

MORPHOLOGICAL UPSTAGING AND ‘MARKEDNESS’*

Bronwyn M. Bjorkman,¹ Elizabeth Cowper,² Daniel Currie Hall,³ Jennice Hinds,⁴
Louise Koren,⁴ and Dan Siddiqi⁴

¹Queen’s University, ²University of Toronto, ³Saint Mary’s University,

⁴Carleton University

1. Introduction

It is well-known that languages make different choices about what grammatical information is morphologically obligatory. As Jakobson (1959: 236) famously put it, “Languages differ essentially in what they *must* convey and not in what they *may* convey.” For example, both English and French mark finite verbs with both tense and subject agreement, while Mandarin exhibits no morphological inflection on verbs at all.

When a language *never* marks certain information morphologically—and is never syntactically sensitive to the distinction in question—we can safely analyze it as not representing that contrast in abstract representations.¹ In other cases, however, a language may mark a distinction in some contexts, but systematically neutralize it in others. Such neutralization is often asymmetric: one dimension of meaning is realized morphologically, while another is neutralized. We refer to this as **morphological upstaging**. In Distributed Morphology (DM; Halle and Marantz 1993 et seq.), upstaging involves competition between VIs that is not resolved by the subset principle because the competing sets of features are not in a superset–subset relation.

For example, consider the exponence of person, number, and gender in the Swedish pronoun system, shown in Table 1. In the third person singular, there are five distinct forms reflecting different specifications for gender. If the referent is human, then masculine *han* and feminine *hon* can be used to reflect the referent’s biosocial gender, or the gender-neutral *hen* (a relatively recent borrowing from Finnish *hän*; see Gustafsson Sendén et al. 2015) can be used to leave gender unspecified. For non-human referents, there are distinct forms for two grammatical genders, neuter and common, the latter having arisen from a diachronic merger of feminine and masculine.

In the first and second persons, and in the plural, all of these gender distinctions are neutralized. In our terms, person and number each separately **upstage** gender. This upstaging involves a kind of competition between vocabulary items that is not intrinsically resolved by the standard principles of DM. For example, suppose that the Swedish inventory of vocabulary items includes the forms in (1):

*The authors’ names appear in alphabetical order. The research presented in this paper is financially supported by the Social Sciences and Humanities Research Council, and we are also grateful to Betsy Ritter and Heather Bliss for making their database available to us.

¹Though of course some linguists (e.g., Cinque and Rizzi 2008) have taken a universalist perspective, that every distinction made in any language is represented underlyingly in all languages.

Actes du congrès annuel de l’Association canadienne de linguistique 2021.

Proceedings of the 2021 annual conference of the Canadian Linguistic Association.

© 2021 Bronwyn M. Bjorkman, Elizabeth Cowper, Daniel Currie Hall, Jennice Hinds, Louise Koren, and Dan Siddiqi

Table 1. Contemporary Swedish nominative pronouns²

π	GENDER		SINGULAR	PLURAL
1	(HUMAN)		<i>jag</i>	<i>vi</i>
2	(HUMAN)		<i>du</i>	<i>ni</i>
3	HUMAN	MASCULINE	<i>han</i>	<i>de</i>
		FEMININE	<i>hon</i>	<i>de</i>
		UNSPECIFIED	<i>hen</i>	<i>de</i>
	NON-HUMAN	COMMON	<i>den</i>	<i>de</i>
		NEUTER	<i>det</i>	<i>de</i>

- (1) a. *du* \Leftrightarrow [PARTICIPANT]
 b. *de* \Leftrightarrow [PLURAL]
 c. *hon* \Leftrightarrow [FEMININE]

A syntactic head with the features [PARTICIPANT, FEMININE], referring to a singular feminine addressee, could in principle be spelled out by either *du* or *hon*, each of which would realize one of its two features. Since the specifications of these VIs are not in a superset–subset relation, DM doesn't predict which one will be used. In Swedish, *du* wins. In other words, person upstages gender, so that [PARTICIPANT] is realized at the expense of [FEMININE]. Likewise, if a head is specified as [FEMININE, PLURAL], referring to a group of female third persons, both *de* and *hon* would be eligible for insertion, but *de* wins: number upstages gender.

There are various formal means of ensuring that the correct vocabulary item will be inserted in each case. For example, an impoverishment rule could delete [FEMININE] in the context of [PARTICIPANT] or [PLURAL]. Alternatively, if we use binary features instead of monovalent ones, we could say that *han*, *hon*, *hen*, *den*, and *det* are all specified as [–participant] and [–plural]. But these solutions are essentially stipulative, and they do not express any larger generalization about how person, gender, and number interact in morphological systems cross-linguistically, or even within Swedish.

In this paper, we present some preliminary results of an investigation into whether any such generalizations in fact exist, and if so, how they can best be captured in a realizational theory of morphology. The central questions of our research program are stated in (2):

- (2) a. For a given pair of inflectional contrasts (e.g., number and gender), are patterns of upstaging cross-linguistically consistent?
 b. Are these patterns, if they exist, illustrative of a key underlying principle in the synchronic grammar or are they better attributed to functional pressures or diachronic change?

²For 3PL, *de* is standard in writing, but *dom* is also common in speech. 2PL *ni* is also used as a polite 2SG.

This paper reports on what we have found so far in pursuing these questions in the nominal domain, looking specifically at patterns of upstaging among person, number, case, and gender in pronominal and demonstrative paradigms.³ Our findings so far suggest that person appears to be the most likely of these classes of features to be realized in morphological spell-out, and gender the most likely to be upstaged, but the patterns are not clearly categorical.

Section 2 describes the data we used and how we identified potential cases of upstaging. Section 3 summarizes what we have found. Section 4 gives our interpretation of these findings and what they tell us about the questions in (2), and section 5 discusses where they might lead in future stages of this research project.

2. Study

The language data in our study were primarily drawn from the database created by Bliss and Ritter (2009). In addition, we looked at a few more languages not covered by this database, using data compiled by the two graduate student authors (Hinds and Koren) from published grammars.

2.1 Data from Bliss and Ritter (2009)

Bliss and Ritter's (2009) database, created in FileMaker Pro, contains personal pronoun and demonstrative paradigms from 109 typologically diverse languages. In addition to the paradigms themselves, the database includes some basic information about the genetic and geographic properties of each language, and bibliographic information about the sources of the data (mainly grammars).

Every language included in the database was inspected for potentially syncretic forms—that is, forms that are surface-identical, and which therefore may indicate morphological syncretisms.⁴ In its original form, the database contains a separate record for each individual form, which can be grouped together into lists of pronouns and demonstratives for each language. However, these lists are one-dimensional, and so in order to visualize cross-classifying dimensions of morphological contrast in more familiar two-dimensional paradigm tables, we created a spreadsheet for each language in the database. The paradigms were organized in the familiar columns and rows, in the way that made the best sense for each language. We highlighted each potential syncretism in a distinct colour, as in Figure 1, which shows the personal pronouns of Bandjalang as they appear in the original FileMaker database and in our spreadsheet.

³We use the term *gender* in a broad sense that includes noun classes in general, not just those with names like *feminine* and *masculine*.

⁴We describe these as only potentially syncretic because surface-identical forms can also arise through phonological neutralization of underlyingly distinct vocabulary items.

The top screenshot shows a web application interface for 'Languages'. It has a search bar, navigation buttons, and a table titled 'Personal pronouns of Bandjalang'. The table has columns for Form, Person, Case, Gender, Formality, General, Singular, Dual, Trial, Paucal, and Plural. The data is as follows:

Form	Person	Case	Gender	Formality	General	Singular	Dual	Trial	Paucal	Plural
Stem	1st					ɲaj-				
Word	1st									ɲali
Stem	1st					ɲaj-				
Stem	2nd					wa-				
Word	2nd									ɲiri:maŋ
Word	2nd									ɲiri:maŋ
Stem	2nd					wa-				
Stem	2nd					wa-				
Word	3rd					ɲjule				ɲjulaŋam
Word	3rd					ɲjule				ɲjulaŋam
Word	3rd					ɲjule				ɲjulaŋam
Word	3rd					ɲjule				ɲjulaŋam

The bottom screenshot shows an Excel spreadsheet titled 'Bandjalang_exported.xlsx'. The data is summarized as follows:

	A	B	C	D	E	F	G
1	Bandjalang						
2	Source: Ritter Pronouns Database						
3	Independent pronouns						
4		Sg	Sg	Pl	Pl		
5		F	non-F	F	non-F		
6		1 ɲaj-	ɲaj-	ɲali	ɲali		
7		2 wa-	wa-	(ɲiri:maŋkan)	ɲiri:maŋ		
8		3 ɲjulekan	ɲjule	(ɲjulaŋamkan)	ɲjulaŋam		
9							

Figure 1. From database to spreadsheet: Bandjalang pronouns

2.2 Additional data

The Bliss and Ritter (2009) data are supplemented by paradigms from some additional languages likely to exhibit syncretism patterns that may involve upstaging. Although we have tried to include a genetically and typologically diverse range of languages, we have not attempted to construct a systematically balanced or representative sample. Instead, we selected languages based on whether they appeared to have cases of upstaging, because we are interested in examining as many different upstaging patterns as possible (and not in making any quantitative claims about how prevalent upstaging is in general), and based on the availability of sufficiently reliable and informative sources.

For each language, we consulted reference grammars to extract paradigms for pronouns, demonstratives, and (when relevant) agreement on adjectives and verbs. As with the paradigms from the Bliss and Ritter (2009) database, syncretisms were colour-coded for ease of later inspection. These additional languages, and our sources of data for each one, are listed in (3).

- (3) Languages with potentially relevant syncretisms
- a. Attic Greek (Mastrorarde 2013)
 - b. Coast Tsimshian (Dunn 1995; Forbes to appear)
 - c. Hinuq (Forker 2013)
 - d. Levantine Arabic (McLoughlin 1982)
 - e. Modern Hebrew (Glinert 1989)
 - f. Slovene (Herrity 2000)

2.3 Identifying upstaging

Once all instances of syncretism had been coded, we focused on syncretisms involving any combination of contrasts in person, number, case, or gender. Some languages also had syncretisms involving politeness or distance (proximal vs. distal); these were not examined further, and are not reported here, because there is less agreement in the literature about how such contrasts are featurally encoded. Several languages have T/V politeness systems in which the same forms that mark plurality are also used for polite singulars (e.g., *vous* in French can be a second-person plural or a polite second-person singular). We did not count such systems as instances of person upstaging number.⁵

A syncretism was identified as involving upstaging only if a contrast present in one part of a paradigm was systematically absent in another column or row of the same paradigm. In some cases this determination was made on the basis of a review of the sources cited by Bliss and Ritter (2009), or other descriptions of the languages involved, in particular Demuth (1988) and Demuth et al. (2009) for Sesotho, Fennell and Gelsen (1980) for Latvian, Haas (1940) for Tunica, King (2003) for Welsh, and Polomé (1967) for Swahili. Although we have done our best to make sure that we have represented the paradigms correctly, it is important to acknowledge that the findings we present here are preliminary, based on others' descriptions of the languages, usually taken from grammars. A detailed morphosyntactic analysis of the features involved in each system could change our understanding of what's going on.

3. Results: Patterns of upstaging

The distribution of upstaging patterns in 78 languages examined so far is summarized in Table 2. Each cell shows the number of languages in which the relevant neutralization is found. Some languages are counted in more than one cell because they exhibit more than one kind of upstaging, so the sum of all the cells is greater than 78. Table A1, in the appendix, lists the languages included in each cell. In the remainder of this section we highlight a number of patterns within these overall results.

⁵See Ritter and Wiltschko (2019) for an analysis of the T/V phenomenon based on 'recycling' rather than on the mechanisms by which other kinds of syncretisms are usually derived.

Table 2. Upstaging patterns in 78-language sample

		<i>category preserved</i>			
		PERS	NUM	CASE	GEND
<i>category upstaged</i>	PERS		1	0	0
	NUM	12		3	7
	CASE	20	18		9
	GEND	28	38	14	

3.1 Which features are most likely to be preserved, and which neutralized?

The languages in our sample suggest a scale of features, shown in (4), with features higher on the scale more likely to be preserved at the expense of those lower on the scale in the spell-out of pronouns and demonstratives.

(4) PERSON > NUMBER > CASE > GENDER

But these tendencies are not absolute. For example, although person marking is much more likely to be preserved at the expense of other features, and person is almost never upstaged, it is upstaged by number in the Navajo pronominal system, shown in Table 3.⁶ (Third and fourth persons also upstage the dual–plural number contrast in this paradigm.)

Table 3. Navajo personal pronouns

π	SING.	DUAL	PLURAL
1	ʃí	nihí	tanihí
2	ní	nihí	tanihí
3	pí	taapí	taapí
4	hó	taahó	taahó

- **Number > person:** In the dual and plural, first- and second person forms are identical.
- **Person > number:** In the third and fourth persons, dual is not distinct from plural.

At the other end of the scale, gender is particularly likely to be upstaged by other features, and comparatively less likely to upstage anything itself, but it does upstage number 7 times and case 9 times in our sample.

⁶The fourth person in Table 3 is used as something like an obviative (indicating a non-participant other than the one already designated by third person in the discourse), and also as a polite form for either a third person or an addressee (Reichard 1951: 81–82).

3.2 F > G and G > F

In some languages, we find both dimension F upstaging dimension G and G upstaging F within a single paradigm—*prima facie* evidence against universal or even language-specific rankings.

For example, in the Navajo pronouns in Table 3, non-singular number upstages the contrast between first and second person, but 3rd and 4th person upstage the dual–plural contrast. And in Swedish, Slovene, Polish, Lithuanian, Latin, German, and Attic Greek, case upstages gender **and** gender upstages case in the same paradigm. This pattern is illustrated in Table 4, which shows the interaction of case and gender in Slovene third-person singular pronouns.

Table 4. Slovene third-person singular pronouns (Herrity 2000)

CASE	MASC.	NEUT.	FEM.
NOM.	<i>òn</i>	<i>òno</i>	<i>òna</i>
ACC.	<i>njêga</i>	<i>njêga</i>	<i>njó</i>
GEN.	<i>njêga</i>	<i>njêga</i>	<i>njé</i>
LOC.	<i>njêm</i>	<i>njêm</i>	<i>njêj</i>
DAT.	<i>njêmu</i>	<i>njêmu</i>	<i>njêj</i>
INST.	<i>njím</i>	<i>njím</i>	<i>njó</i>

- **Case > gender:** The contrast between masculine and neuter is neutralized in all cases except the nominative.
- **Gender > case:** The contrasts between locative and dative, and between accusative and instrumental, are neutralized in the feminine.

All of our examples of languages with both case upstaging gender and gender upstaging case are Indo-European; at this point, it is not obvious whether that fact is typologically significant or whether it is just because the Indo-European family is over-represented among the languages in our dataset with both gender and a rich case system.

3.3 Interactions of person and number with gender

Person and number frequently upstage gender, either individually or in combination. Gender is more often realized in the singular than in other numbers (as predicted by Greenberg's (1966: 75–76; 90) Universals 37 and 45), and more often realized in the third person than in first and second persons (predicted for first person by Greenberg's (1966: 76; 90) Universal 44; for more on Greenberg's Universals, see §4.2). In 19 languages in our sample, both person and number upstage gender; in 16 of these, both upstagings are part of a single pattern. Wolaytta personal pronouns, shown in Table 5, are a typical example, with gender marked only in the third person singular; this pattern occurs in 11 of the languages.

Table 5. Wolaytta personal pronouns (Ohman and Fulass 1976: 158)⁷

π	GEND.	SINGULAR			PLURAL		
		NOM.	ACC.	GEN.	NOM.	ACC.	GEN.
1		tani	tana	taga, taro	nuni	nuna	nuga
2		neni	neni	nega	inte	intena	intega
3	MASC.	i	a	ega	eti	eta	etana
	FEM.	a	o	iga	eti	eta	etana

- **Person > gender:**
Gender is marked only in 3rd person.

- **Number > gender:**
Gender is marked only in singular.

Iraqw, shown in Table 6, is unusual in having a gender contrast only in the *second* person singular.

Table 6. Iraqw independent subject pronouns (Nordbustad 1988: 30)

π	GENDER	SINGULAR	PLURAL
1		aníŋ	atén
2	MASC.	kuúŋ	kuúngá?
	FEM.	kiíŋ	kuúngá?
3		inós	ino:ʔín

- **Person > gender:**
Gender is marked only in 2nd person.

- **Number > gender:**
Gender is marked only in singular.

In 19 of the 28 languages where person upstages gender, this is because there is no gender contrast for participants—that is, the gender contrast is limited to third person.

3.4 A note on dual number

Of the 30 times NUM is upstaged, in 7 cases it is specifically dual number that is non-distinct from another value (usually plural, but occasionally singular):

- PERS upstages NUM only in loss of the dual in: Navajo, Tunica, Wappo
- CASE upstages NUM only in loss of the dual in: Slovene, Tonkawa
- GEND upstages NUM only in loss of the dual in: Ngandi, Tunica

⁷Plural second- and third-person forms are also used as polite singulars. The choice between 1GEN.SG forms /taga/ and /taro/ is based on properties of the possessum.

4. Discussion: Explaining upstaging

We can think of upstaging as a morphosyntactic counterpart of contextual neutralization in phonology, as Greenberg (1966: 74) does: a morphosyntactic distinction present elsewhere in a language is syncretized in the environment of certain values for one or more other morphosyntactic distinctions.

In Distributed Morphology, the standard ways to account for syncretisms are through underspecified vocabulary items, which will occupy multiple slots in a paradigm when no more highly specified VIs are available, or through language-specific morphological rules such as Impoverishment, which neutralizes contrasts by deleting some features before Vocabulary Insertion applies, producing what Halle and Marantz (1993: 157) characterize as a “retreat to the general case.”⁸

Upstaging is a puzzle for theories like DM because both the ‘winning’ realization and a competitor appear to be equally specified—some other factor seems to be needed to break the tie.

4.1 Is everything that looks like a tie really a tie?

Many authors (e.g., Jakobson 1939; Brøndal 1940; Greenberg 1966) have linked syncretism to the co-occurrence of multiple ‘marked’ feature values. For example, Greenberg (1966: 74–75) considers non-singular number categories to be more marked than the singular. Considering only number itself, the singular is less marked in the sense that it is the value most likely to have a zero exponent (Greenberg’s Universal 35); in the interaction between number and gender, the unmarked status of the singular is reflected in the fact that it always allows at least as many gender distinctions as the non-singular numbers do, and often more (Universal 37).

However, what it means for a feature value to be marked has remained in dispute—as has the question of whether the same features are marked in different languages. The **neo-parametric** view of formal features (Cowper and Hall 2017) allows for different languages specifying—syntactically ‘marking’—different members of an opposition. For two languages that contrast 1st and 2nd person, for example, it could be that one represents this as [SPEAKER] vs. \emptyset , while the other represents it as \emptyset vs. [ADDRESSEE] (*pace* Harbour 2016).

What does this have to do with upstaging? Recall the vocabulary items in (1), repeated below, and the interaction of gender with person and number in the Swedish pronoun paradigm in Table 1:

- (1) a. *du* \Leftrightarrow [PARTICIPANT]
 b. *de* \Leftrightarrow [PLURAL]
 c. *hon* \Leftrightarrow [FEMININE]

⁸Feature-changing rules akin to Rules of Referral (Zwicky 1985; Stump 1993) have also sometimes been proposed in DM; see, e.g., Noyer (1998), who proposes that Impoverishment can change features, but only from more marked values to less marked ones.

These feature specifications, and the proposition that they offer two equally good candidates for spelling out a second-person feminine singular (*du* or *hon*) or a third-person feminine plural (*de* or *hon*), assume that [PARTICIPANT], [PLURAL], and [FEMININE] are all marked values in Swedish. A single change—specifying [SINGULAR] rather than [PLURAL]—would substantially change the specification of the relevant vocabulary items, and the consequent competition among them. For this reason, more careful morphosyntactic analysis of individual languages will be needed before we can conclude that the sample includes any true upstaging examples.

4.2 The context of typological universals

Some of the tendencies we've identified in cross-linguistic patterns of upstaging are similar to generalizations proposed as implicational universals by Greenberg (1966). For example, as mentioned above, the tendency of number to take precedence over gender is predicted by Universals 37 and 45:

- (5) **Universal 37.** A language never has more gender categories in non-singular numbers than in the singular (Greenberg 1966: 76).
- (6) **Universal 45.** If there are any gender distinctions in the plural of the pronoun, there are some gender distinctions in the singular also (Greenberg 1966: 76).

Similarly, upstaging of gender by person—or, more specifically, by *first* person—is predicted by Universal 44:

- (7) **Universal 44.** If a language has gender distinctions in the first person, it always has gender distinctions in the second or third person, or in both (Greenberg 1966: 76).

However, our results so far do not seem to provide evidence of a universal ordering of features such that a feature higher on the scale will sometimes upstage, and never be upstaged by, a lower feature. In fact, they suggest that no such universal scale exists. Although we have no examples of case or gender upstaging person, for any other pair of features in the set we looked at, there is at least one apparent example of each upstaging the other, as discussed in §3.2.

5. Conclusion

The next steps in this research project are to expand its breadth, by adding more languages to our sample, and its depth, by looking in more detail at the apparent cases of upstaging identified so far. As mentioned in §4.1, we do not assume that the featural encoding of morphosyntactic contrasts is constant from one language to another, and so in order to know whether an apparent case of upstaging in any given language is real, we need to understand the feature system of that language.

It is possible—though at this point we do not believe it is likely—that more detailed analysis of the languages in our sample will eliminate all cases of upstaging. Perhaps they

can all be explained through standard competition between vocabulary items, given the right set of features. This would be an interesting result: if upstaging turns out to be illusory, then there is no need to posit any mechanism that privileges some kinds of features over others.

If upstaging turns out to exist, then we need to explain how and why it happens. Where the subset principle does not choose between two competing vocabulary items, what does?

One possibility worth considering is that there could be a preference for spelling out features with semantic content. Such a preference would have an obvious functional motivation—contentful features are more informative to the addressee, and thus more useful to realize overtly. However, it is not necessarily a functionalist explanation as opposed to a formal one: in a Y-model of grammar in which morphological realization does not have direct access to the mechanisms of semantic interpretation, interpretability can nonetheless be encoded as a formal metafeature (Chomsky 1995).

A preference for spelling out semantically contentful features would predict, for example, the upstaging of (arbitrary) gender by interpretable number, or the upstaging of (structural) case by interpretable ϕ -features. However, it would not make any predictions about which of two features will be realized if both are interpretable or both are uninterpretable. For example, our data so far suggest that it is possible for number to upstage person, but much more common for person to upstage number; if both number and person have semantic content, then a preference for spelling out interpretable features cannot predict which one will prevail in any individual language, nor can it explain why person wins in more languages than number does.

To conclude, we return to the questions in (2), repeated below:

- (2) a. For a given pair of inflectional contrasts (e.g., number and gender), are patterns of upstaging cross-linguistically consistent?
- b. Are these patterns, if they exist, illustrative of a key underlying principle in the synchronic grammar or are they better attributed to functional pressures or diachronic change?

Our answer to question (2a) at this stage is a tentative yes, but most of these patterns appear to be tendencies rather than absolutes. Question (2b) remains open: in order to determine what, if any, principle underlies the tendencies we have uncovered so far, we need to understand the feature systems of the individual languages involved. Any claims about typology or about the mechanisms of Universal Grammar must be grounded in a more thorough analysis than can be conducted from a database of paradigms alone.

References

- Bliss, Heather and Elizabeth Ritter. 2009. A typological database of personal and demonstrative pronouns. In *The use of databases in cross-linguistic studies*, ed. Martin Everaert, Simon Musgrave, and Alexis Dimitriadis. Berlin: Mouton de Gruyter, 77–116.
- Brøndal, Viggo. 1940. Compensation et variation, deux principes de linguistique generale. *Scientia* 9/10: 101–109.
- Chomsky, Noam. 1995. *The Minimalist program*. Cambridge, MA: MIT Press.

- Cinque, Guglielmo and Luigi Rizzi. 2008. The cartography of syntactic structures. *Studies in Linguistics* 2: 42–58.
- Cowper, Elizabeth and Daniel Currie Hall. 2017. The rise of contrastive modality in English: A neoparametric account. *Linguistic Variation* 17(1): 68–97.
- Demuth, Katherine, ‘Malillo Machobane, and Francina Moloi. 2009. Learning how to license null noun-class prefixes in Sesotho. *Language* 85(4): 864–883.
- Demuth, Katherine A. 1988. Noun classes and agreement in Sesotho acquisition. In *Agreement in natural languages: Approaches, theories and descriptions*, ed. M. Barlow and C. Ferguson. Chicago: CSLI/University of Chicago Press, 305–321.
- Dunn, John Asher. 1995. *Sm’algyax: A reference dictionary and grammar for the Coast Tsimshian language*. Seattle: University of Washington Press.
- Fennell, Trevor G. and Henry Gelsen. 1980. *A grammar of Modern Latvian*, vol. 1. The Hague: Mouton.
- Forbes, Clarissa. to appear. Tsimshianic. In *The languages and linguistics of Indigenous North America*, ed. Carmen Jany, Marianne Mithun, and Keren Rice, vol. 1. Berlin: De Gruyter, 30 pp. Available on LingBuzz at <https://ling.auf.net/lingbuzz/004784>.
- Forker, Diana. 2013. *A grammar of Hinuq*. Berlin: De Gruyter Mouton. doi:<https://doi.org/10.1515/9783110303971>.
- Glinert, Lewis. 1989. *The grammar of Modern Hebrew*. Cambridge: Cambridge University Press.
- Greenberg, Joseph H. 1966. *Language universals: With special reference to feature hierarchies*. The Hague: Mouton & Co.
- Gustafsson Sendén, Marie, Emma A. Bäck, and Anna Lindqvist. 2015. Introducing a gender-neutral pronoun in a natural gender language: The influence of time on attitudes and behavior. *Frontiers in Psychology* 6(893): 1–12. doi:10.3389/fpsyg.2015.00893.
- Haas, Mary R. 1940. *Tunica*. New York: J.J. Augustin.
- Halle, Morris and Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. Ken Hale and Samuel J. Keyser. Cambridge, MA: MIT Press, 111–176.
- Harbour, Daniel. 2016. *Impossible persons*. Cambridge, MA: MIT Press.
- Herrity, Peter. 2000. *Slovene: A comprehensive grammar*. London and New York: Routledge.
- Jakobson, Roman. 1939. Signe zéro. In *Mélanges de linguistique offerts à Charles Bally*. Geneva: Georg et Cie, S.A., 143–152.
- Jakobson, Roman. 1959. On linguistic aspects of translation. In *On translation*, ed. Reuben A. Brower. Cambridge, MA: Harvard University Press, 232–239.
- King, Gareth. 2003. *Modern Welsh: A comprehensive grammar*. 2nd ed. London: Routledge.
- Mastrorade, Donald J. 2013. *Introduction to Attic Greek*. 2nd ed. Berkeley, CA: University of California Press.
- McLoughlin, Leslie J. 1982. *Colloquial Arabic (Levantine)*. New York: Routledge.
- Nordbustad, Frøydis. 1988. *Iraqw grammar: An analytics study of the Iraqw language*. Berlin: Reimer.
- Noyer, Rolf. 1998. Impoverishment theory and morphosyntactic markedness. In *Morphology and its relation to phonology and syntax*, ed. Steven G. Lapointe, Diane K. Brentari, and Patrick M. Farrell. Stanford, CA: CSLI, 264–285.
- Ohman, Walter A. and Hailu Fulass. 1976. Welamo. In *Language in Ethiopia*, ed. M. L. Bender, J. D. Bowen, R. L. Cooper, and C. A. Ferguson. London: Oxford University Press, 155–164.
- Polomé, Edgar C. 1967. *Swahili language handbook*. Washington: Center for Applied Linguistics.
- Reichard, Gladys A. 1951. *Navaho grammar*. New York: J.J. Augustin.
- Ritter, Elizabeth and Martina Wiltschko. 2019. The syntax of formality: Universals and variation. Presented at the 2019 annual meeting of the Canadian Linguistic Association, University of British Columbia, June 2019.
- Stump, Gregory. 1993. On rules of referral. *Language* 69(3): 449–479.
- Zwicky, Arnold M. 1985. How to describe inflection. In *Proceedings of the annual meeting of the Berkeley Linguistics Society*, vol. 11. 372–386.

Appendix: Language names in results

Table A1. Upstaging patterns in 78-language sample

	C A T E G O R Y P R E S E R V E D			
	PERS	NUM	CASE	GEND
C A T E G O R Y U P S T A G E D	PERS	1: Navajo	0	0
	NUM	12: Berik, Coast Tsimshian, Haitian Creole, Koasati, Kutenai, Kwakiutl, Maxakali, Navajo, Tauya, Tunica, Wappo, Wichita	3: Balochi, Slovene, Tonkawa	7: Arapesh, Catalan, Ho, Ngandi, Pakaàsnovos, Sotho, Tunica
	CASE	20: Albanian, Catalan, Coast Tsimshian, Dutch, Fijian, Georgian, German, Godie, Greek, Hausa, Hinuq, Kabardian, Kwakiutl, Latin, Pidgin Nigerian, Polish, Spanish, Tamazight, Wappo, Yupik	18: Albanian, Attic Greek, Catalan, Coast Tsimshian, Comanche, Dutch, Georgian, German, Hausa, Latin, Lithuanian, Pidgin Nigerian, Slovene, Spanish, Wappo, Xokleng, Yaoure, Zuni	9: Attic Greek, German, Hausa, Latin, Lithuanian, Polish, Swedish, Telugu, Xokleng
C A T E G O R Y	GEND	38: Albanian, Arabic (Gulf), Arabic (Levantine), Awtuw, Bandjalang, Catalan, Cuebo, Dieri, Ho, Iraqw, Latin, Latvian, Modern Hebrew, Nama, Ngandi, Pakaàsnovos, Pomo, Rikbaktsa, Salish (Southern Puget Sound), Somali, Sotho, Spanish, Swedish, Tamazight, Tunica, Welsh, Wolaytta, Xokleng, Yimas	14: Albanian, Attic Greek, Djingili, Georgian, Hinuq, Latin, Latvian, Lithuanian, Luiseño, Polish, Romanian, Slovene, Swedish, Tamazight	