

Blocking, variation, and the rise of agreement

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1 Introduction: morphological blocking and variation

- Observation I: Languages exhibit **blocking phenomena**, where the existence of one form seems to prevent the use of another form that would otherwise be expected to occur.¹
- Common assumption: The grammar does not tolerate doublets, that is, lexical items that compete for the same function or paradigmatic slot.
- Lexical blocking: Forms listed in the lexicon prevent the use of forms that in principle could be derived by regular morphological processes:

(1) Lexical blocking

- a. *gave* vs. **gived*
- b. *thief* vs. **stealer*

- Local blocking: Only the most specific inflection of a paradigm may be used in a given insertion context.
- Example from English: The more specified verbal inflection /-z/ blocks the insertion of the completely underspecified null suffix in the context of 3sg.pres.indic.:

(2) Local blocking

he/she/it goes vs. **he/she/it go-∅*

- Formal analysis: Appeal to some form of the '**elsewhere condition**', ensuring 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).
- Observation II: Languages actually *do* show such doublets, giving rise to **linguistic variation**.
- In the inflectional domain, this often involves competition between older, irregular forms and innovated regular (and sometimes less specified) alternants:

- a. *buk* (irreg.) vs. *backte* (regular) 'I/he/she/it baked'
- b. *glomm* (irreg.) vs. *glimmte* (regular) 'I/he/she/it glowed'

- a. *gegoren* (irreg.) vs. *gegärt* (regular) 'fermented (participle)'
- b. *geblichen* (irreg.) vs. *gebleicht* (regular) 'bleached (participle)'

- Aim of this paper: Taking a closer look at diachronic aspects of the relationship between blocking and variation (drawing on data from the development of verbal agreement morphology in varieties of German).

¹ For a general discussion of blocking effects cf. e.g. Kiparsky (1973), (1982); Aronoff (1976); Anderson (1986), (1992); Halle (1997); Noyer (1997); Giegerich (2001); Embick & Marantz (2006).

- Claims: The relation between blocking, variation and change is governed by a set of conflicting strategies that shape the acquisition of inflectional morphology:
 - (i) Blocking constraints: Reduce/eliminate linguistic variation via selecting the most specified variant in case the input contains more than a single potential realization of a given inflectional category (\Rightarrow grammaticalization).
 - (ii) Analogical change: Introduce regular/less specific variants into the grammar, which compete with older forms (\Rightarrow linguistic variation, analogical leveling).
 - (iii) Analogical change may be promoted by learning strategies that aim at minimizing the number of elements stored in the lexicon and lead to a more transparent relation between form and function/meaning.
- Note: This approach is primarily concerned with the question of which changes are in principle possible during language acquisition. It does not say much about the (sociolinguistic) factors that determine the diffusion of a given change in a speech community over the course of time.

2 Morphological blocking and the grammaticalization of verbal inflection

- Observation: The grammaticalization of inflectional markers does not replace existing formatives in a random fashion:²
 - (5) New verbal agreement morphology arises historically only for those slots of the agreement paradigm where the existing verbal inflection is non-distinctive.
- Formal account of this observation: The rise of (new) phonological exponents of inflectional categories is shaped by an economy constraint on the storage of inflectional formatives that operates during language acquisition and favors the use of more specified exponents over less specified exponents (cf. Fuß 2005):
 - (6) *Blocking Principle (BP)*
If several appropriate realizations of a given inflectional category α are attested in the linguistic input, the candidate matching the greatest subset of the morpho-syntactic features included in α 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.
- Grammaticalization of agreement markers: (i) Across languages, pronominal clitics (attaching to the finite verb) are the primary source of verbal agreement markers; (ii) The BP is called into service when due to ongoing phonological erosion, the former clitics can mistakenly be analyzed as alternative realizations of verbal agreement (cf. Fuß 2005 for details).

² 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).

2.1 A case study: The grammaticalization of agreement markers in German/Bavarian

- Background: In historical stages of German and 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*).
- The reanalysis took place in inversion contexts, where the pronoun cliticized onto the right of the finite verb (occupying the left sentence bracket (LSB)):

(7) fronted XP – [_{LSB} V_{fin}]=subject clitic – ... ⇒ fronted XP – [_{LSB} V_{fin}+AGR] – ...

- In Bavarian, the reanalysis led to the presence of agreement features in the LSB (reflected by the phenomenon of complementizer agreement, cf. Bayer 1984, Weiß 1998, Fuß 2005):

(8) a. *ob du noch Minga kumm-st
 whether you.SG to Munich come.2SG
 'whether you come to Munich'
 b. ob-st (du) noch Minga kumm-st
 whether-2SG you.SG to Munich come-2SG
 'whether you come to Munich'

(9) a. *ob ees/ihr noch Minga kumm-ts
 whether you.PL to Munich come-2PL
 'whether you come to Munich'
 b. ob-ts ees/ihr noch Minga kumm-ts
 whether-2PL you.PL to Munich come-2PL
 'whether you come to Munich'

- The grammaticalization process did not take place in a wholesale fashion, enlarging/replacing all existing agreement endings. Rather, it is confined to the following contexts:

(10) 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)³

- 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.
- The development of 2pl *-ts* (< clit. *-(ē)s*) began in the 13th century (in Northern and Middle Bavarian, cf. Wiesinger 1989:72f.), eliminating syncretism of 3sg with 2pl:

³ 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).

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

Table 1: Verbal agreement paradigms (pres. indic.), 13th century Bavarian

- By the 18th century, 3pl and 1pl forms had fallen together in many Bavarian dialects (due to erosion of final *-t* in 3pl forms). Some dialects responded to this loss of distinctions by developing a new agreement ending 1pl *-ma* (from the 1pl subject clitic *ma*):

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

Table 2: Verbal agreement paradigms (pres. indic.), late 18th century Bavarian

- It appears that the reanalysis of clitics as agreement markers is triggered if the change leads to the elimination of syncretism in a previously defective agreement paradigm.

2.3 Analysis: Change driven by morphological blocking

- The new agreement suffixes 2pl *-ts*, 1pl *-ma* satisfy the Blocking Principle due to the fact that they are more specified than their respective predecessors:
- 2sg *-t* >>> *-ts*: The formative */-t/* occurs in 3sg and 2pl contexts (cf. Table 1); accordingly, the relevant inflectional marker is underspecified for [person] as well as [number]. It is the elsewhere case (i.e., the default agreement ending):

(11) elsewhere ↔ */-t/*

- The introduction of 2pl */-ts/* is licensed by the BP since the new form is specified for [person] and [number], eliminating syncretism of 3sg with 2pl:

(12) [2, pl] ↔ */-ts/*

- 1pl *-an* >>> *-ma*: In 18th century Bavarian, there are only two different plural forms in the agreement paradigm: */-ts/* is inserted in the context [2, pl], whereas */-an/* is used for 1pl and 3pl (cf. Table 2).
- Thus, the lexical entry for */-an/* must be underspecified for the feature [person]; it is the elsewhere case among the plural forms:

(13) [2, pl] ↔ */-ts/*
 [pl] ↔ */-an/*

- The potential new realization of 1pl (-*ma*) is more specified than the existing marker /-an/, since it additionally serves to signal [person] distinctions:

- (14) [1, pl] ↔ /-ma/
 [2, pl] ↔ /-ts/
 [pl] ↔ /-an/

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

2.4 The Blocking Principle and linguistic variation

- Blocking-induced change (i.e., grammaticalization) reduces linguistic variation via selecting the most specific marker of a set of candidates (robustly) attested in the input, dismissing other potential realizations of the same inflectional category:

- (15) Input contains more than a single potential phonological realization of an inflectional category X with features A, B, C:

$$\left. \begin{array}{l} / \alpha / [x \text{ A}] \\ / \beta / [x \text{ A, B}] \end{array} \right\} / \beta / [x \text{ A, B}] \text{ (form selected by the BP and stored in the lexicon)}$$

- Note: Grammaticalization processes may introduce **systematic variation** between old and innovated forms.
- In a set of North-eastern varieties, finite verbs fronted to second position systematically carry the new ending 2pl /-ts/, while verbs in clause-final position still exhibit the older ending /-t/:

- (16) [Wei-ts iwə t'pruk khum-t] sea-ts s'wiətshaus.
 when-2PL over the-bridge come see-2PL the-tavern
 'When you cross the bridge, you'll see the tavern.'
 (variety spoken in Lauterbach/Sangerberg; Pfalz 1918: 232)

- Analysis: No free variation between inflectional formatives, but rather an instance of **contextual allomorphy**, where the new ending is initially confined to a certain structural position (the left sentence bracket).⁴
- In a later change, the new formatives are reanalyzed as general 2nd person verbal agreement morphology, spreading to verbs in clause-final position.

⁴ Alternatively, the new endings at first may be confined to a certain morphological context. For example, the new ending 2sg /-st/, which developed in early OHG, first showed up systematically in the present indicative (cf. Brinkmann 1931).

3 Analogical change

- Well-known fact: Analogical change may create regular variants of originally irregular forms, as already illustrated in (3) and (4) above (repeated here for convenience):

(17) a. *buk* (irreg.) vs. *backte* (regular) ‘I/he/she/it baked’
 b. *glomm* (irreg.) vs. *glimmte* (regular) ‘I/he/she/it glowed’

(18) a. *gegoren* (irreg.) vs. *gegärt* (regular) ‘fermented (participle)’
 b. *geblichen* (irreg.) vs. *gebleicht* (regular) ‘bleached (participle)’

- Traditional assumption: Drift towards more uniformity is a natural development towards a one-to-one correspondence between form and meaning / function (cf. e.g. Mayerthaler 1980) – in (17) and (18): reduction to a single stem form via the elimination of stem vowel alternations (see Albright 2002, Fuß 2007).
- Problem: Contrary to what is expected from the perspective of blocking, it is usual the regular form that wins out over the irregular form, and not vice versa.

3.1 Analogical leveling: Expanding the domain of less distinctive formatives

- Paradigm leveling: less distinctive (i.e., unmarked / underspecified) inflectional 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: The majority of the Alemannic dialects spoken in Switzerland and Southwest Germany exhibit only a single plural agreement ending for all persons, /-ət/.

	Present indicative
1sg	-ə
2sg	-ſ
3sg	-t
1pl	-ət
2pl	-ət
3pl	-ət

Table 3: *Einheitsplural* in Alemannic

- In Alemannic, the ‘common plural’ /-ət/ originated from the original 3pl *-ent* (via vowel reduction and elision of /n/).
- Development from early OHG to a paradigm with general plural marker *-ent* (including the early innovation 1pl *-mēs* → *-ēn*):

⁵ Note that leveling via phonological erosion is presumably no real issue here: When phonological processes lead to the erosion of inflectional distinctions, the relevant forms simply disappear from the input and fail to be acquired.

	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)

- The development of 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*).
- Note: In contrast to Bavarian, Alemannic did not innovate a new 2pl formative after 3sg (originally *-it*) and 2pl (originally *-et*) had fallen together in *-et*.⁸ Instead, it extended the 3pl form *-ent* to 2pl (later evolving into the general plural marker).
- Conjecture: Alemannic did not innovate a more specific 2pl form, since it lacked an appropriate pronominal source: The 2pl clitic *er* (full pronoun: *ir*) is very similar to 3sg.masc and therefore presumably not distinctive enough.
- Unclear: Why did Alemannic choose to innovate 2pl on the model of 3pl?
- Basic proposal: Analogical changes may be promoted if they lead to a more transparent link between formatives and underlying morphosyntactic features (towards a unique pairing of one form with one function/meaning).

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

- Background: Decomposition of person features, making use of the binary features [\pm speaker] and [\pm hearer] (cf. Benveniste 1950, 1966, Halle 1997, Noyer 1997, Harley and Ritter 2002, Cysouw 2003 for discussion):

[+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

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

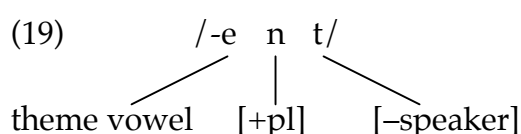
⁷ Cf. Braune & Reiffenstein (¹⁵2004: 263), Paul (²⁴1998: 240), Paul (1952: 194), and in particular Schirmunski (1962: 521ff.), Besch (1967: 310ff.).

⁸ This change was due to a general reduction of vowels in non-stressed (final) syllables. Note that the difference in theme vowels (3pl /i/ vs. 2pl /e/ in strong verbs and weak verbs of class I) originally contributed to signaling person distinctions.

	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: Reanalysis of conjugation system (pres.indic) in OHG/Early Alemannic (Notker)⁹

- Claim: The analogical transition of 3pl *-ent* to 2pl involved a reanalysis in which the segment /n/ turned into a marker of plural ([+pl]), while /t/ was linked to the person feature [-speaker].



- Details:
 - (i) The independent innovation of 2sg *-st* made available an analysis of /t/ as the realization of [-speaker] (final /t/ appears in all 2nd and 3rd person forms).¹⁰
 - (ii) The analogical extension of 3pl /-ent/ to 2pl led to a more transparent relationship between form and meaning/function by correlating the formative /n/ uniquely with the inflectional feature [+pl].
- OHG/Alemannic: Insertion rules (present indicative, without theme vowel) before and after the reanalysis leading to (19):¹¹

- (20)
- a. [+speaker, -pl] ↔ /-o/¹²
 - b. [+hearer, -pl] ↔ /-s/
 - c. [-hearer, +pl] ↔ /-n/
 - d. [-speaker] ↔ /-t/

- (21)
- a. [+speaker, -pl] ↔ /-o/
 - b. [+hearer, -pl] ↔ /-s/
 - c. [+pl] ↔ /-n/
 - d. [-speaker] ↔ /-t/

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 The absence of final /-t/ in the 3sg preterite (leading to identity of 1sg and 3sg person) can be attributed to an Impoverishment rule that deletes the feature [speaker] in the relevant context [-hearer, -pl, +past] (cf. e.g. Müller 2006: 104). Note that the present-day Alemannic dialects generally lack preterite forms (preterite forms began to disappear in the 16th century).

¹¹ Decomposing the relevant agreement markers requires that the relevant inflectional category (an Agr(ement)-head) may split up into several insertion sites prior to the insertion of phonological exponents (so-called 'Fission', cf. e.g. Noyer 1997). See Müller (2006) for a related analysis of the verbal inflection of Standard German.

¹² Or /-∅/, if /-o/ is analyzed as theme vowel.

- The newly introduced variant 2pl /-ent/ facilitated a more transparent relation between form and function/meaning, satisfying conditions on analogical change proposed in e.g. *Natural Morphology* (cf. e.g. Mayerthaler 1980).
- (Alternative) formal account: Child learners acquire the most economical lexical inventory compatible with the input they are exposed to (cf. e.g. Halle 1997):

(22) *Minimize Feature Content* (Halle 1997)

The number of features mentioned in the Vocabulary [i.e., the lexicon] must be minimized.

- Implications of (22):
 - (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 specifications compatible with the input data.
- The development of a general plural marker that does not carry an additional [person] specification – compare (20c) with (21c) – clearly satisfies this condition.¹³

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

- MHG: *-(e)nt* evolved into the general plural marker for all persons, replacing 1pl *-(e)n* (cf. Schirmunski 1962: 521ff., Besch 1967: 310ff., Paul²⁴1998: 240).

	“Old” paradigm	“New” paradigm
1sg	-e(n)	-en
2sg	-s(t)	-s
3sg	-et	-et
1pl	-en	-ent
2pl	-ent	-ent
3pl	-ent	-ent

Table 7: Second reanalysis of conjugation system in MHG/Alemannic (~13th-15th century)

Observations

- The extension of *-ent* to 1pl contexts was accompanied by two further changes in the MHG period:
 - (i) Many Alemannic dialects lost final /-t/ in 2sg contexts, giving rise to a new 2sg ending /-s/ (later turning into /-ʃ/, via reg. sound change [-s] >>> [-ʃ]), cf. Schirmunski 1962: 520f., Weber 1987: 174).
 - (ii) In addition, the development of a common plural *-ent* seems to be linked to the presence of a new 1sg form *-en* (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/).

¹³ Note that the change at hand does not conflict with the BP. First, the BP does not require the learner to store lexical items with redundant feature specifications (this would violate (22)). For example, if a feature specification [+speaker] is sufficient to guarantee that a 1sg exponent is inserted in the contexts where it appears in the input, the child will not acquire a redundant feature specification [+speaker, –hearer] for this exponent. Second, while the former 2pl *-(e)t* merely realized [–speaker], the new (combined) 2pl formative *-(e)nt* is actually more specified, realizing both [–speaker] and [+pl].

Analysis

- Due to the loss of final /-t/ in 2sg contexts, /-t/ could no longer be analyzed as a marker realizing [-speaker].¹⁴
- Due to the innovation of /-n/ as a marker of 1sg, /-n/¹⁵ 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:

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

- (23) represents the most transparent linking of form and function/meaning compatible with the input after /-t/ and /-n/ could no longer be analyzed as uniquely marking [-speaker] and [+pl], respectively.¹⁶
- The change proceeded in line with *Minimize Feature Content*, since (23) represents the most economic way of accounting for the input data (with /-t/ being converted into the elsewhere marker).
- Later changes that led to the present-day paradigm (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).
- The later changes are most probably due to purely phonological factors.

¹⁴ 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.

¹⁵ Apparently an extension of the relevant 1sg ending of the weak verbs of classes II & III, cf. Schirmunski (1962: 519).

¹⁶ Note that this analysis raises a number of questions, for example concerning (i) the status of the elsewhere marker /-t/ if the relevant Agr-head is still subject to Fission at this stage, and (ii) the status of Impoverishment in the relevant preterite forms (but note that the preterite began to diminish shortly after the rise of the common plural).

3.2 Analogical change and linguistic variation

- Analogical change introduces new (regular/less distinctive) variants formerly absent in the grammar and not attested in the input the learner receives.¹⁷
 - The innovations result from:
 - (i) Overgeneralization (after the learner has mastered the relevant rule), or
 - (ii) The workings of acquisition strategies that favor a transparent relationship between inflectional formatives and underlying feature specifications (e.g., *Minimize Feature Content*).
- (24) Learner innovates a regular/less specific variant (irregular/more specific form may be part of the input):

$$\left. \begin{array}{l} (/ \beta / [x A, B]) \\ (/ \alpha / [x A]) \end{array} \right\} \begin{array}{l} (/ \alpha / [x A]) \text{ (form introduced by analogical change)} \\ (/ \beta / [x A, B]) \end{array}$$

- If a more distinctive/irregular formative is robustly (i.e., frequently) attested in the input, it replaces the innovated variant due to **blocking effects**: \Rightarrow no change.
- If the older form occurs less frequently,
 - (i) the child may fail to acquire it:¹⁸ \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.
- The distribution of doublets introduced by analogical change is typically determined by extragrammatical factors such as style or register.
- Crucially, the regular/less distinctive form is always potentially available (due to inflectional rules, or acquisition strategies such as *Minimize Feature Content*), while the acquisition of the irregular/more marked form is only possible via the input the child receives.

¹⁷ Alternatively, one might assume that analogical changes originally take place in the language of adults. To take a concrete example from the changes discussed above, adult speakers of OHG/Early Alemannic may mistakenly take /-n/ to be a general plural marker, yielding 2pl forms that vary between and /-t/ and /-nt/. The new forms will then actually be part of the input children are exposed to. If the older form fails to be robustly attested in the input, the child will continue to produce the innovated form, providing further relevant input for her peers (and subsequent generations).

¹⁸ Analogical change/overgeneralization typically affects less frequent elements, cf. e.g. Prasada & Pinker (1993), Kroch (1994), Clark (1998).

4 Concluding summary

- Blocking-induced changes: select an inflectional marker out of a set of candidates (robustly) attested in the input. Crucially, blocking does not introduce new variants, but reduces already existing linguistic variation:

(25) Input contains more than a single robustly attested (potential) phonological realization of an inflectional category X with features A, B, C:

$$\left. \begin{array}{l} / \alpha / [X A] \\ / \beta / [X A, B] \end{array} \right\} / \beta / [X A, B] \text{ (form selected by the BP and stored in the lexicon)}$$

- Blocking-induced changes – further properties:
 - (i) Operate at a later stage during language acquisition, selecting between candidates robustly attested in the input (e.g. between overgeneralized regular forms and older, irregular forms);
 - (ii) Distribution of variants determined by grammatical factors (systematic variation; contextual allomorphy).
 - (iii) Typically involved in grammaticalization processes.
- Analogical change: Introduces new variants of a certain inflectional marker into the grammar that are not part of the input the learner receives:

(26) Learner innovates a regular/less specific variant (irregular/more specific form may be part of the input):

$$\left. \begin{array}{l} / \alpha / [X A] \\ (/ \beta / [X A, B]) \end{array} \right\} \begin{array}{l} / \alpha / [X A] \text{ (form introduced by analogical change)} \\ (/ \beta / [X A, B]) \end{array}$$

- Analogical change – further properties:
 - (i) Caused by overgeneralization and/or acquisition strategies that (i) aim at minimizing the number of elements stored in the lexicon and (ii) favor a transparent relation between form and function/meaning (e.g., *Minimize Feature Content*).
 - (ii) Originates at an early point during language acquisition when children begin to master inflectional rules.
 - (iii) Prevails if the original form is not robustly attested in the input;
 - (iv) Original form may be added to the lexicon later on, giving rise to morphological doublets/variation;
 - (v) Distribution of competing variants governed by extragrammatical factors (style, register).

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

- It seems that the development of 2sg */-s/* presents a problem for an account in terms of blocking. Consider the forms listed in Table 8:¹⁹

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

- Apparently, the change from 2sg */-s/* to */-st/* did not involve the creation of an inflectional formative that is more specific than its predecessor. Both items seem to realize the same set of morphosyntactic features:

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

- Problem:** It appears that the creation of the new ending */-st/* conflicts with the BP, since it apparently does not lead to a more specified form.
- Possible answer:** 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):²⁰

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

Table 9: Conjugation of *salbōn* 'anoint' (class 2, present tense), early OHG

¹⁹ 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 verb stems from roots.

²⁰ 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 10: 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).²¹ This suggests that the development in question 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/:

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

- Accordingly, the change leading to 2sg /-st/ does not represent a counterexample to the BP. Rather, it 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.

²¹ 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.

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