

Pro-Drop and Morphological Richness

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Pro-Drop and Morphological Richness

It is often assumed that some notion of morphological richness plays a central role in the theory of (referential subject argument) pro-drop:

- 1 In languages with sufficiently rich verbal ϕ -feature (person, number, gender) agreement morphology, pronominal arguments can (and, in some contexts, must) remain without phonological realization.
- 2 In languages without such a rich verbal agreement morphology, pronominal arguments must be overtly realized.

Structural Representation of Pro-Drop

(1) Spanish vs. English/German:

- a. [TP Hemos [vP *pro* trabajado todo el día]]
 have-3.PL worked all the day
- b. [TP Ha [vP *pro* cantato]]
 has-3.SG sung
- c. *I think [TP *pro*_I have [vP t_I worked all day]]
- d. *Ich denke, dass [TP [vP *pro* gesungen habe]]
 I think that sung have-1.SG

Assumptions:

- Pro-drop does not involve post-syntactic deletion (Perlmutter (1971)), but an empty category **pro** (Chomsky (1982), Rizzi (1986), Grewendorf (1989), etc.)
- A non-overt subject **pro** is merged in the canonical position for subjects (in Spec of vP or within the VP, depending on its status as an external or internal argument), and undergoes Agree with T in the languages under consideration here.

Defining Morphological Richness 1

How can the (widely accepted and intuitively appealing) concept of morphological richness (as relevant for pro-drop) be made precise? (It is often left somewhat vague in the existing literature; see, e.g., Cysouw (2003, 53).)

Jaeggli & Safir (1989, 29-30):

Pro-drop is possible in languages with morphologically uniform inflectional paradigms, where an inflectional paradigm counts as uniform iff it “has either only underived inflectional forms or only derived inflectional forms”:

- 1 Japanese, Chinese: ok
- 2 Spanish, Italian: ok
- 3 English, French: * (paradigms have bare-stem inflectional forms)

Problem (Rohrbacher (1999, ch. 5)):

Base-stem forms can act as fully distinctive members of morphological paradigms (and are accordingly often analyzed as involving null morphemes in morphology that are accorded the same formal status as other, overt inflection markers).

Defining Morphological Richness 2, 3

Rohrbacher (1999, ch. 5):

A language can have pro-drop if “in at least one number of one tense, the person features [1] and [2] are distinctively marked”.

Problem:

This (like the previous approach) does not exclude languages like German or Icelandic (which distinguish 1. and 2. person in paradigms) as pro-drop languages; but both languages lack referential subject argument *pro*.

Rizzi (2002, 21):

“What rich agreement means: One syncretism [in a paradigm] is tolerable, two are not.”

Paradigms

Observation:

These (and many other) approaches crucially presuppose a concept of inflectional paradigm that corresponds to the traditional notion adopted in **reference grammars**, but that is incompatible with recent developments in **theoretical morphology**.

Notions of paradigm in current theoretical morphology:

- 1 Paradigms as **epiphenomena**, i.e., descriptive generalizations that principles of grammar cannot refer to by definition (Distributed Morphology: Halle & Marantz (1993, 1994), Bobaljik (2002b), etc.
- 2 Paradigms as **abstract grammatical objects** that bear little resemblance to the traditional reference grammar notion (see e.g., the notions of paradigm in approaches as diverse as Williams (1994), Wunderlich (1996), Johnston (1996), Wiese (1999), Stump (2001)).

Claim

Main Claim:

- Careful morphological analysis of systems of verb inflection reveals a difference between system-defining instances of syncretism and other instances of syncretism.
- Only the former are relevant for determining morphological richness in syntax.
- Distributed Morphology treats system-defining syncretism by **impoverishment**, and other syncretism by simple **underspecification** of inflection markers.
- Subject argument *pro* is possible only if there is **no impoverishment of person features** in the system of verb inflection.

Case Study:

- Verb Inflection and Absence of Pro-Drop in German (Müller (2006a,b))

Vocabulary Insertion

(2) Late vocabulary insertion:

- a. Functional morphemes like v and T contain fully specified bundles of morpho-syntactic features in syntax; however, they do not yet contain phonological material.
- b. Inflection markers are vocabulary items (vi 's) that pair phonological and (often underspecified) morpho-syntactic features; they are inserted post-syntactically in accordance with the Subset Principle.

(3) Vocabulary insertion into functional morphemes:

$[TP \dots [T [v \ V \ v] \ T] [vP \dots t_v [VP \dots t_V \dots]]]$

Subset Principle

(4) **Subset Principle** (Halle (1997)):

A vocabulary item V is inserted into a functional morpheme M iff (i) and (ii) hold:

(i) The morpho-syntactic features of V are a subset of the morpho-syntactic features of M .

(ii) V is the most specific vocabulary item that satisfies (i).

(5) **Specificity of vocabulary items** (Lumsden (1992), Noyer (1992), Wiese (1999)):

A vocabulary item V_i is more specific than a vocabulary item V_j iff there is a class of features \mathbb{F} such that (i) and (ii) hold.

(i) V_i bears more features belonging to \mathbb{F} than V_j does.

(ii) There is no higher-ranked class of features \mathbb{F}' such that V_i and V_j have a different number of features in \mathbb{F}' .

(6) **Feature hierarchy** (for determining specificity):

Tense > Number > Person

Impoverishment and Fission

- (7) **Impoverishment** (Bonet (1991), Halle & Marantz (1993, 1994), Bobaljik (2002b), Frampton (2002)):
 Morpho-syntactic features can be deleted post-syntactically before vocabulary insertion takes place; this effects a “retreat to the general case”.
- (8) **Fission** (Noyer (1992), Frampton (2002), Trommer (1999), **not** Halle & Marantz (1993)):
 If insertion of a vocabulary item V with the morpho-syntactic features β takes place into a fissioned morpheme M with the morpho-syntactic features α , then α is split up into β and $\alpha-\beta$, such that (a) and (b) hold:
- $\alpha-\beta$ is available for further vocabulary insertion.
 - β is not available for further vocabulary insertion.

Assumption:

T in German is subject to fission.

German Verb Inflection

(9) Conjugations

a. Weak verb inflection:

glauben ('believe')

	Present	Past
[1,sg]	glaub-e	glaub-te
[2,sg]	glaub-st	glaub-te-st
[3,sg]	glaub-t	glaub-te
[1,pl]	glaub-en	glaub-te-n
[2,pl]	glaub-t	glaub-te-t
[3,pl]	glaub-en	glaub-te-n

b. Strong verb inflection:

rufen ('call')

	Present	Past
[1,sg]	ruf-e	rief
[2,sg]	ruf-st	rief-st
[3,sg]	ruf-t	rief
[1,pl]	ruf-en	rief-en
[2,pl]	ruf-t	rief-t
[3,pl]	ruf-en	rief-en

c. Suppletive verb inflection:

sein ('be')

	Present	Past
[1,sg]	bin	war
[2,sg]	bi-st	war-st
[3,sg]	is-t	war
[1,pl]	sind	war-en
[2,pl]	seid	war-t
[3,pl]	sind	war-en

Generalization and State of the Art

Generalization:

There are four instances of syncretism that I take to be non-accidental:

- (i) 1.Pers.Sg.Past = 3.Pers.Sg.Past in all paradigms.
- (ii) 1.Pers.Pl = 3.Pers.Pl in all tenses and paradigms.
- (iii) 3.Pers.Sg.Pres (*t*) = 2.Pers.Pl.Pres (*t*) in (9-ab).
- (iv) 2.Pers.Sg (*st*) = 3.Pers.Sg.Pres (*t*), except for the initial *s*.

State of the art:

Only syncretisms (i) and (ii) can be derived (Wiese (1994), Wunderlich (1996), Eisenberg (2000)); and only Frampton (2002) derives them as the general, system-wide properties that they seem to be).

(See, however, Bierwisch (1961, 62-66) on syncretism (iii).)

Strategy for a new analysis

- 1 Feature decomposition creates natural classes of persons.
- 2 Underspecification of vocabulary items captures such natural classes of persons.
- 3 Fission ensures that *st* can emerge as the combination of two vocabulary items /s/ and /t/.
- 4 Impoverishment also refers to natural classes of persons and can thus derive system-wide syncretism patterns.

(10) **Person** (Noyer (1992), Wiese (1994), Frampton (2002)):

- a. 1 = [+1,-2]
- b. 1_{incl} = [+1,+2]
- c. 2 = [-1,+2]
- d. 3 = [-1,-2]

Analysis

(11) Two Φ -feature impoverishment rules that apply to T in German:

- a. $[\pm 1] \rightarrow \emptyset / [-2, -pl, +past] ___$
- b. $[\pm 1] \rightarrow \emptyset / [-2, +pl] ___$

(12) Vocabulary items:

- a. /te/ \leftrightarrow [+past, -strong]
- b. /s/ \leftrightarrow [+2, -pl]
- c. /n/ \leftrightarrow [-2, +pl]
- d. /t/ \leftrightarrow [-1]
- e. /(e)/ \leftrightarrow []

- Radically underspecified markers like /(e)/ are inserted iff there is no other marker in the functional morpheme.
- /(e)/ requires a minimal indication of deviation from the present tense stem.

Vocabulary insertion into impoverished Ts in German

(13)

T	[-past]		T	[+past]	
	[-strong]	[+strong]		[-strong]	[+strong]
[+1,-2,-pl]	/e/	/e/	[+ 1,-2,-pl]	/te/	/∅/
[-1,+2,-pl]	/s-/ /t/	/s-/ /t/	[-1,+2,-pl]	/te-/ /s-/ /t/	/s-/ /t/
[-1,-2,-pl]	/t/	/t/	[= 1,-2,-pl]	/te/	/∅/
[+ 1,-2,+pl]	/n/	/n/	[+ 1,-2,+pl]	/te-/ /n/	/n/
[-1,+2,+pl]	/t/	/t/	[-1,+2,+pl]	/te-/ /t/	/t/
[= 1,-2,+pl]	/n/	/n/	[= 1,-2,+pl]	/te-/ /n/	/n/

Observation:

(i) 1.Pers.PI.Past = 3.Pers.PI.Past in Middle High German.

(ii) 1.Pers.PI.Pres ≠ 3.Pers.PI.Pres in Middle High German.

(Analysis: Person impoverishment was confined to past contexts.)

Interestingly, the marker for 3.Pers.PI.Pres was /n-/ /t/, as predicted under the present analysis. (*helfen*, 1.Pers.PI.Pres. vs. *helfent*, 3.Pers.PI.Pres.)

Dilemma

Hypothesis:

Φ -feature impoverishment blocks licensing of *pro*.

Problem:

This leads to a dilemma.

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Observation (Bobaljik (2002a)):

If inflectional morphology is post-syntactic, properties of the morphological inventory cannot be held responsible for V-to-I movement in syntax: The Rich Agreement Hypothesis according to which V-to-I movement takes place if a language has a sufficiently rich morphological system of verbal inflection (Roberts (1993), Vikner (1997), Holmberg & Platzack (1995), Rohrbacher (1999)) must therefore be given up in a Distributed Morphology approach. If there is any correlation at all, it must go in the other direction: Rich verbal morphology can be a **reflex** of movement, but not the **reason** for it.

Pro-Drop and Post-Syntactic Morphology

The same reasoning applies to licensing of *pro*: Assuming post-syntactic morphology, *pro*-licensing cannot be determined by morphological properties ('richness') because **these properties are not yet visible at the point of the derivation where they would be needed**; therefore, either (14-a) or (14-b) (or both) must hold.

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- (14) **Consequences of post-syntactic morphology for pro-drop:**
- Licensing of *pro* is a syntactic phenomenon but independent of the richness of morphological inventories (Grimshaw & Samek-Lodovici (1998), OT syntax in general).
 - Licensing of *pro* is a post-syntactic (PF) phenomenon (Perlmutter (1971), Adger (2003), Holmberg (2005)).

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Observation:

This consequence does not arise if inflectional morphology is pre-syntactic.

Pre-Syntactic Morphology

Assumption:

- Inflectional morphology is pre-syntactic but nevertheless employs underspecification (Wunderlich (1996), Alexiadou & Müller (2005)).
- Impoverishment can be viewed as a pre-syntactic operation, provided that the features that are affected are invisible for morphology, but not for subsequent syntactic operations.

A New Approach

(15) **Pro Generalization:**

An argumental *pro* DP cannot undergo Agree with T in the syntax if T has been subjected (perhaps vacuously) to Φ -feature neutralizing impoverishment in morphology.

Consequence:

Only a **system-defining syncretism** (derived by impoverishment) can preclude licensing of *pro*; syncretisms that are solely due to underspecification of inflection markers and accidental syncretisms cannot.

The Pro-Drop Parameter

- German has no (referential argumental subject) *pro* because it has the two impoverishment rules in (11).
- Italian has (referential argumental subject) *pro* because it does not have impoverishment (in fact, it does not exhibit any syncretism at all in the indicative; but see below).

(16) Italian conjugation, present indicative: *parlare*

	Present
[1,sg]	parl-o
[2,sg]	parl-i
[3,sg]	parl-a
[1,pl]	parl-iamo
[2,pl]	parl-ate
[3,pl]	parl-ano

Absence of Pro-Drop in Icelandic

Subject argument pro-drop is not possible in Icelandic, except for questionable instances of pro-drop with meteorological predicates (Platzack (1987), Holmberg & Platzack (1995), and Rohrbacher (1999)):

- (17) a. Hann dansar
 he dance-3.SG
 b. **pro* dansar
 dance-3.SG

Prediction:

Icelandic verb inflection is not morphologically rich.

Icelandic Verb Inflection

- (18) Kress (1982):
Weak conjugation, class 1
krefja ('demand')

	present	past
1.SG	kref	krafði
2.SG	krefur	krafðir
3.SG	krefur	krafði
1.PL	krefjum	kröfðum
2.PL	krefjið	kröfðuð
3.PL	krefja	kröfðu

Strong conjugation, class 3
sleppa ('slip')

	present	past
1.SG	slepp	slapp
2.SG	sleppur	slappst
3.SG	sleppur	slapp
1.PL	sleppum	sluppum
2.PL	sleppið	sluppuð
3.PL	sleppa	sluppu

Weak conjugation, class 4
dansa ('dance')

	present	past
1.SG	dansa	dansaði
2.SG	dansar	dansaðir
3.SG	dansar	dansaði
1.PL	dönsum	dönsuðum
2.PL	dansið	dönsuðuð
3.PL	dansa	dönsuðu

Analysis

Two impoverishment rules ensure that the system-defining nature of two kinds of syncretism can be derived:

- 1 In past singular contexts, $[\pm 1]$ is deleted, and 1. and 3. person become indistinguishable: $[-2]$ (Frampton (2002), also see Wiese (1994)).

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(19) Φ -feature impoverishment on T:

- a. $[\pm 1] \rightarrow \emptyset / [-2, -pl, +past] ___$
- b. $[\pm 2] \rightarrow \emptyset / [-1, -pl, -past] ___$

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Note:

The second impoverishment rule (19-b) may also take effect in Brazilian Portuguese (with identity of markers for 2. and 3. person) vs. European Portuguese (with two different markers for 2. and 3. person), and account for the rapid decline of pro-drop in the former. See Rohrbacher (1999, 246-250) for discussion.

Germanic Inflection and Pro-Drop

Consequence:

It follows that Icelandic cannot have an argument *pro*, despite exhibiting what looks at first sight like “rich” verbal inflection.

More generally:

All Germanic languages (including, e.g., Gothic) exhibit a system-wide syncretism of 1. and 3.Pers.Sg.Past. Consequently, the prediction is that they all do not permit pro-drop. This is certainly correct for German, even though it does basically seem to have rich verbal inflection (abstracting away from unclear cases involving expletive *pro*, as in Grewendorf (1989); but see Haider (1987))).

However:

It is instructive to note that the domain to which such Φ -feature impoverishment in T applies grows steadily from OHG via MHG to Modern German. (Cf. claims about OHG pro-drop; see Abraham (1991), Gelderen (2000), Axel (2004))

Verb Inflection in Russian

(20) Conjugation in Russian, present tense:

'read'	present
[1,-pl]	čita-ju
[2,-pl]	čita-eš'
[3,-pl]	čita-et
[1,+pl]	čita-em
[2,+pl]	čita-ete
[3,+pl]	čita-jut

Observation:

There is no syncretism, hence, no impoverishment rule. Consequently, external argument pro-drop is predicted to occur.

Pro-Drop in Russian?

Note:

There is disagreement as to whether Russian has pro-drop (alternatively, subject pronoun omission is treated as an instance of contextually licensed ellipsis).

1 Russian has pro-drop:

Růžička (1986), Müller (1988), Demjjanow & Strigin (2000, 98-99), Perlmutter & Moore (2002, 632)

2 Russian does not have pro-drop:

Franks (1995, ch. 7), Avrutin & Rohrbacher (1997)

Properties of Russian Pro-Drop

- “Like many other languages, Russian has what has come to be known as pro-drop: subject pronouns can be silent. [...] Pro-drop in Russian is subject to discourse conditions that make it much less common than pro-drop in Italian or Spanish.” (Perlmutter & Moore (2002))
- There is an asymmetry between 1./2. and 3. person pro-drop. (Růžička (1986))
- Russian differs from some other pro-drop languages in that overt subject pronouns can be unmarked in non-emphatic contexts. However, in some cases, using *pro* is in fact the only possibility to achieve a certain reading (Müller (1988)).

An Argument for Pro-Drop in Russian

- (21) *Generic interpretation of subject pronoun as 'one' (Müller (1988, 99)):*
- a. Ob ètom *pro* mnogo govorjat
 about this – much talk-3.PL
'There is much talk about this.'
 - b. *Pro* prosjat [PRO ne kurit']
 – ask-3.PL not to smoke
'It is requested that there is no smoking.'
 - c. Ètu knigu *pro* pročityvaeš' za dva časa
 this book – read-2.SG. in two hours
'This book can be read in two hours.'

Also see Suñer (1983), Montalbetti (1984) on the same effect in Spanish.

Russian Past Tense Inflection

Note:
 Things are slightly more difficult because Russian has what looks like radical person impoverishment in the past tense.

(22) *Verb Inflection in Russian, past tense:*

'read'	past.masc	past.fem	past.neut
[1,-pl]	čita-l	čita-l-a	čita-l-o
[2,-pl]	čita-l	čita-l-a	čita-l-o
[3,-pl]	čita-l	čita-l-a	čita-l-o
[1,+pl]	čita-l-i	čita-l-i	čita-l-i
[2,+pl]	čita-l-i	čita-l-i	čita-l-i
[3,+pl]	čita-l-i	čita-l-i	čita-l-i

Pro-Drop: Past and Present Tense

Potential problems

- 1 Assuming that the presence of one impoverishment rule affecting T (perhaps vacuously) suffices to block *pro* licensing by T in general, an impoverishment approach to (22) would be incompatible with the claim that Russian has pro-drop.
- 2 Pro-drop can in fact take place in these contexts (Ružička (1986), Müller & Rohrbacher (1989, 19)).

(23) *Pro-drop in Russian past tense contexts:*

Anna	postupila	verno	[_{CP} čto	<i>pro</i>	rešila	[_{CP} stat'	vračom]]	
Anna	acted	correctly	that	she	decided	to	become	doctor

An asymmetry between past and present tense?

Dobrova (2002):

“Because of the pro-drop nature of Russian, Russian children started using the 1-st person pronoun in the Manipulative Activity Scene only in the past (where there is no pro-drop in Russian), but not in the pro-drop present or future (the latter is contrary to English children).”

A Diachronic Solution

- 1 The inflected past tense forms are historically *I*-participles (with the originally accompanying auxiliaries dropped in modern Russian); as such, they never had any person features in the first place (those features had been located on the auxiliaries).
- 2 Impoverishment can be taken to be irrelevant because the inflection markers for past tense are not specified for person features for essentially historical reasons: The markers did not bear person features to begin with; they have been re-analyzed as finite markers in parallel with the disappearance of associated auxiliaries, and they simply have not acquired person features in their new function.

The same analysis can be given for pro-drop languages like [Japanese](#), [Korean](#), and [Chinese](#) in the present approach: Assuming that instances of subject pronoun omission in these languages can indeed involve an empty category *pro* that undergoes Agree with T (rather than discourse-governed ellipsis), the pro-drop generalization can be met because **if there are no ϕ -features in the first place, there is no impoverishment rule that deletes ϕ -features** – and it is only the presence of such impoverishment rules that may block *pro* licensing under present assumptions.

Speculations Based on Comparative Slavic Evidence

Another relevant observation:

- 1 Suppose (for the sake of argument) that Franks (1995) is right, and Russian does not have pro-drop (at all), whereas Polish, Czech, and Serbo-Croatian do.
- 2 The reason for non-licensing of *pro* in Russian may be that there is Φ -feature neutralizing impoverishment in the past tense (which then may block pro-drop everywhere).
- 3 The other Slavic languages that have an *I*-participle tense (Polish and Czech in particular) have retained clitics (for 1./2. person). Thus, in these languages, there is no Φ -feature neutralizing impoverishment operation.

Outlook

Note:

The present approach predicts that a single impoverishment rule affecting T in any tense/mood/number/gender/person domain blocks pro-drop throughout. This consequence may perhaps be tenable for Russian, but it looks problematic vis-a-vis other pro-drop languages, among them Arabic (Kenstowicz (1989)) and Italian (Rizzi (2002)); also see Neeleman & Szendrői (2005).

Bani-Hassan Arabic Participles

Kenstowicz (1989, 273): In embedded clauses in Bani-Hassan Arabic (Jordanian desert), pro-drop is impossible if the verb appears in a form that cannot inflect for person, and possible otherwise.

- (24) a. Fariid gaal *innu *pro*/inn-ha mištarya al-libaas
 Fariid said that pro/that-she has bought.[-pers] the dress
- b. Fariid gaal innu *pro* ištarat al-libaas
 Fariid said that she bought.[+pers] the dress

Italian Subjunctives 1

(25) Italian conjugation, present and past subjunctive: *parlare*

	Present	Past
[1,sg]	parl-i	parl-ass-i
[2,sg]	parl-i	parl-ass-i
[3,sg]	parl-i	parl-ass-e
[1,pl]	parl-iamo	parl-ass-imo
[2,pl]	parl-iate	parl-as-te
[3,pl]	parl-ino	parl-lass-ero

- 1 The present tense syncretism is arguably system-defining, but an approach in terms of impoverishment is not completely straightforward (basically, all person features must be deleted).
- 2 The past tense syncretism cannot be derived from impoverishment because 1. and 2. person do not form a natural class. The syncretic form must be completely underspecified: the elsewhere case.

Italian Subjunctives 2

Rizzi (2002, 20):

“The double ambiguity of the past subjunctive is perfectly tolerable, [(26-a)] is acceptable on both interpretations, while the triple ambiguity of [(26-b)] is not, and an overt second person pronoun [as in (26-c)] becomes obligatory here.”

Poletto (1993):

“In present subjunctive there is only one pronoun which is obligatory: the second singular. Third person and first person are not obligatory at all. Moreover, if there is a clitic reflexive on the verb, the subject pronoun is not obligatory anymore.”

- (26)
- a. Credevano che *pro* partissi
they believed that I/you would leave. **SUBJ.PAST**
 - b. Credono che *pro* parta
they believe that I/*you/he leave(s). **SUBJ.PRES**
 - c. Credono che tu parta
they believe that you leave **SUBJ.PRES**

Interestingly, pro-drop is not blocked altogether in subjunctive present tense contexts; only second person *pro* is illegitimate. This may suggest that there is no general impossibility of pro-drop here.

Partial Pro-Drop

Assuming that partial pro-drop phenomena (Russian, Italian, Arabic) do exist, the present approach lends itself to the following modification: Instead of assuming that a categories as such (like **T**) are subject to impoverishment, only categories of a certain type (e.g., **T.past**, **T.part**) are in fact subject to impoverishment (perhaps vacuously, as before); i.e., impoverishment does not spread from the domain that it is motivated for. The Pro Generalization can then remain the same.

(27) **Pro Generalization:**

An argumental *pro* DP cannot undergo Agree with T if T has been subjected (perhaps vacuously) to Φ -feature neutralizing impoverishment in the numeration.

Pro-Drop Despite Syncretism

Observation

- (Zifonun (2001, 57), Cysouw (2003, 51)):
Pro-drop may freely occur in languages despite the presence of syncretisms in verbal paradigms, and despite the fact that these syncretisms are amenable to an account in terms of natural classes of persons.

Pro-Drop Despite Syncretism

Observation

- (Zifonun (2001, 57), Cysouw (2003, 51)):
Pro-drop may freely occur in languages despite the presence of syncretisms in verbal paradigms, and despite the fact that these syncretisms are amenable to an account in terms of natural classes of persons.

Analysis

- There is no reason to invoke impoverishment in these cases; the syncretisms can be traced back to radical or partial underspecification of inflection markers.

2./3. Person Syncretism in Wambon 1

(28) **Verb inflection in Wambon** (Trans-New Guinea; de Vries (1989), after Cysouw (2003)):

- a. andet-ep-mbo
eat-1.SG-PAST
'I ate.'
- b. andet-∅-mbo
eat-2./3.SG-PAST
'You/he/she/it ate.'

- **Problem:** Wambon has free subject pro-drop (unlike Icelandic and Dutch, which show the same pattern).
- **Observation:** The syncretism involves a null marker.

2./3. Person Syncretism in Wambon 2

(29) Possible analyses:

a. Radical underspecification: /ep/ ↔ [+1,-2], /∅/ ↔ []

2./3. Person Syncretism in Wambon 2

(29) Possible analyses:

- a. Radical underspecification: $/ep/ \leftrightarrow [+1,-2]$, $/\emptyset/ \leftrightarrow [\]$
 b. Regular underspecification: $/ep/ \leftrightarrow [+1,-2]$, $/\emptyset/ \leftrightarrow [-1]$

2./3. Person Syncretism in Wambon 2

(29) Possible analyses:

- a. Radical underspecification: $/ep/ \leftrightarrow [+1,-2]$, $/\emptyset/ \leftrightarrow [\]$
- b. Regular underspecification: $/ep/ \leftrightarrow [+1,-2]$, $/\emptyset/ \leftrightarrow [-1]$
- c. Impoverishment₁:
 - (i) $/ep/ \leftrightarrow [+1,-2]$, $/\alpha/ \leftrightarrow [-1,+2]$, $/\beta/ \leftrightarrow [-1,-2]$, $/\emptyset/ \leftrightarrow [\]$
 - (ii) $[\pm 2] \rightarrow \emptyset/[-1]_{\text{---}}$

2./3. Person Syncretism in Wambon 2

(29) Possible analyses:

- a. Radical underspecification: $/ep/ \leftrightarrow [+1,-2]$, $/\emptyset/ \leftrightarrow []$
- b. Regular underspecification: $/ep/ \leftrightarrow [+1,-2]$, $/\emptyset/ \leftrightarrow [-1]$
- c. Impoverishment₁:
- (i) $/ep/ \leftrightarrow [+1,-2]$, $/\alpha/ \leftrightarrow [-1,+2]$, $/\beta/ \leftrightarrow [-1,-2]$, $/\emptyset/ \leftrightarrow []$
- (ii) $[\pm 2] \rightarrow \emptyset/[-1] ___$
- d. Impoverishment₂:
- (i) $/ep/ \leftrightarrow [+1,-2]$, $/\alpha/ \leftrightarrow [-1,+2]$, $/\emptyset/ \leftrightarrow [-1]$
- (ii) $[+2] \rightarrow \emptyset/[-1] ___$

↪ Morphology-based arguments against impoverishment:

- There is no system-wide pattern of syncretism in Wambon verb inflection.
- Analyses (29-ab) are simpler than analysis (29-c) (and (29-a) is simpler than (29-b)).
- It is unclear how the $/\alpha/$ and $/\beta/$ markers in (29-cd) could be acquired if they are always suppressed by impoverishment.
- There is a strong tendency for null marking ($/\emptyset/$) to correlate with radical underspecification (a **meta-grammatical Iconicity Principle**; Wiese (1999)); this is at variance with (29-bd).

2./3. Person Syncretism in Kenuzi-Dongola 1

(30) **Verb inflection in Kenuzi-Dongola** (Nilo-Saharan; Reinisch (1879), after Cysouw (2003, 43)):

- a. ai tóg-ri
 1.SG.PRON beat-1.SG
 'I beat.'
- b. er tóg-im
 2.SG.PRON beat-2./3.SG
 'You beat.'
- c. ter tóg-im
 3.SG.PRON beat-2./3.SG
 'He/she/it beats.'

2./3. Person Syncretism in Kenuzi-Dongola 2

(31) Possible analyses:

a. Radical underspecification: /ri/ ↔ [+1,-2], /im/ ↔ []

2./3. Person Syncretism in Kenuzi-Dongola 2

(31) Possible analyses:

- a. Radical underspecification: /ri/ \leftrightarrow [+1,-2], /im/ \leftrightarrow []
- b. Regular underspecification: /ri/ \leftrightarrow [+1,-2], /im/ \leftrightarrow [-1]

2./3. Person Syncretism in Kenuzi-Dongola 2

(31) Possible analyses:

- a. Radical underspecification: $/ri/ \leftrightarrow [+1,-2]$, $/im/ \leftrightarrow [\]$
- b. Regular underspecification: $/ri/ \leftrightarrow [+1,-2]$, $/im/ \leftrightarrow [-1]$
- c. Impoverishment₁:
 - (i) $/ri/ \leftrightarrow [+1,-2]$, $/\alpha/ \leftrightarrow [-1,+2]$, $/\beta/ \leftrightarrow [-1,-2]$, $/im/ \leftrightarrow [-1]$
 - (ii) $[\pm 2] \rightarrow \emptyset/[-1]$ ___

2./3. Person Syncretism in Kenuzi-Dongola 2

(31) Possible analyses:

- a. Radical underspecification: $/ri/ \leftrightarrow [+1,-2]$, $/im/ \leftrightarrow []$
- b. Regular underspecification: $/ri/ \leftrightarrow [+1,-2]$, $/im/ \leftrightarrow [-1]$
- c. Impoverishment₁:
 - (i) $/ri/ \leftrightarrow [+1,-2]$, $/\alpha/ \leftrightarrow [-1,+2]$, $/\beta/ \leftrightarrow [-1,-2]$, $/im/ \leftrightarrow [-1]$
 - (ii) $[\pm 2] \rightarrow \emptyset / [-1] ___$
- d. Impoverishment₂:
 - (i) $/ri/ \leftrightarrow [+1,-2]$, $/\alpha/ \leftrightarrow [-1,+2]$, $/im/ \leftrightarrow [-1]$,
 - (ii) $[+2] \rightarrow \emptyset / [-1] ___$



- Pro-drop seems to be prohibited.
- If true, this would suggest impoverishment at work.
- Closer analysis of the morphological system (including iconicity: *im* vs. *ri*) is required. (Given iconicity, (31-a) may be unlikely.)
- The similarity of 2./3. personal pronouns (*er* vs. *ter*) may indeed suggest a system-wide syncretism pattern, which would support an impoverishment approach.

1./3. Person Syncretism in Spanish

Observation (Cysouw (2003, 43)):

Spanish exhibits a 1./3. person syncretism, but only in some paradigms. Still, pro-drop is possible.

(32) **Spanish pretérito imperfecto:**

- a. habla-ba
speak-1./3.SG.PAST
'I/he/she/it spoke.'
- b. habla-bas
speak-2.SG.PAST
'You spoke.'

↪ Again, there is no evidence for an impoverishment approach:

- The syncretism is not part of a system-defining pattern.
- /((b)a/ (cf. *comía* vs. *comías*) should be analyzed as a separate tense/aspect marker, with /s/ being specified as [-1,+2], and /∅/ as a default marker [].

1./3. Person Syncretism in Koiari

(33) **Verb inflection in Koiari** (Trans-New Guinea; Dutton (1996), after Cysouw (2003, 44)):

- a. da ereva-nu
 1.PRON see-1./3.SG.PAST
 'I saw it.'
- b. a ereva-nua
 2.PRON see-2.SG.PAST
 'You saw it.'
- c. ahu ereva-nu
 3.PRON see-1./3.PAST
 'He/she/it saw it.'

- There is no pro-drop ('these pronouns .. are obligatorily used').
- Under the general approach adopted here, this suggests impoverishment ([-1,+2], [-1,-2] are neutralized to [-1]).
- Again, to decide this question, a careful morphological analysis of the whole system of argument encoding is called for. (1./3. person pronouns are also formally similar in that they are heavier than 2. person pronouns.)

1./2. Person Syncretism in English

(34) Verb inflection in English

- a. I walk
- b. You walk
- c. She walks



- English does not have pro-drop, because of the 1./3. person syncretism in the past tense (see above).
- The 1./2. syncretism in (34) does not instantiate a system-wide syncretism pattern: *I am* vs. *You are*, *I must* and *She must*.
- The 1./2. syncretism in (34) is even more general: *I walk* and *to walk*.
- The null form is simply the radically underspecified default form that fits everywhere (Williams (1994)).

1./2. Person Syncretism in Hunzib

(35) **Verb inflection in Hunzib** (Nakh-Daghestanian, van den Berg (1995), after Cysouw (2003, 46)):

- a. də hĩyaa-č ãcu
 1.PRON open-1./2.PRES door
 'I (shall) open the door.'
- b. mə bok'o.l-čo heχe
 2.PRON gather-1./2.PRES walnut
 'You will gather nuts.'
- c. oλul hĩyaa-∅ ãcu
 DEM open-3.PRES door

- There is no pro-drop.
- The syncretism suggests that 1./2. person form a natural class in Hunzib.
- This requires either the introduction of variables over feature values ($[\alpha 1, -\alpha 2]$ captures 1. and 2. person; Chomsky (1965)), or an additional feature $[\pm 3]$ (see, e.g., Trommer (2006)).
- If impoverishment (rather than pure underspecification) is at work, the feature value variable approach does not work; the approach in terms of $[\pm 3]$ does.
- Argument for impoverishment: The same syncretism pattern shows up with different markers in Lak, which is a related language.

Conclusion

- 1 System-defining patterns of syncretism are relevant for determining morphological richness; other kinds of syncretisms are not.
- 2 This difference is captured by the interaction of impoverishment and underspecification of inflection markers in Distributed Morphology.
- 3 The abstract notion of impoverishment may offer a better means of measuring morphological richness (as relevant for pro-drop) than is available in more traditional conceptions of morphology.

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