

On the emergence of paradigm structure

Blocking, analogy, and the cyclic nature of language change

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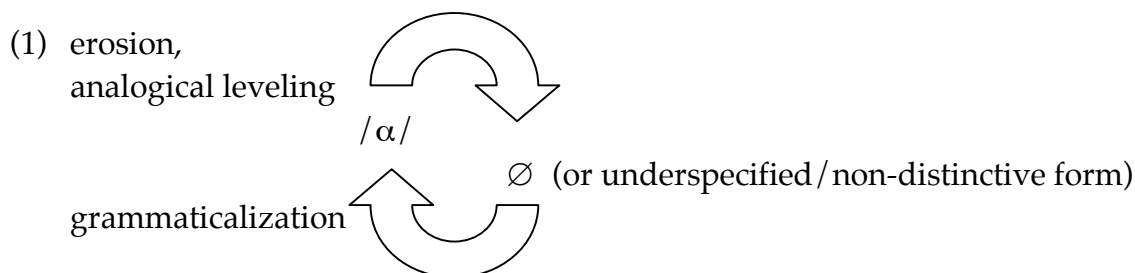
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1 Introduction

- Traditional observation: Cyclic nature of language change – reduction of forms via phonological erosion and analogical leveling is compensated for by grammaticalization processes that create new exponents of inflectional categories:¹



- Aim of this paper: To examine the interplay between paradigm leveling and grammaticalization, focusing on the historical development of verbal agreement marking in a set of German dialects.
- Basic claims: Cyclic course of morphological change is governed by conflicting (learning) strategies that shape the acquisition of inflectional morphology:
 - (i) Blocking constraints: Select the most specified variant in case the input contains more than a single potential realization of a given inflectional category (⇒ **grammaticalization**).
 - (ii) Analogical change:
 - (a) may be promoted by learning strategies that aim at minimizing the number of elements/features stored in the lexicon, leading to a more transparent relation between form and function/meaning.
 - (b) introduces more regular/less specified formatives, which over time may replace older (more distinctive) forms (⇒ **paradigm leveling**).
- (i) is reminiscent of synchronic blocking effects driven by some form of the ‘**elsewhere condition**’, which requires that the availability of a more specific form or rule blocks the use of a less specific form or rule (cf. e.g. Kiparsky 1982).²

(2) he/she/it run-s vs. *he/she/it run-∅

¹ Cf. e.g. Paul (1880), Gabelentz (1891), Jespersen (1917). The idea that grammaticalization processes are motivated by the need to compensate for the loss of distinctions due to phonological erosion is widely held in typological/functionalist approaches to grammaticalization, cf. Lüdtkke (1980), Hopper & Traugott (1993), Siewierska (1999), (2004), Ariel (2000), and Lehmann (2002), among others.

² For a general discussion of blocking/elsewhere effects cf. e.g. Kiparsky (1973), (1982); Aronoff (1976); Anderson (1986), (1992); Halle (1997); Noyer (1997); Giegerich (2001); Embick & Marantz (2006).

2 Morphological blocking and the grammaticalization of verbal inflection

- Observation: The grammaticalization of inflectional markers does not replace existing formatives in a random fashion:³
- (3) New verbal agreement formatives arise only for those slots of the agreement paradigm where the existing inflections are non-distinctive.
- Formal account of this observation: Acquisition of phonological exponents of inflectional categories is shaped by an economy constraint that favors the use of more specified exponents over less specified exponents (cf. Fuß 2005):
- (4) *Blocking Principle (BP)*
If several appropriate phonological realizations of a given morpheme are attested in the Primary Linguistic Data (PLD), the candidate matching the greatest subset of the morphosyntactic features included in the morpheme must be chosen for storage in the lexicon.
- Implications:
 - (i) Child learners scan the input they receive for the most specific phonological realization of a given underlying inflectional category.
 - (ii) The BP ensures that the development of new inflections can affect only underspecified slots of the paradigm, replacing non-distinctive markers.

2.1 The grammaticalization of agreement markers in German/Bavarian

- Background: In German/Bavarian, new agreement suffixes developed via a reanalysis of subject enclitics, which (mostly) turned into enlargements of the existing inherited agreement endings (e.g., 2sg *-s* + *t(hu)* 'CLIT.-2sg' >>> 2sg *-st*).
 - This change is confined to the following contexts:
- (5) a. 2sg *-s* ⇒ *-st* (early OHG; *-st* in most mod. varieties of German)
 b. 2pl *-t* ⇒ *-ts* (13th century Bavarian; attested in all mod. varieties)
 c. 1pl *-an* ⇒ *-ma* (18th century; extension to verbs in clause-final position in e.g. some Lower Bavarian dialects)
- Why?

2.2 Bavarian 2pl *-ts*, 1pl *-ma*

- Observation: The development of the new endings 2pl *-ts*, 1pl *-ma* led to the elimination of syncretism in the verbal agreement paradigm.
- Development of 2pl *-ts* (< clit. *-(ē)s*): eliminated syncretism of 3sg with 2pl (13th century, Northern and Middle Bavarian, cf. Wiesinger 1989:72f.):

³ Relevant examples include: various Italian and Rhaeto-Romance dialects (cf. e.g. Spiess 1956, Kuen 1957, Renzi & Vanelli 1983, Linder 1987, Haiman & Benincà 1992, Poletto 1997, Gerlach 2002), Non-Standard French (Wartburg 1970, Ashby 1977, Harris 1978, Auger 1993, Gerlach 2002), a number of German varieties (Wiesinger 1989, Dal Negro 2004, Fuß 2005, Kolmer 2005), Khinalug (North-East Caucasian, Corbett 1991: 123), Kisar (Austronesian, Blood 1992, Siewierska 1999, 2004), Maricopa (Yuman, Siewierska 1999, 2004), and the Papuan language Skou (Donohue 2002).

	Old paradigm	New paradigm
1sg	-∅	-∅
2sg	-st	-st
3sg	-t	-t
1pl	-an	-an
2pl	-t	-ts
3pl	-ant	-ant

Table 1: Rise of 2pl /-ts/ (pres. indic.), 13th century Bavarian

- The earlier formative /-t/ occurs in 3sg and 2pl contexts; accordingly, it is underspecified for both [person] and [number]:

(6) elsewhere ↔ /-t/

- The rise of 2pl /-ts/ is licensed by the BP: /-ts/ is specified for person & number:

(7) [2, pl] ↔ /-ts/

- Development of 1pl -ma (< clit. -ma): By the 18th century, 3pl and 1pl forms had fallen together in many Bavarian dialects (due to erosion of final -t in 3pl forms).
- In some varieties, the resulting syncretism was eliminated by the development of a new agreement ending 1pl -ma:⁴

	Old paradigm	New paradigm
1sg	-∅	-∅
2sg	-st	-st
3sg	-t	-t
1pl	-an	-ma
2pl	-ts	-ts
3pl	-an(t)	-an(t)

Table 2: Rise of 1pl /-ma/ (pres. indic.), late 18th century Bavarian

- The earlier formative /-an/ occurs in 1pl and 3pl contexts; accordingly, it is underspecified for [person]:

(8) [2, pl] ↔ /-ts/
 [pl] ↔ /-an/

- The rise of 1pl /-ma/ is licensed by the BP: /-ma/ is specified for pers. & number:

(9) [1, pl] ↔ /-ma/
 [2, pl] ↔ /-ts/
 [pl] ↔ /-an/

- Explanation in terms of blocking: The relevant grammaticalization processes took place only in contexts where the new agreement markers were more distinctive than the existing markers (see Appendix I for the earlier development of 2sg -s+t).

⁴ Some of these dialects are spoken in the Bavarian Forest, in an area the boundaries of which are (roughly) marked by Cham in the west, Lam in the east, Furth i.W. in the north and Kötzing in the south (cf. Pfalz 1918, Kollmer 1987; Wiesinger 1989, Weiß 1998).

2.3 Summary: Blocking-induced change

- Blocking-induced change selects the most specific marker of a set of candidates (robustly) attested in the input, dismissing other potential realizations of the same inflectional category:
- (10) Input contains more than a single potential phonological realization of an inflectional category X with features $\{F_1, F_2 \dots F_n\}$:

$$\left. \begin{array}{l} / \alpha / [x F_1 \dots F_i] \\ / \beta / [x F'_1 \dots F'_j] \end{array} \right\} / \beta / [x F'_1 \dots F'_j] \text{ (selected by the BP iff } |\{F'_1 \dots F'_j\}| > |\{F_1 \dots F_i\}| \text{)}$$

- Thus, blocking-induced changes effectively reduce linguistic variation produced by the target grammar.

3 Analogical leveling: Expanding the domain of less distinctive forms

- Paradigm leveling: Less distinctive formatives gain a wider distribution in a paradigm, replacing forms that are apparently more distinctive – **obvious problem for the BP**.⁵
- Einheitsplural ('common plural') in Alemannic: Most Alemannic dialects spoken in Switzerland and Southwest Germany exhibit only a single plural agreement formative $/-\text{ə}(n)t/$, which originated from the 3pl *-ent* (via vowel reduction and, in some varieties, elision of $/n/$):

	Present indicative
1sg	-ə
2sg	-ſ
3sg	-t
1pl	-ə(n)t
2pl	-ə(n)t
3pl	-ə(n)t

Table 3: *Einheitsplural* in Alemannic

	Original paradigm (Early OHG, ca. 800)	1pl <i>-mēs</i> → <i>-en</i> (Otfrid, ca. 865)	2pl <i>-et</i> → <i>-ent</i> (Notker, OHG/Alem., ca. 1000)	1pl <i>-et</i> → <i>-ent</i> (MHG/Alem., 13th-15th cent.)
1sg	-u	-u	-o	-e(n)
2sg	-is	-ist	-est	-eſ(t)
3sg	-it	-it (→ -et)	-et	-(e)t
1pl	-mēs	-ēn ⁶	-ēn	-ent
2pl	-et	-et	-ent	-ent
3pl	-ent	-ent	-ent	-ent

Table 4: The development of *Einheitsplural* in OHG/Alemannic, present indicative (inflections of strong verbs & weak verbs of class I, including theme vowels)

⁵ Leveling via phonological erosion is not an issue here: When reduction processes lead to the erosion of inflectional distinctions, the relevant forms simply disappear from the input and fail to be acquired.

⁶ It is commonly assumed that the 1pl *-en*, which replaced *-mēs*, originated in the subjunctive 1pl *-(e)m*.

- The development of a ‘common plural’ proceeded via two stages:⁷
 - (i) The 3pl *-ent* replaced the former 2pl *-et* (2pl *-ent* first attested in the work of Notker, 950-1022).
 - (ii) In a later development, *-ent* spread to 1pl (formerly *-ēn*).
- Unclear: Why did Alemannic choose to innovate 2pl on the model of 3pl?⁸
- Traditional account: Analogical change on the model of 3pl (cf. Weinhold 1863).
- Alternative proposal: ‘Analogical’ change is triggered by acquisition strategies that
 - (i) aim at minimizing the number of elements/features stored in the lexicon, and
 - (ii) favor a transparent relation between form and function/meaning.

3.1 Extension of 3pl *-ent* to 2pl

- Background: Decomposition of person features (cf. Benveniste 1950, Halle 1997, Noyer 1997, Harley and Ritter 2002, Cysouw 2003):

[+speaker, +hearer]	1 st person inclusive
[+speaker, -hearer]	1 st person exclusive
[-speaker, +hearer]	2 nd person
[-speaker, -hearer]	3 rd person

Table 5: Binary system of person features

	Paradigm after conflation of 3sg, 2pl	Paradigm after reanalysis
1sg	-o	-o
2sg	-est	-est
3sg	-et	-et
1pl	-ēn	-ēn
2pl	-et	-ent
3pl	-ent	-ent

Table 6: 2pl /-et/ → /-ent/ (pres.indic) in OHG/Early Alemannic (Notker)⁹

- Claims:
 - (i) The earlier innovation of 2sg *-st* made available a reanalysis of /t/ as the realization of [-speaker] (final /t/ appears in all 2nd and 3rd person forms).
 - (ii) After nasalization of 2pl (/ -et/ → /-ent/) the formative /n/ was uniquely paired with the inflectional feature [+pl].¹⁰

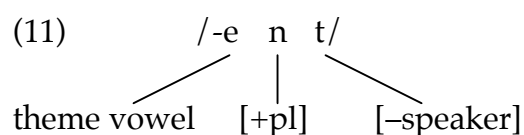
⁷ Cf. Braune & Reiffenstein (152004: 263), Paul (241998: 240), Paul (1952: 194), and in particular Weinhold (1863: 332ff.), Schirmunski (1962: 521ff.), Besch (1967: 310ff.).

⁸ This change took place after 3sg (previously /-it/, strong verbs and weak verbs of class I) and 2pl had fallen together in *-et*, due to a general reduction of vowels in non-stressed (final) syllables. Note that in contrast to Bavarian, Alemannic did not grammaticalize a new 2pl formative at this point. This was probably due to the lack of an appropriate pronominal source: The 2pl clitic *er* (full pronoun: *ir*) is very similar to 3sg.masc and therefore not distinctive enough.

⁹ Note that at this stage, the theme vowel still served to distinguish conjugation classes (cf. class II: 3pl -*ont*, class III: 3pl -*ēnt*).

¹⁰ Decomposing the relevant agreement markers requires that the relevant inflectional head may split up into several insertion sites prior to the insertion of phonological exponents (so-called ‘Fission’, cf. e.g. Noyer 1997). Under the assumption that Vocabulary Insertion discharges morphosyntactic features of the underlying morpheme, exponents compatible with the (remaining) feature set may be inserted as long as there are features left that can be discharged. See Müller (2006) for a related analysis of the verbal inflection of Standard German.

- Decomposition of 2pl, 3pl /-ent/:



- 'Functionalist' interpretation: Innovation of 2pl /-ent/ facilitated a more transparent relationship between form and function/meaning (cf. conditions on analogical change proposed in Natural Morphology, e.g. Mayerthaler 1980):

Old feature specification	Exponent	New feature specification
[+speaker, -pl]	/-o/ ¹¹	[+speaker, -pl]
[+hearer, -pl]	/-s/	[+hearer, -pl]
[-hearer, +pl]	/-n/	[+pl]
[-speaker]	/-t/	[-speaker]

Table 7: Reanalysis giving rise to 2pl /-ent/, OHG/Alemannic

- Formal implementation: Child learners acquire the most economical lexical inventory compatible with the input they are exposed to (cf. e.g. Halle 1997):

(12) *Minimize Feature Content* (Halle 1997)
 The number of features mentioned in the Vocabulary [i.e., the lexicon] must be minimized.

- Implications of (12):
 - (i) The set of lexical entries stored by the learner consists of the minimal number of formatives required for generating the input.
 - (ii) Each inflectional marker is associated with the most economical feature specification compatible with the input data.
- (12) typically leads to a more transparent relation between form and function/meaning (in particular if inflectional markers are decomposed into smaller units of exponence, as in (11)).
- The development of a unique plural formative (without an additional [person] specification, compare Table 7) clearly satisfies this condition.

¹¹ Or /-∅/, if /-o/ is analyzed as theme vowel.

3.2 The rise of a general plural marker: Extension to 1pl

- Middle High German: /-(e)nt/ evolved into the general plural marker for all persons, replacing 1pl /-(e)n/ (cf. Weinhold 1863: 366, Schirmunski 1962: 521ff., Besch 1967: 310ff., Paul ²⁴1998: 240):

	Old paradigm	New paradigm
1sg	-e	-e(n)
2sg	-st	-ʃ(t)
3sg	-et	-et
1pl	-en	-ent
2pl	-ent	-ent
3pl	-ent	-ent

Table 8: 1pl /-en/ → /-ent/ (pres.indic) in MHG/ Alemannic (~13th-15th century)

- Observation: The extension of *-ent* to 1pl was accompanied by two other changes:
 - (i) Due to the loss of final /-t/ in 2sg contexts, /-t/ could no longer be analyzed as a marker realizing [-speaker].¹²
 - (ii) Due to nasalization of 1sg leading to 1sg /-en/, /-n/¹³ could no longer be analyzed as the realization of [+pl].
- The analogical extension of *-(e)nt* to 1pl facilitated a reanalysis of the combination /-nt/ as a pure plural marker, with /-t/ turning into the elsewhere marker:

- (13) a. [+speaker, -pl] ↔ /-n/
 b. [+hearer, -pl] ↔ /-ʃ/
 c. [+pl] ↔ /-nt/
 d. elsewhere ↔ /-t/

- Minimize Feature Content: (13) represents the most economic way of accounting for the input data (with /-t/ being converted into the elsewhere marker).
- (13) represents the most transparent linking of form and function/meaning compatible with the input (after /-t/ and /-n/ could no longer be analyzed as marking [-speaker] and [+pl], respectively).¹⁴

¹² 2sg /-st/ → /-ʃ/ after /-st/ → /-ʃt/ in most varieties; cf. Weinhold (1863: 365), Schirmunski (1962: 520f.), Weber (1987: 174). Note that the phenomenon of 'common plural' is also a characteristic of Low German dialects: Western Low German dialects exhibit the form /-(ə)t/, while /-ən/ is the typical ending found in Eastern Low German dialects (cf. Schirmunski 1962: 543f. for details). Interestingly, many of these dialects also exhibit loss of final /-t/ in 2sg forms, similar to Alemannic (Schirmunski 1962: 544). The possible connection between the loss of 2sg /-t/ and the rise of the common plural /-nt/ was pointed out to me by Helmut Weiß.

¹³ Apparently an extension of the relevant 1sg ending of the weak verbs of classes II & III, cf. Schirmunski (1962: 519). See Besch (1967: 301) for the observation that there is (geographic) connection between the extension of the *Einheitsplural* to 1pl and the presence of the 1sg form /-(e)n/.

¹⁴ Later changes that led to the present-day paradigm (in some varieties, cf. Table 3): (i) cluster reduction of /nt/ via elision of /n/ (cross-linguistically a common change, which is usually attributed to a tendency to preserve the least sonorous element of the target cluster, cf. Ohala 1996, 1999, Pater & Barlow 2003); (ii) loss of final /-n/ in 1sg forms (in most dialects). Both changes are most probably due to purely phonological factors.

4 Conclusion: Analogical change vs. blocking-induced change

- Analogical change introduces new (regular/less distinctive) variants formerly absent in the grammar and not attested in the input the learner receives:

- (14) Analogical change: Learner innovates a regular/less specified phonological exponent of an inflectional category X with features $\{F_1, F_2 \dots F_n\}$ (irregular/more specified form may be part of the input):

$$\left. \begin{array}{l} (/ \alpha / [X F_1 \dots F_i]) \\ (/ \beta / [X F'_1 \dots F'_j]) \end{array} \right\} \text{ (innovated form, with } |\{F'_1 \dots F'_j\}| \leq |\{F_1 \dots F_i\}| \text{)}$$

- Analogical change originates at an early point during language acquisition when children begin to master inflectional rules.
- The innovation may result from:
 - (i) Overgeneralization (after the learner has mastered the relevant rule);
 - (ii) Acquisition strategies (*Minimize Feature Content*) that
 - (a) aim at minimizing the number of elements/features stored in the lexicon
 - (b) favor a transparent relation between form and function/meaning.
- If a more distinctive/irregular formative is robustly attested in the input, it replaces the innovated variant (blocking effects): \Rightarrow **no change**.
- If the older form occurs less frequently,
 - (i) the child may fail to acquire it:¹⁵ \Rightarrow **innovated form replaces older form**, or
 - (ii) acquire it in addition to the innovated variant (often in connection with a certain style or register): \Rightarrow **morphological doublets/variation**.
- Blocking-induced changes: select an inflectional marker out of a set of candidates (robustly) attested in the input:

- (15) Blocking-induced change: Input contains more than a single potential phonological realization of an inflectional category X with features $\{F_1, F_2 \dots F_n\}$:

$$\left. \begin{array}{l} / \alpha / [X F_1 \dots F_i] \\ / \beta / [X F'_1 \dots F'_j] \end{array} \right\} / \beta / [X F'_1 \dots F'_j] \text{ (selected by the BP iff } |\{F'_1 \dots F'_j\}| > |\{F_1 \dots F_i\}| \text{)}$$

- Blocking-induced changes operate at a later stage during language acquisition, selecting between candidates robustly attested in the input, reducing linguistic variation.
- Crucially, regular/less distinctive forms are always potentially available (due to overgeneralization and acquisition strategies such as *Minimize Feature Content*), while the acquisition of irregular/more marked forms is only possible via the input the child receives \Rightarrow **predominance of analogical leveling (?)**

¹⁵ Analogical change/overgeneralization typically affects less frequent elements, cf. e.g. Prasada & Pinker (1993), Kroch (1994), Clark (1998).

Appendix I: OHG 2sg *-s* >>> *-st*: an apparent problem for the BP

- It seems that the development of 2sg /-st/ presents a problem for an account in terms of blocking. Consider the forms listed in Table 9:¹⁶

	Old paradigm	New paradigm
1sg	nim-u	nim-u
2sg	nim-is	nim-ist
3sg	nim-it	nim-it
1pl	nēm-emēs (-ēm, -ēn)	nēm-emēs (-ēm, -ēn)
2pl	nēm-et	nēm-et
3pl	nēm-ant	nēm-ant

Table 9: Agreement paradigms (pres. indic.) for *nēmen* 'take', early OHG

- Problem:** The creation of the new formative 2sg /-st/ apparently does not lead to a more specified form ⇒ conflicts with the Blocking Principle:

- (16) a. [2, sg, pres.] ↔ /-s/
 b. [2, sg, pres.] ↔ /-st/

- Observation:** In early OHG, the 2sg endings of many verbs were identical in the pres. indic. and the pres. subjunc. (i.e., the 2sg forms were underspecified for verbal mood).
- In contrast, verbal mood was clearly distinguished in other person/number combinations (apart from 2pl), cf. the paradigms for the verbs *salbōn* 'anoint' (class 2) and *habēn* 'have' (class 3):¹⁷

	Present indicative	Present subjunctive
1sg	salbōm	salbo
2sg	salbōs	salbōs
3sg	salbōt	salbo
1pl	salbōmēs	salbōm
2pl	salbōt	salbōt
3pl	salbōnt	salbōn

Table 10: Conjugation of *salbōn* 'anoint' (class 2, present tense), early OHG

¹⁶ Note that the initial vowel in formatives such as *-emēs* is actually not part of the agreement suffix, but rather a theme vowel that originally served to derive verbal stems from roots.

¹⁷ Strong verbs and the weak verbs of conjugation class 1 exhibit *-is* and *-es* for 2sg present indicative and 2sg present subjunctive, respectively. Here, the difference in vowel quality was perhaps not salient enough to differentiate the forms. Furthermore, the difference was presumably further weakened by phonological erosion that affected non-stressed final syllables. Alternatively, one might assume that the change first affected the weak verbs of the conjugation classes 2 and 3 and spread later to other verb classes by analogy.

	Present indicative	Present subjunctive
1sg	habēm	habe
2sg	habēs	habēs
3sg	habēt	habe
1pl	habēmēs	habēm
2pl	habēt	habēt
3pl	habēnt	habēn

Table 11: Conjugation of *habēn* 'have' (class 3, present tense), early OHG

- The development of the new formative /-st/ began in the present indicative (cf. Brinkmann 1931, Braune & Reiffentstein ¹⁵2004: 261).¹⁸
- Hypothesis: The change was licensed by the fact that the new ending was unambiguously specified for verbal mood (i.e., indicative) in contrast to the earlier formative /-s/:

- (17) a. [2, sg, pres.] ↔ /-s/
 b. [2, sg, pres., **indic.**] ↔ /-st/

- No counterexample to the BP: The change proceeded in accordance with the requirement that new inflectional formatives realize a greater subset of morphosyntactic features than their predecessors.
- In a later development, the new ending spread to all verb classes, tenses and verbal moods including the pres. subjunctive. This subsequent development blurred the original motivation for the change in question.

¹⁸ Possibly on the model of the preterite-presents, which already showed /-st/ for the 2sg present indicative (*kanst* 'can', *tarst* 'dare', *muost* 'must', *weist* 'know' etc.), and the 2sg of 'be' *bist*, which resulted from an independent and earlier development (cf. Lühr 1984). The first instances of 2sg -st appear in Franconian and spread later to other OHG varieties. The early OHG manuscripts written in the monastery of Fulda show this change in the process of its development, cf. the *Hildebrandslied* (preserved in an early 9th century copy of the original text dating from the late 8th century), the *Basel Recipes* (around 800), or the *Tatian* (translated around 830-840. This translation was then copied in the second half of the 9th century). Furthermore, it can be shown that the change affected first the present indicative: in the OHG texts of Otfrid von Weißenburg, for example, 2sg -st appears frequently with present indicative verb forms, while past tense and subjunctive forms still exhibit the non-enlarged ending 2sg -s. See Brinkmann (1931), Moulton (1944), Sievers (1961), Sommer (1994) for details.

References

- Albright, Adam C. 2002. *The Identification of Bases in Morphological Paradigms*. Doctoral dissertation, UCLA.
- Anderson, Stephen R. 1986. "Disjunctive ordering in inflectional morphology." *Natural Language and Linguistic Theory* 4, 1-31.
- Anderson, Stephen R. 1992. *A-morphous Morphology*. Cambridge: Cambridge University Press.
- Ariel, Mira. 2000. "The development of person agreement markers: from pronoun to higher accessibility markers." In *Usage-based Models of Language*, S. Kemmer and M. Barlow (eds.), 197-261. Stanford: CSLI.
- Aronoff, Mark. 1976. *Word Formation in Generative Grammar*. Cambridge, Mass.: The MIT Press.
- Ashby, William. 1977. *Clitic Inflection in French. An Historical Perspective*. Amsterdam: Rodopi.
- Auger, Julie. 1993. "More evidence for verbal agreement marking in Colloquial French." In *Linguistic Perspectives on the Romance Languages*, W. J. Ashby, M. Mithun, G. Perissinotto, and E. Raposo (eds.), 177-98. Amsterdam: John Benjamins.
- Benveniste, Emile. 1950. La phrase nominale. *Bulletin de la Société Linguistique de Paris*, 46: 19-36.
- Benveniste, Emile. 1966. *Problèmes de linguistique générale*. Paris: Editions Gallimard.
- Besch, Werner. 1967. *Sprachlandschaften und Sprachausgleich im 15. Jahrhundert*. München: Francke Verlag.
- Blood, Cindy. 1992. "Subject-verb agreement in Kisar." *NUSA. Linguistics Studies of Indonesia and Other Languages in Indonesia*, vol. 34, 1-21. Jakarta: Badan Penyelenggara NUSA.
- Braune, Wilhelm & Ingo Reiffenstein. ¹⁵2004. *Althochdeutsche Grammatik I*. Tübingen: Niemeyer.
- Brinkmann, Hennig. 1931. *Sprachwandel und Sprachbewegung in althochdeutscher Zeit*. Jena.
- Clark, Eve V. 1998. "The acquisition of morphology." In *Handbook of morphology*, Andrew J. Spencer and Arnold M. Zwicky (eds.), 374-389. Oxford: Blackwell.
- Corbett, Greville. 1991. *Gender*. Cambridge: Cambridge University Press.
- Cysouw, Michael (2003). *The Paradigmatic Structure of Person Marking*. Oxford: Oxford University Press.
- Dal Negro, Silvia. 2004. *The Decay of a Language. The Case of a German Dialect in the Italian Alps*. Frankfurt: Peter Lang.
- Donohue, Mark. 2002. "A most agreeable language." Ms., University of Sydney.
- Embick, David & Alec Marantz. 2006. "Architecture and blocking." Ms., University of Pennsylvania and MIT.
- Fintel, Kai von. 1995. "The formal semantics of grammaticalization." *Proceedings of NELS 25: Workshop on Language Change*, 175-189, Amherst, Mass.: GLSA.
- Fuß, Eric. 2005. *The Rise of Agreement*. Amsterdam: John Benjamins.
- Fuß, Eric. 2007. "Diachronic aspects of blocking: Economy, analogy, and the emergence of paradigm structure." Paper presented at the *Workshop on Theoretical Morphology (WOTM) 3*, Universität Leipzig.
- Gerlach, Birgit. 2002. *Clitics Between Syntax and Lexicon*. Amsterdam: John Benjamins.
- Giegerich, Heinz. 2001. "Synonymy blocking and the elsewhere condition: Lexical morphology and the speaker." *Transactions of the Philological Society*, 99(1), 65-98.
- Haiman, John and Paola Benincà. 1992. *The Rhaeto-Romance Languages*. London and New York: Routledge.
- Halle, Morris. 1997. "Distributed Morphology: Impoverishment and Fission." In *MIT Working Papers in Linguistics 30: PF: Papers At the Interface*, B. Bruening, Y. Kang, and M. McGinnis (eds.), 425-450. Cambridge, Mass.: Department of Linguistics and Philosophy, MIT.
- Harley, Heidi & Elizabeth Ritter (2002). "Structuring the bundle: A universal morphosyntactic feature geometry." In: Horst J. Simon & Heike Wiese (eds.). *Pronouns – grammar and representation*. Amsterdam: John Benjamins, 23-39.
- Harris, Martin. 1978. *The Evolution of French Syntax. A Comparative Approach*. London: Longman.
- Kiparsky, Paul. 1973. "'Elsewhere' in phonology." In *A Festschrift for Morris Halle*, S. Anderson and P. Kiparsky (eds.), 93-106. New York: Holt, Rinehart and Winston.
- Kiparsky, Paul. 1982. "Word-formation and the lexicon." In *Proceedings of the 1982 Mid-America Linguistics Conference*, F. Ingemann (ed.), University of Kansas.
- Kiparsky, Paul. 2003. "The phonological basis of sound change." In: Joseph, Brian D. & Richard D. Janda (eds.), *The Handbook of Historical Linguistics*, 313-342. Oxford: Blackwell.
- Kollmer, Michael. 1987. *Die schöne Waldlersprach*. Bd. I-III. Prackebach: Kollmer (Eigenverlag).
- Kolmer, Agnes. 2005. "Subjektklitika als Kongruenzmarkierer: Ein Vergleich zwischen bairischen und alemannischen Sprachinseldialekten in Norditalien (Zimbrisch und Walsersdeutsch)." In: Bidese, Ermenegildo/Dow, James R./Stolz, Thomas (eds.), *Das Zimbrische zwischen Germanisch und Romanisch. (Diversitas Linguarum 9)*, 164-189. Bochum: Brockmeyer.
- Kroch, Anthony. 1994. "Morphosyntactic variation." In *Proceedings of the Thirtieth Annual Meeting of the Chicago Linguistics Society. Vol. II*, K. Beals, J. Denton, B. Knippen, L. Melnar, H. Suzuki, and E. Zeinfeld (eds.), 180-201. Chicago: Chicago Linguistics Society.

- Kuen, Heinrich. 1957. "Die Gewohnheit der mehrfachen Bezeichnung des Subjekts in der Romania und die Gründe ihres Aufkommens." In *Syntactica und Stilistica. Festschrift für Ernst Gamillscheg zum 70. Geburtstag*, G. Reichenkron (ed.), 293-326. Tübingen: Niemeyer.
- Linder, Karl Peter. 1987. *Grammatische Untersuchungen zur Charakteristik des Rätoromanischen in Graubünden*. Tübingen: Gunter Narr.
- Lühr, Rosemarie. 1984. "Reste der athematischen Konjugation in den germanischen Sprachen." In *Das Germanische und die Rekonstruktion der Indogermanischen Grundsprache*, J. Untermann and B. Brogyanyi (eds.), 25-90. Amsterdam: Benjamins.
- Mayerthaler, Willi. 1980. "Aspekte der Analogietheorie." In *Kommunikationstheoretische Grundlagen des Sprachwandels*, H. Lüdtke (ed.), 80-130. Berlin: de Gruyter.
- Moulton, William. 1944. "Scribe γ of the Old High German Tatian translation." *PMLA* 59:2, 307-334.
- Müller, Gereon. 2006. "Pro-drop and Impoverishment." In: Patrick Brandt & Eric Fuß (eds.), *Form, Structure, and Grammar. A Festschrift Presented to Günther Grewendorf on Occasion of His 60th Birthday*, 93-115. Berlin: Akademie Verlag.
- Nordlinger, Rachel. 1998. *A Grammar of Wambaya, Northern Territory (Australia)*. (Pacific Linguistics C-140). Canberra: ANU.
- Noyer, Rolf. 1997. *Features, Positions, and Affixes in Autonomous Morphological Structure*. New York: Garland.
- Ohala, Diane. 1996. Cluster reduction and constraints in acquisition. Doctoral dissertation, University of Arizona.
- Ohala, Diane. 1999. "The influence of sonority on children's cluster reductions." *Journal of Communication Disorders* 32, 397-422.
- Pater, Joe & Jessica Barlow. 2003. "Constraint conflict in cluster reduction." *Journal of Child Language* 30, 487-526.
- Paul, Hermann. 1880. *Prinzipien der Sprachgeschichte*. Halle: Max Niemeyer.
- Paul, Hermann. 1952. *Deutsche Grammatik II.3: Flexionslehre*. Halle: Max Niemeyer.
- Paul, Hermann. ²⁴1998. *Mittelhochdeutsche Grammatik*. Tübingen: Niemeyer.
- Pfalz, Anton. 1918. "Suffigierung der Personalpronomina im Donaubairischen." Republished 1983 in *Die Wiener dialektologische Schule. Grundsätzliche Studien aus 70 Jahren Forschung*. (Wiener Arbeiten zur germanischen Altertumskunde und Philologie 23), P. Wiesinger (ed.), 217-235. Wien: Peter Lang.
- Poletto, Cecilia. 1997. "Pronominal syntax." In *The Dialects of Italy*, M. Maiden and M. Parry (eds.), 137-145. Cambridge: Cambridge University Press.
- Prasada, Sandeep and Steven Pinker. 1993. "Generalization of regular and irregular morphological patterns." *Language and Cognitive Processes* 8, 1-56.
- Renzi, Lenordo and Laura Vanelli. 1983. "I pronomi soggetto in alcune varietà romanze (Subject pronouns in some Romance varieties)." In *Scritti linguistici in onore di Giovan Battista Pellegrini (Linguistic Papers in Honor of G. B. Pellegrini)*, P. Benincà et al. (eds.), 121-145. Pisa: Pancini.
- Schirmunski, V.M. 1962. *Deutsche Mundartkunde*. Berlin: Akademie Verlag.
- Sievers, Eduard (ed.). 1961. *Tatian*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Siewierska, Anna. 1999. "From anaphoric pronoun to grammatical marker: why objects don't make it." *Folia Linguistica* 33.2, 225-251.
- Siewierska, Anna. 2004. *Person*. Cambridge: Cambridge University Press.
- Sommer, Thomas. 1994. *Flexionsmorphologie des Verbs im althochdeutschen Tatian*. München: Tuduv.
- Spiess, Federico. 1956. *Die Verwendung des Subjektpersonalpronomens in den lombardischen Mundarten*. (*Romanica Helvetica* 59). Bern: A. Francke.
- Traugott, Elizabeth and Bernd Heine (eds.). 1991. *Approaches to Grammaticalization*. Amsterdam: Benjamins.
- Wartburg, Walther von. 1970. *Einführung in die Problematik und Methodik der Sprachwissenschaft* (3rd edition). Tübingen: Niemeyer.
- Weber, Albert. 1987. *Zürichdeutsche Grammatik. Ein Wegweiser zur guten Mundart*. Zürich: Hans Rohr.
- Weinhold, Karl. 1863. *Alemannische Grammatik (Grammatik der deutschen Mundarten. Erster Theil: Das Alemannische Gebiet)*. Berlin: Ferdinand Dümmler's Verlagsbuchhandlung. Reprint 1967: Amsterdam: Rodopi.
- Weiß, Helmut. 1998. *Die Syntax des Bairischen. Studien zur Grammatik einer natürlichen Sprache*. Tübingen: Niemeyer.
- Wiesinger, Peter. 1989. *Die Flexionsmorphologie des Verbums im Bairischen*. Wien, Verlag der Österreichischen Akademie der Wissenschaften.