2001):

- Unstipulated syncretism: DAT $\rightarrow$ *-ym*,

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Types of syncretism (Stump 2001):

- Unstipulated syncretism: DAT → *-ym*, INS → *-ymi*

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Types of syncretism (Stump 2001):

- Unstipulated syncretism: DAT → *-ym*, INS → *-ymi*
- Symmetrical syncretism:

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Types of syncretism (Stump 2001):

- Unstipulated syncretism: DAT → *-ym*, INS → *-ymi*
- Symmetrical syncretism: NOM ∪ ACC → *-e*,

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby ‘weak’

Types of syncretism (Stump 2001):

- Unstipulated syncretism: DAT → *-ym*, INS → *-ymi*
- Symmetrical syncretism: NOM ∪ ACC → *-e*, GEN ∪ LOC → *-ych*

Directional syncretism + rules of referral

	Masculine human	Masculine non-human	Feminine (non-)human	Neuter (non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Types of syncretism (Stump 2001):

- Unstipulated syncretism: DAT → *-ym*, INS → *-ymi*
- Symmetrical syncretism: NOM ∪ ACC → *-e*, GEN ∪ LOC → *-ych*
- Directional syncretism:

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Types of syncretism (Stump 2001):

- Unstipulated syncretism: DAT → *-ym*, INS → *-ymi*
- Symmetrical syncretism: NOM ∪ ACC → *-e*, GEN ∪ LOC → *-ych*
- Directional syncretism: MASC HUM ACC ⇒ GEN ∪ LOC

Directional syncretism + rules of referral

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych
DAT	słab-ym	słab-ym	słab-ym	słab-ym
INS	słab-ymi	słab-ymi	słab-ymi	słab-ymi

Plural declension of Polish adjective słaby 'weak'

Types of syncretism (Stump 2001):

- Unstipulated syncretism: DAT $\rightarrow$ *-ym*, INS $\rightarrow$ *-ymi*
- Symmetrical syncretism: NOM $\cup$ ACC $\rightarrow$ *-e*, GEN $\cup$ LOC $\rightarrow$ *-ych*
- Directional syncretism: MASC HUM ACC $\Rightarrow$ GEN $\cup$ LOC

Here, directional syncretism is captured by a rule of referral.

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	human	non-human	(non-)human	(non-)human
NOM	słab-i	słab-e	słab-e	słab-e
ACC	słab-ych	słab-e	słab-e	słab-e
GEN	słab-ych	słab-ych	słab-ych	słab-ych
LOC	słab-ych	słab-ych	słab-ych	słab-ych

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	słab-ych	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	słab-ych	słab-ych	słab-ych	słab-ych
LOC [−a, −b, +c]	słab-ych	słab-ych	słab-ych	słab-ych

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]
ACC [+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]
GEN [−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]
LOC [−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]
ACC [+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]
GEN [−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]
LOC [−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]

Insertion rules:

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]
ACC [+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]
GEN [−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]
LOC [−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]

Insertion rules:

a. [+a, +b, +c, +hum, masc] $\rightarrow$ *-i*

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]
ACC [+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]
GEN [−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]
LOC [−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]

Insertion rules:

a. [**+a, +b, +c, +hum, masc**] $\rightarrow$ *-i*

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	[+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]
ACC [+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]
GEN [−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]
LOC [−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]

Insertion rules:

a. $[+a, +b, +c, +\text{hum}, \text{masc}] \quad \rightarrow \quad$ *-i*

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	[+a, +b, +c]	[+a, +b, +c]	[+a, +b, +c]
ACC [+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]	[+a, −b, +c]
GEN [−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]
LOC [−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]

Insertion rules:

a. [+a, +b, +c, +hum, masc] $\rightarrow$ *-i*

b. [+a, +c] $\rightarrow$ *-e*

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	[**+a**, +b, **+c**]	[**+a**, +b, **+c**]	[**+a**, +b, **+c**]
ACC [+a, −b, +c]	[+a, −b, +c]	[**+a**, −b, **+c**]	[**+a**, −b, **+c**]	[**+a**, −b, **+c**]
GEN [−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]
LOC [−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]

Insertion rules:

a. [+a, +b, +c, +hum, masc] → *-i*

b. [**+a, +c**] → *-e*

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	[+a, −b, +c]	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]
LOC [−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]

Insertion rules:

a. [+a, +b, +c, +hum, masc] $\rightarrow$ *-i*

b. [+a, +c] $\rightarrow$ *-e*

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	[+a, −b, +c]	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]	[−a, −b, −c]
LOC [−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]	[−a, −b, +c]

Insertion rules:

a. [+a, +b, +c, +hum, masc] $\rightarrow$ *-i*

b. [+a, +c] $\rightarrow$ *-e*

c. [−b] $\rightarrow$ *-ych*

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	[+a, **−b**, +c]	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	[−a, **−b**, −c]	[−a, **−b**, −c]	[−a, **−b**, −c]	[−a, **−b**, −c]
LOC [−a, −b, +c]	[−a, **−b**, +c]	[−a, **−b**, +c]	[−a, **−b**, +c]	[−a, **−b**, +c]

Insertion rules:

a. [+a, +b, +c, +hum, masc] → *-i*

b. [+a, +c] → *-e*

c. [**−b**] → *-ych*

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	[**+a**, −b, **+c**]	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	słab-ych	słab-ych	słab-ych	słab-ych
LOC [−a, −b, +c]	słab-ych	słab-ych	słab-ych	słab-ych

Insertion rules:

a. [+a, +b, +c, +hum, masc] $\rightarrow$ *-i*

b. [**+a, +c**] $\rightarrow$ *-e*

c. [−b] $\rightarrow$ *-ych*

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	[+a, **−b**, +c]	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	słab-ych	słab-ych	słab-ych	słab-ych
LOC [−a, −b, +c]	słab-ych	słab-ych	słab-ych	słab-ych

Insertion rules:

a. [+a, +b, +c, +hum, masc] → *-i*

b. [+a, +c] → *-e*

c. [**−b**] → *-ych*

Impoverishment + underspecification

	Masculine [+human]	Masculine [−human]	Feminine [±human]	Neuter [±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	[+a, −b, +c]	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	słab-ych	słab-ych	słab-ych	słab-ych
LOC [−a, −b, +c]	słab-ych	słab-ych	słab-ych	słab-ych

Insertion rules:

a. [+a, +b, +c, +hum, masc] $\rightarrow$ *-i*

b. [+a, +c] $\rightarrow$ *-e*

c. [−b] $\rightarrow$ *-ych*

Impoverishment rule:

[+a] $\rightarrow$ Ø / [masc], [+hum], [−b]

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	[+a, −b, +c]	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	słab-ych	słab-ych	słab-ych	słab-ych
LOC [−a, −b, +c]	słab-ych	słab-ych	słab-ych	słab-ych

Insertion rules:

a. [+a, +b, +c, +hum, masc] → *-i*

b. [+a, +c] → *-e*

c. [−b] → *-ych*

Impoverishment rule:

[+a] → Ø / [masc], [+hum], [−b]

Impoverishment + underspecification

	Masculine [+human]	Masculine [−human]	Feminine [±human]	Neuter [±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	[−b, +c]	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	słab-ych	słab-ych	słab-ych	słab-ych
LOC [−a, −b, +c]	słab-ych	słab-ych	słab-ych	słab-ych

Insertion rules:

a. [+a, +b, +c, +hum, masc] $\rightarrow$ *-i*

b. [+a, +c] $\rightarrow$ *-e*

c. [−b] $\rightarrow$ *-ych*

Impoverishment rule:

[+a] $\rightarrow$ Ø / [masc], [+hum], [−b]

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	[−**b**, +c]	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	słab-ych	słab-ych	słab-ych	słab-ych
LOC [−a, −b, +c]	słab-ych	słab-ych	słab-ych	słab-ych

Insertion rules:

a. [+a, +b, +c, +hum, masc] → *-i*

b. [+a, +c] → *-e*

c. [−**b**] → *-ych*

Impoverishment rule:

[+a] → Ø / [masc], [+hum], [−b]

Impoverishment + underspecification

	Masculine		Feminine	Neuter
	[+human]	[−human]	[±human]	[±human]
NOM [+a, +b, +c]	słab-i	słab-e	słab-e	słab-e
ACC [+a, −b, +c]	słab-ych	słab-e	słab-e	słab-e
GEN [−a, −b, −c]	słab-ych	słab-ych	słab-ych	słab-ych
LOC [−a, −b, +c]	słab-ych	słab-ych	słab-ych	słab-ych

Insertion rules:

a. [+a, +b, +c, +hum, masc] → *-i*

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Rules of referral vs. impoverishment

State of the art (Kramer 2016):

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Unmarkedness Hypothesis

If a cell X takes the exponent associated with another cell Y, then the feature specification of Y's exponent is less marked than the feature specification of X's exponent.

(Dir. syncretism involves spreading of less marked exponents.)

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a.	[+a, +b, +c, +hum, masc]	$\rightarrow$	*-i*	less marked ↓
b.	[+a, +c]	$\rightarrow$	*-e*	
c.	[−b]	$\rightarrow$	*-ych*	

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(Dir. syncretism involves spreading of less marked exponents.)

a.	[+a, +b, +c, +hum, masc]	$\rightarrow$	*-i*	less marked
b.	[+a, +c]	$\rightarrow$	*-e*	
c.	[−b]	$\rightarrow$	*-ych*	

'Retreat to the General Case' (Halle and Marantz 1993, 1994)

Rules of referral vs. impoverishment

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  'Can one maintain Noyer's conjecture that universally, a directional syncretism's determinant member is less marked than its dependent member? The answer, clearly, is no. First, the very existence of bidirectional referrals is incompatible with Noyer's conjecture. [...] this conjecture is empirically disconfirmed'

  (Stump 2001: 236)

Rules of referral vs. impoverishment

- Criticism: The DM approach is too restrictive. It fails to capture bidirectional syncretism.

  'What the DM model seems to exclude categorically are what [Baerman et al. (2005: 136)] call bidirectional syncretisms [...] [Baerman et al. (2005)] contains ample counterexamples to the DM doctrine on syncretism.'

  (Spencer 2019: 25)

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  'What the DM model seems to exclude categorically are what [Baerman et al. (2005: 136)] call bidirectional syncretisms [. . .] [Baerman et al. (2005)] contains ample counterexamples to the DM doctrine on syncretism.'

  (Spencer 2019: 25)

But is this actually true?

Bidirectional syncretism

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(1) *Convergent BDS*

	x	y
1	A	A
2	A	B
3	B	B

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- Convergent BDS: Each directional syncretism has the same target.

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3	B	B

(2) *Divergent BDS*

	x	y	z
1	A	A	B
2	A	B	B

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- Bidirectional syncretism: Two distinct instances of directional syncretism in the same paradigm.
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(1) *Convergent BDS*

	x	y
1	A	A
2	A	B
3	B	B

(2) *Divergent BDS*

	x	y	z
1	A	A	B
2	A	B	B

- Convergent BDS: Each directional syncretism has the same target.
- Divergent BDS: The target of one directional syncretism is the source of the other.

Convergent bidirectional syncretism (CBDS)

	NOUN 'house'	PRONOUN 'I'
NOM	labčoŋ-Ø	ndžaŋ-Ø
GEN	labčoŋ-ne	ndžaŋ-ne
ACC	labčoŋ-ne	ndžaŋ-de
DAT	labčoŋ-de	ndžaŋ-de
ABL	labčoŋ-se	ndžaŋ-se
INS/COM	labčoŋ-ɢale	ndžaŋ-ɢale

Case declension in Bonan

Other examples: case declension in Lak, case declension in Russian, tense inflection in Gujarati (Baerman 2004)

CBDS: Rules of referral

	NOUN	PRON
GEN	-ne	-ne
ACC	-ne	-de
DAT	-de	-de

CBDS: Rules of referral

	NOUN	PRON
GEN		
ACC		
DAT		

Insertion rules:

a. GEN $\rightarrow$ *-ne*

b. DAT $\rightarrow$ *-de*

CBDS: Rules of referral

	NOUN	PRON
GEN	-ne	-ne
ACC		
DAT		

Insertion rules:

a. GEN → *-ne*

b. DAT → *-de*

CBDS: Rules of referral

	NOUN	PRON
GEN	-ne	-ne
ACC		
DAT	-de	-de

Insertion rules:

a. GEN $\rightarrow$ *-ne*

b. DAT $\rightarrow$ *-de*

CBDS: Rules of referral

	NOUN	PRON
GEN	-ne	-ne
ACC		
DAT	-de	-de

Insertion rules:

a. GEN $\rightarrow$ *-ne*

b. DAT $\rightarrow$ *-de*

Rules of referral:

CBDS: Rules of referral

	NOUN	PRON
GEN	-ne	-ne
ACC		
DAT	-de	-de

Insertion rules:

a. GEN $\rightarrow$ *-ne*

b. DAT $\rightarrow$ *-de*

Rules of referral:

a. ACC NOUN $\Rightarrow$ GEN

CBDS: Rules of referral

	NOUN	PRON
GEN	-ne	-ne
ACC	-ne	
DAT	-de	-de

Insertion rules:

a. GEN → *-ne*

b. DAT → *-de*

Rules of referral:

a. ACC NOUN ⇒ GEN

CBDS: Rules of referral

	NOUN	PRON
GEN	-ne	-ne
ACC	-ne	
DAT	-de	-de

Insertion rules:

a. GEN $\rightarrow$ *-ne*

b. DAT $\rightarrow$ *-de*

Rules of referral:

a. ACC NOUN $\Rightarrow$ GEN

b. ACC PRON $\Rightarrow$ DAT

CBDS: Rules of referral

	NOUN	PRON
GEN	-ne	-ne
ACC	-ne	-de
DAT	-de	-de

Insertion rules:

a. GEN $\rightarrow$ *-ne*

b. DAT $\rightarrow$ *-de*

Rules of referral:

a. ACC NOUN $\Rightarrow$ GEN

b. ACC PRON $\Rightarrow$ DAT

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
ACC $[+a, +b]$	-ne	-de
DAT $[-a, +b]$	-de	-de

CBDS: Impoverishment

	NOUN	PRON
GEN [+a, −b]	-ne	-ne
ACC [+a, +b]	-ne	-de
DAT [−a, +b]	-de	-de

a. [+a] $\rightarrow$ *-ne*

b. [+b] $\rightarrow$ *-de*

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$		
ACC $[+a, +b]$		
DAT $[-a, +b]$		

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
ACC $[+a, +b]$	-ne	-ne
DAT $[-a, +b]$		

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$		
ACC $[+a, +b]$	-de	-de
DAT $[-a, +b]$	-de	-de

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

CBDS: Impoverishment

	NOUN	PRON
GEN [+a, −b]	-ne	-ne
ACC [+a, +b]	-ne/de	-ne/-de
DAT [−a, +b]	-de	-de

a. $[+\mathrm{a}] \rightarrow$ *-ne*

b. $[+\mathrm{b}] \rightarrow$ *-de*

CBDS: Impoverishment

	NOUN	PRON
GEN [+a, −b]	-ne	-ne
ACC [+a, +b]	-ne/de	-ne/-de
DAT [−a, +b]	-de	-de

a. [+a] $\rightarrow$ *-ne*

b. [+b] $\rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

CBDS: Impoverishment

	NOUN	PRON
GEN $[+\text{a}, -\text{b}]$	-ne	-ne
ACC $[+\text{a}, +\text{b}]$	-ne/de	-ne/-de
DAT $[-\text{a}, +\text{b}]$	-de	-de

a. $[+\text{a}] \rightarrow$ *-ne*

b. $[+\text{b}] \rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

Solution #1 (Harley 2008): impoverishment + feature hierarchy

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
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	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
ACC $[+a, +b]$	$[+a, +b]$	$[+a, +b]$
DAT $[-a, +b]$	-de	-de

a. $[+a] \rightarrow$ *-ne*

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GEN [+a, −b]	-ne	-ne
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DAT [−a, +b]	-de	-de

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Problem: Underspecification leads to indeterminacy

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[+b] → Ø / ___ [+a], [NOUN] (impoverishment rule)

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
ACC $[+a, +b]$	$[+a]$	$[+a, +b]$
DAT $[-a, +b]$	-de	-de

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

Solution #1 (Harley 2008): impoverishment + feature hierarchy

$[+b] \rightarrow \emptyset$ / ___ $[+a]$, [NOUN] (impoverishment rule)

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
ACC $[+a, +b]$	-ne	$[+a, +b]$
DAT $[-a, +b]$	-de	-de

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

Solution #1 (Harley 2008): impoverishment + feature hierarchy

$[+b] \rightarrow \emptyset$ / ___ $[+a]$, [NOUN] (impoverishment rule)

CBDS: Impoverishment

	NOUN	PRON
GEN [+a, −b]	-ne	-ne
ACC [+a, +b]	-ne	[+a, +b]
DAT [−a, +b]	-de	-de

a. [+a] $\rightarrow$ *-ne*

b. [+b] $\rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

Solution #1 (Harley 2008): impoverishment + feature hierarchy

[+b] $\rightarrow$ Ø / ___ [+a], [NOUN] (impoverishment rule)

[+a] $\succ$ [+b] (feature hierarchy)

	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
ACC $[+a, +b]$	-ne	$[+a, +b]$
DAT $[-a, +b]$	-de	-de

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

Solution #1 (Harley 2008): impoverishment + feature hierarchy

$[+b] \rightarrow \emptyset$ / ___ $[+a]$, [NOUN] (impoverishment rule)

$[+a] \succ [+b]$ (feature hierarchy)

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
ACC $[+a, +b]$	-ne	$[+a, +b]$
DAT $[-a, +b]$	-de	-de

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

Solution #1 (Harley 2008): impoverishment + feature hierarchy

$[+b] \rightarrow \varnothing$ / ___ $[+a]$, [NOUN] (impoverishment rule)

$[+a] \succ [+b]$ (feature hierarchy)

Note: This might not conform to the Unmarkedness Hypothesis.

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
ACC $[+a, +b]$	-ne	$[+a, +b]$
DAT $[-a, +b]$	-de	-de

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

Solution #2: Two impoverishment rules

$[+b] \rightarrow \emptyset$ / ___ $[+a]$, [NOUN] (impoverishment rule)

$[+a] \rightarrow \emptyset$ / ___ $[+b]$, [PRON] (impoverishment rule)

CBDS: Impoverishment

	NOUN	PRON
GEN [+a, −b]	-ne	-ne
ACC [+a, +b]	-ne	[+b]
DAT [−a, +b]	-de	-de

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

Solution #2: Two impoverishment rules

$[+b] \rightarrow \text{Ø}$ / ___ [+a], [NOUN] (impoverishment rule)

$[+a] \rightarrow \text{Ø}$ / ___ [+b], [PRON] (impoverishment rule)

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
ACC $[+a, +b]$	-ne	-de
DAT $[-a, +b]$	-de	-de

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

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$[+b] \rightarrow \emptyset$ / ___ $[+a]$, [NOUN] (impoverishment rule)

$[+a] \rightarrow \emptyset$ / ___ $[+b]$, [PRON] (impoverishment rule)

CBDS: Impoverishment

	NOUN	PRON
GEN $[+a, -b]$	-ne	-ne
ACC $[+a, +b]$	-ne	-de
DAT $[-a, +b]$	-de	-de

a. $[+a] \rightarrow$ *-ne*

b. $[+b] \rightarrow$ *-de*

Problem: Underspecification leads to indeterminacy

Solution #2: Two impoverishment rules

$[+b] \rightarrow \emptyset$ / ___ $[+a]$, [NOUN] (impoverishment rule)

$[+a] \rightarrow \emptyset$ / ___ $[+b]$, [PRON] (impoverishment rule)

Conclusion: Convergent BDS is not a challenge for DM.

Divergent bidirectional syncretism (DBDS)

	I 'war'	II 'slave'	III 'crowd'
NOM	bell-um	serv-us	vulg-us
ACC	bell-um	serv-um	vulg-us
GEN	bell-ī	serv-ī	vulg-ī
DAT	bell-ō	serv-ō	vulg-ō
ABL	bell-ō	serv-ō	vulg-ō

Singular case declension in Latin

Other examples: Old Icelandic (Stump 1993), Romanian (Stump 2001), Classical Arabic, Diyari (Baerman 2004), Nimboran (Noyer 1998)

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM $[+a, -b]$	-um	-us	-us
ACC $[+a, +b]$	-um	-um	-us

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]			
ACC [+a, +b]			

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM $[+\mathrm{a}, -\mathrm{b}]$			
ACC $[+\mathrm{a}, +\mathrm{b}]$			

a. $[+\mathrm{a}, -\mathrm{b}] \rightarrow$ *-us*

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	-us	-us	-us
ACC [+a, +b]			

a. [+a, −b] → *-us*

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	-us	-us	-us
ACC [+a, +b]			

a. [+a, −b] $\rightarrow$ *-us*

b. [+a, +b] $\rightarrow$ *-um*

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	-us	-us	-us
ACC [+a, +b]	-um	-um	-um

a. $[+a, -b] \rightarrow$ *-us*

b. $[+a, +b] \rightarrow$ *-um*

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	[+a, −b]	-us	-us
ACC [+a, +b]	-um	-um	[+a, +b]

a. $[+\text{a}, -\text{b}] \rightarrow$ *-us*

b. $[+\text{a}, +\text{b}] \rightarrow$ *-um*

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	[+a, −b]	-us	-us
ACC [+a, +b]	-um	-um	[+a, +b]

a. [+a, −b] → *-us*

b. [+a, +b] → *-um*

c. [−b] → Ø / ___ [+a], [I]

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM $[+a, -b]$	$[+a]$	-us	-us
ACC $[+a, +b]$	-um	-um	$[+a, +b]$

a. $[+a, -b] \quad \rightarrow \quad$ *-us*

b. $[+a, +b] \quad \rightarrow \quad$ *-um*

c. $[-b] \rightarrow \varnothing$ / ___ $[+a]$, [I]

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	[+a]	-us	-us
ACC [+a, +b]	-um	-um	[+a, +b]

a. [+a, −b] $\rightarrow$ *-us*

b. [+a] $\rightarrow$ *-um*

c. [−b] $\rightarrow$ Ø / ___ [+a], [I]

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM $[+a, -b]$	-um	-us	-us
ACC $[+a, +b]$	-um	-um	$[+a, +b]$

a. $[+a, -b] \rightarrow$ *-us*

b. $[+a] \rightarrow$ *-um*

c. $[-b] \rightarrow \emptyset$ / ___ $[+a]$, [I]

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	-um	-us	-us
ACC [+a, +b]	-um	-um	[+a, +b]

a. [+a] → *-us*

b. [+a] → *-um*

c. [−b] → Ø / ___ [+a], [I]

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM $[+a, -b]$	-us/-um	-us/-um	-us/-um
ACC $[+a, +b]$	-us/-um	-us/-um	-us/-um

a. $[+a] \rightarrow$ *-us*

b. $[+a] \rightarrow$ *-um*

c. $[-b] \rightarrow \text{Ø} \; / \; \_\_\_ \; [+a], [\mathrm{I}]$

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	-us/-um	-us/-um	-us/-um
ACC [+a, +b]	-us/-um	-us/-um	-us/-um

a. [+a] → *-us*

b. [+a] → *-um*

Problem: The two exponents have a fully overlapping distribution.

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	-us/-um	-us/-um	-us/-um
ACC [+a, +b]	-us/-um	-us/-um	-us/-um

a. [+a] $\rightarrow$ *-us*

b. [+a] $\rightarrow$ *-um*

Problem: The two exponents have a fully overlapping distribution.

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	-us/-um	-us/-um	-us/-um
ACC [+a, +b]	-us/-um	-us/-um	-us/-um

a. $[+a] \rightarrow$ *-us*

b. $[+a] \rightarrow$ *-um*

Problem: The two exponents have a fully overlapping distribution.

The distribution of the markers cannot be derived by underspecification/impoverishment.

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM [+a, −b]	-us/-um	-us/-um	-us/-um
ACC [+a, +b]	-us/-um	-us/-um	-us/-um

a. [+a] $\rightarrow$ *-us*

b. [+a] $\rightarrow$ *-um*

Problem: The two exponents have a fully overlapping distribution.

The distribution of the markers cannot be derived by underspecification/impoverishment.

Divergent BDS therefore seems to pose a serious problem for the DM approach to syncretism (Stump 2001; Baerman 2004; Spencer 2019).

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM	-us	-us	-us
ACC	-um	-um	-um

a. NOM $\rightarrow$ *-us*

b. ACC $\rightarrow$ *-um*

Directional rules of referral:

c. NOM $\Rightarrow$ ACC in class I

d. ACC $\Rightarrow$ NOM in class III

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM	-us	-us	-us
ACC	-um	-um	-um

a. NOM $\rightarrow$ *-us*

b. ACC $\rightarrow$ *-um*

Directional rules of referral:

c. NOM $\Rightarrow$ ACC in class I

d. ACC $\Rightarrow$ NOM in class III

Divergent bidirectional syncretism (DBDS)

	I	II	III
NOM	-um	-us	-us
ACC	-um	-um	-um

a. NOM → *-us*

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This pattern therefore seems to require directional rules.

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This pattern therefore seems to require directional rules.

It challenges the view that syncretism is constrained by markedness.

But is there an alternative?

Impoverishment and feature insertion (Noyer 1998)

Noyer (1998) proposed that impoverishment can lead to insertion of an unmarked value (also see Harbour 2003; Arregi and Nevins 2012).

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(3) *Markedness hierarchy for case*

$$\begin{array}{ccccc} \ldots & \succ & \textsc{acc} & \succ & \textsc{nom} \\ & & [+\text{a}, +\text{b}] & & [+\text{a}, -\text{b}] \end{array}$$

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[+a, +b]	(ACC)
[+a,]	

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[+a,]	

a. $[+b] \rightarrow \text{Ø} \;/\; \_\_\_ \;[+a]$ (impoverishment rule)

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(3) *Markedness hierarchy for case*

…	$\succ$	ACC	$\succ$	NOM
		$[+a, +b]$		$[+a, -b]$

In the context of $[+a]$, $[-b]$ is the unmarked value (Nevins 2011).

$[+a, +b]$	(ACC)
$[+a, \quad]$	
$[+a, -b]$	(NOM)

a. $[+b] \rightarrow \varnothing$ / ___ $[+a]$ (impoverishment rule)

b. $\varnothing \rightarrow [-b]$ / ___ $[+a]$ (redundancy rule)

Noyer's approach can turn ACC into NOM, but not NOM into ACC!

Back to divergent BDS

	I	II	III
NOM [+a, −b]	-um	-us	-us
ACC [+a, +b]	-um	-um	-us

a. $[+\text{a}, -\text{b}] \rightarrow$ *-us*

b. $[+\text{a}, +\text{b}] \rightarrow$ *-um*

Back to divergent BDS

	I	II	III
NOM $[+a, -b]$	$[+a, -b]$	-us	-us
ACC $[+a, +b]$	-um	-um	$[+a, +b]$

a. $[+a, -b] \rightarrow$ *-us*

b. $[+a, +b] \rightarrow$ *-um*

Back to divergent BDS

	I	II	III
NOM $[+a, -b]$	$[+a, -b]$	-us	-us
ACC $[+a, +b]$	-um	-um	$[+a, +b]$

a. $[+a, -b] \rightarrow$ *-us*

b. $[+a, +b] \rightarrow$ *-um*

c. $[+b] \rightarrow \emptyset$ / ___ $[+a]$, [III] (impoverishment rule I)

Back to divergent BDS

	I	II	III
NOM $[+a, -b]$	$[+a, -b]$	-us	-us
ACC $[+a, +b]$	-um	-um	$[+a, +b]$

a. $[+a, -b] \rightarrow$ *-us*

b. $[+a, +b] \rightarrow$ *-um*

c. $[+b] \rightarrow \varnothing$ / ___ $[+a]$, [III] (impoverishment rule I)

Back to divergent BDS

	I	II	III
NOM [+a, −b]	[+a, −b]	-us	-us
ACC [+a, +b]	-um	-um	[+a,]

a. $[+a, -b] \rightarrow$ *-us*

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c. $[+b] \rightarrow \emptyset$ / ___ $[+a]$, [III] (impoverishment rule I)

Back to divergent BDS

	I	II	III
NOM $[+\text{a}, -\text{b}]$	$[+\text{a}, -\text{b}]$	-us	-us
ACC $[+\text{a}, +\text{b}]$	-um	-um	$[+\text{a}, \quad]$

a. $[+\text{a}, -\text{b}] \rightarrow$ *-us*

b. $[+\text{a}, +\text{b}] \rightarrow$ *-um*

c. $[+\text{b}] \rightarrow \varnothing$ / ___ $[+\text{a}]$, [III] (impoverishment rule I)

d. $\varnothing \rightarrow [-\text{b}]$ / ___ $[+\text{a}]$ (redundancy rule)

Back to divergent BDS

	I	II	III
NOM $[+a, -b]$	$[+a, -b]$	-us	-us
ACC $[+a, +b]$	-um	-um	$[+a, -b]$

a. $[+a, -b] \rightarrow$ *-us*

b. $[+a, +b] \rightarrow$ *-um*

c. $[+b] \rightarrow \varnothing$ / ___ $[+a]$, [III] (impoverishment rule I)

d. $\varnothing \rightarrow [-b]$ / ___ $[+a]$ (redundancy rule)

Back to divergent BDS

	I	II	III
NOM [+a, −b]	[+a, −b]	-us	-us
ACC [+a, +b]	-um	-um	-us

a. $[+a, -b] \rightarrow$ *-us*

b. $[+a, +b] \rightarrow$ *-um*

c. $[+b] \rightarrow \emptyset$ / ___ [+a], [III] (impoverishment rule I)

d. $\emptyset \rightarrow [-b]$ / ___ [+a] (redundancy rule)

Back to divergent BDS

	I	II	III
NOM [+a, −b]	[+a, −b]	-us	-us
ACC [+a, +b]	-um	-um	-us

a. [+a, −b] → *-us*

b. [+a, +b] → *-um*

c. [+b] → Ø / ___ [+a], [III] (impoverishment rule I)

d. Ø → [−b] / ___ [+a] (redundancy rule)

Back to divergent BDS

	I	II	III
NOM [+a, −b]	[+a, −b]	-us	-us
ACC [+a, +b]	-um	-um	-us

a. $[+a, -b] \rightarrow$ *-us*

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c. $[+b] \rightarrow \text{Ø}$ / ___ [+a], [III] (impoverishment rule I)

d. $\text{Ø} \rightarrow [-b]$ / ___ [+a] (redundancy rule)

e. $[-b] \rightarrow \text{Ø}$ / ___ [+a], [I] (impoverishment rule II)

Back to divergent BDS

	I	II	III
NOM [+a, −b]	[+a, −b]	-us	-us
ACC [+a, +b]	-um	-um	-us

a. $[+a, -b] \rightarrow$ *-us*

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c. $[+b] \rightarrow \varnothing$ / ___ [+a], [III] (impoverishment rule I)

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Back to divergent BDS

	I	II	III
NOM [+a, −b]	[+a,]	-us	-us
ACC [+a, +b]	-um	-um	-us

a. [+a, −b] → *-us*

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c. [+b] → Ø / ___ [+a], [III] (impoverishment rule I)

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Back to divergent BDS

	I	II	III
NOM [+a, −b]	[+a,]	-us	-us
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e. [−b] → Ø / ___ [+a], [I] (impoverishment rule II)

Back to divergent BDS

	I	II	III
NOM $[+a, -b]$	$[+a, -b?]$	-us	-us
ACC $[+a, +b]$	-um	-um	-us

a. $[+a, -b] \rightarrow$ *-us*

b. $[+a] \rightarrow$ *-um*

c. $[+b] \rightarrow \varnothing$ / ___ $[+a]$, [III] (impoverishment rule I)

d. $\varnothing \rightarrow [-b]$ / ___ $[+a]$ (redundancy rule)

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Back to divergent BDS

	I	II	III
NOM [+a, −b]	[+a, −b?]	-us	-us
ACC [+a, +b]	-um	-um	-us

a. $[+a, -b] \rightarrow$ *-us*

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Problem: Re-insertion of unmarked [−b] still leads to insertion of *-us*!

Back to divergent BDS

	I	II	III
NOM [+a, −b]	*-us	-us	-us
ACC [+a, +b]	-um	-um	-us

a. [+a, −b] → *-us*

b. [+a] → *-um*

c. [+b] → Ø / ___ [+a], [III] (impoverishment rule I)

d. Ø → [−b] / ___ [+a] (redundancy rule)

e. [−b] → Ø / ___ [+a], [I] (impoverishment rule II)

Problem: Re-insertion of unmarked [−b] still leads to insertion of *-us*!

Back to divergent BDS

	I	II	III
NOM [+a, −b]	*-us	-us	-us
ACC [+a, +b]	-um	-um	-us

a. [+a, −b] → *-us*

b. [+a] → *-um*

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Solution: Noyer (1998: 276, fn.6) already proposed that deleted unmarked values cannot be re-inserted.

Back to divergent BDS

	I	II	III
NOM [+a, −b]	[+a,]	-us	-us
ACC [+a, +b]	-um	-um	-us

a. [+a, −b] → *-us*

b. [+a] → *-um*

c. [+b] → Ø / ___ [+a], [III] (impoverishment rule I)

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	I	II	III
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c. [+b] → Ø / ___ [+a], [III] (impoverishment rule I)

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NOM [+a, −b]	-um	-us	-us
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a. [+a, −b] → *-us*

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We can derive divergent BDS under Noyer's view of impoverishment.

Unmarkedness Hypothesis

But does this analysis conform to the Unmarkedness Hypothesis?

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	I	II	III
NOM $[+a, -b]$	$[+a, -b]$ $\Downarrow$ $[+a, \quad]$	-us	-us
ACC $[+a, +b]$	-um	-um	$[+a, +b]$ $\Downarrow$ $[+a, -b]$

a. $[+a, -b] \rightarrow$ *-us*

b. $[+a] \rightarrow$ *-um*

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But does this analysis conform to the Unmarkedness Hypothesis?

	I	II	III
NOM $[+\text{a}, -\text{b}]$	$[+\text{a}, -\text{b}]$ $\Downarrow$ $[+\text{a}, \quad]$	-us	-us
ACC $[+\text{a}, +\text{b}]$	-um	-um	$[+\text{a}, +\text{b}]$ $\Downarrow$ $[+\text{a}, -\text{b}]$

a. $[+\text{a}, -\text{b}] \rightarrow$ *-us*
b. $[+\text{a}] \rightarrow$ *-um*

$\downarrow$ less marked

Problem: In class III, more marked exponent *-us* spreads to ACC (blocking less marked *-um*)

Unmarkedness Hypothesis

Problem: We stated the Unmarkedness Hypothesis in terms of the exponents.

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> *impoverishment rules [...] embody the hypothesis that true syncretism [...] will always be neutralizations towards lesser marked forms.*
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Alternative: We can instead formulate the Unmarkedness Hypothesis in terms of insertion contexts rather than forms.

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Alternative: We can instead formulate the Unmarkedness Hypothesis in terms of insertion contexts rather than forms.

> *Impoverishment-plus-Insertion will always move from a more marked to a less marked state.*
>
> (Noyer 1998: 282)

Unmarkedness Hypothesis

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If a cell X takes the exponent associated with another cell Y, then there must be a reduction in the markedness of the feature specification of X.

(Directional syncretism involves a change from a more marked to a less marked feature combination.)

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(Directional syncretism involves a change from a more marked to a less marked feature combination.)

Three-level contextual markedness:

most marked	$\succ$	**less marked**	$\succ$	**least marked**
[+a, +b]		[+a, −b]		[+a, Øb]
ACC		NOM		under-determined

Unmarkedness Hypothesis

On this view, contextual markedness is reduced in each case:

	I	II	III
NOM [+a, −b]	[+a, −b] ⇓ [+a, Øb]	-us	-us
ACC [+a, +b]	-um	-um	[+a, +b] ⇓ [+a, −b]

a. [+a, −b] → *-us*

b. [+a] → *-um*

most marked	$\succ$	**less marked**	$\succ$	**least marked**
[+a, +b]		[+a, −b]		[+a, Øb]
ACC		NOM		under-determined

Conclusion

Take home messages

- Bidirectional syncretism is not a challenge to DM approach to syncretism (*pace* Stump 2001; Baerman 2004; Spencer 2019).

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Take home messages

- Bidirectional syncretism is not a challenge to DM approach to syncretism (*pace* Stump 2001; Baerman 2004; Spencer 2019).
- Even divergent BDS can be derived on Noyer's (1998) view of impoverishment + markedness-driven feature insertion.
- The idea that directional syncretism is constrained by markedness (Unmarkedness Hypothesis) can be maintained (with a contextual, three-level view of markedness).

Take home messages

- Bidirectional syncretism is not a challenge to DM approach to syncretism (*pace* Stump 2001; Baerman 2004; Spencer 2019).
- Even divergent BDS can be derived on Noyer's (1998) view of impoverishment + markedness-driven feature insertion.
- The idea that directional syncretism is constrained by markedness (Unmarkedness Hypothesis) can be maintained (with a contextual, three-level view of markedness).
- (Bi)directional syncretism does not justify additional power of unrestricted rules of referral.

Thank you for your attention!

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Appendix

An alternative view of divergent BDS?

Alternative view of Latin as convergent BDS:

	I [+A, −B]	II [+A, +B]	III [+A, +B]
NOM	bell-um	serv-us ⟵	vulg-us
ACC	bell-um ⟶	serv-um	vulg-us
GEN	bell-ī	serv-ī	vulg-ī
DAT	bell-ō	serv-ō	vulg-ō
ABL	bell-ō	serv-ō	vulg-ō

a. [+A] $\rightarrow$ *-um*

b. [+B] $\rightarrow$ *-us*

Problem: Markedness. [I], [III] $\succ$ [II] ?

Latin with different features

(4) *Case feature decomposition for Latin* (Halle 1997)

	[±superior]	[±structural]	[±oblique]
Nom	+	+	−
Acc	−	+	−
Gen	−	+	+
Dat	+	+	+
Abl	+	−	+

(5) *Markedness hierarchy for case*

$\ldots \succ$ ACC $\succ$ NOM

ACC: [+struc, −sup, −obl]

NOM: [+struc, +sup, −obl]

For example: [−sup] is the marked value in the context of [−obl]

Composite feature changing rules

a. $[+b] \rightarrow \varnothing$ / ___ $[+a]$ (impoverishment rule 1)
b. $\varnothing \rightarrow [-b]$ / ___ $[+a]$ (redundancy rule)
c. $[-b] \rightarrow \varnothing$ / ___ $[+a]$ (impoverishment rule 2)

most marked	$\succ$	**less marked**	$\succ$	**least marked**
$[+a, +b]$		$[+a, -b]$		$[+a, \varnothing b]$
ACC		NOM		under-determined

Issue: Only stepwise markedness reduction is possible, i.e. $[+a, +b] \rightarrow [+a, \varnothing b]$ implies $[+a, -b] \rightarrow [+a, \varnothing b]$.

Alternative: Markedness-restricted feature changing rules.

d. $[+b] \rightarrow \varnothing$ / ___ $[+a]$ (impoverishment rule)
e. $[+b] \rightarrow [-b]$ / ___ $[+a]$ (feature changing rule)