

SHIFTING CLASSES: INTRODUCTION

Katrien Beuls, Bernard De
Clerck, Freek Van de Velde
& Dirk Pijpops

GERMANIC PAST TENSE

Strong

begin-began-begun
(English)

kijken-keek-gekeken
(Dutch)

fliegen-flog-geflogen
(German)

Regular

fragen-fragte-gefragt
(German)

Mixed

be-was-been
(English)

lachen-lachte-gelachen
(Dutch & German)

seek-sought-sought
(English)

ask-asked-asked
(English)

gehen-ging-gegangen
(German)

denken-dacht-gedacht
(Dutch)

aaien-aaide-geaaid
(Dutch)

vriezen-vroor-gevroren
(Dutch)

vragen-vroeg-gevraagd
(Dutch)

haben-hatte-gehabt
(German)

Irregular

Weak

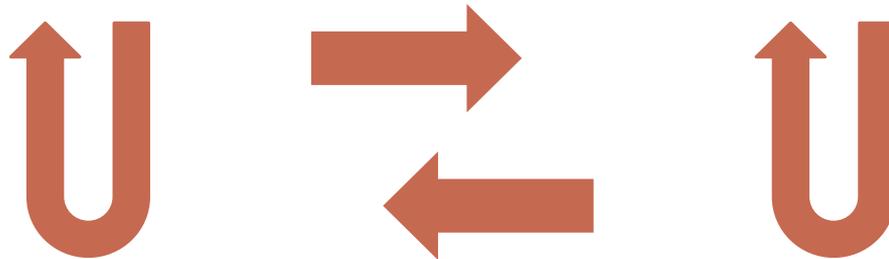
HYBRID SYSTEM IN FLUX

- Strong inflection

- Ablaut classes
- Oldest
- Indo-European aspect

- Weak inflection

- Dental suffix
- Innovative
- Germanic



EXCITING TIMES

- New large corpora & analysis techniques
- New approaches in computational simulation
- New detailed studies of language play
- New ideas on the factors at play

EXCITING TIMES

Dangers

- Lose track of the big questions
- Philological scrutiny ↔ bird's eye perspective
- Focus on a single Germanic language

DIFFERENT METHODOLOGIES

- Philological work
- Corpus-based research
- Experiments & Surveys
- Computational simulation

PHILOLOGICAL WORK

What is the origin of the preterite weak dental suffix?

- **'To do' composition theory: first element?** (Loewe 1898: 356-357; von Friesen 1925; Sverdrup 1929; Hermann 1948; Wisniewski 1963; Tops 1974; Hill 2010)
- **Dental suffix of the past participle: IE suffix *-to-** (Begemann 1873, 1874; Wagner 1960; Watkins 1962; Ball 1968; Meid 1971)
- 2nd person sg. secondary ending of the IE aorist (Sievers 1924; Sehrt 1944; Krause 1968)
- 3rd person sg. ending of the IE medio-passive perfect (Collitz 1921)
- Reformation of *t*-element ~ Latin *-ta* suffix (Prokosch 1939)
- 2nd person sg. ending *-*tha* of IE perfect (Must 1951; 1952)
- IE *dh*-determinative (Lehmann 1943)
- Functionally parallel IE verbal formations in *-*t* and *-*dh* (Shields 1982)
- Multiple source construction (Hirt 1934; Birkhan 1979; Bammesberger 1986)
- ...

CORPUS-BASED RESEARCH

What are the (diachronic) developments and what factors may predict these developments?

- Token frequency of the verb
- Class membership: type or token frequency
- Phonological proximity/analogy
- Rhythm
- Prescriptivism
- Language contact
- Register & language variety
- ...

CORPUS-BASED RESEARCH

What are the (diachronic) developments and what factors may predict these developments?

- Token frequency of the verb
- Class membership: type or token frequency
- Phonological proximity/analogy
- ...

How do children acquire the past tense?

- U-shaped learning
- Increase in vocabulary

EXPERIMENTS & SURVEYS

What are the (synchronic) developments and what factors may predict these developments?

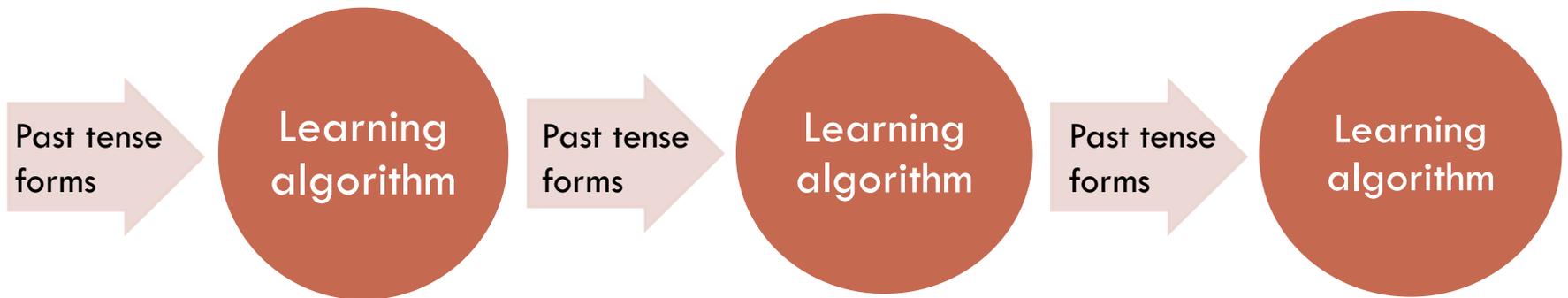
- Token frequency of the verb
- Class membership: type or token frequency
- Phonological proximity/analogy
- ...

How do children acquire the past tense?

- U-shaped learning
- Increase in vocabulary

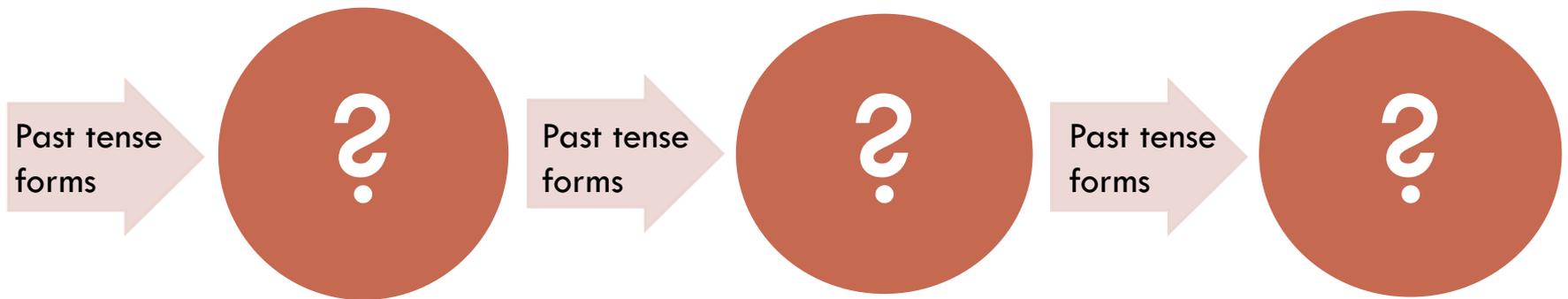
COMPUTATIONAL SIMULATION

- Iterated Learning: The Germanic past tense as a case study of language acquisition



COMPUTATIONAL SIMULATION

- Iterated Learning: The Germanic past tense as a case study of language acquisition



Connectionists: Neural Network

vs.

Generativists: Symbolic Rules + Memory

Rumelhart & McClelland (1986), Macwhinney & Leinbach (1991), Plunkett & Marchman (1991, 1992), Hare & Elman (1995), Plunkett & Juola (1999)

Pinker & Prince (1988), Ling & Marinov (1993), Marcus et al. (1995), Taatgen & Anderson (2002), Yang (2002)

COMPUTATIONAL SIMULATION

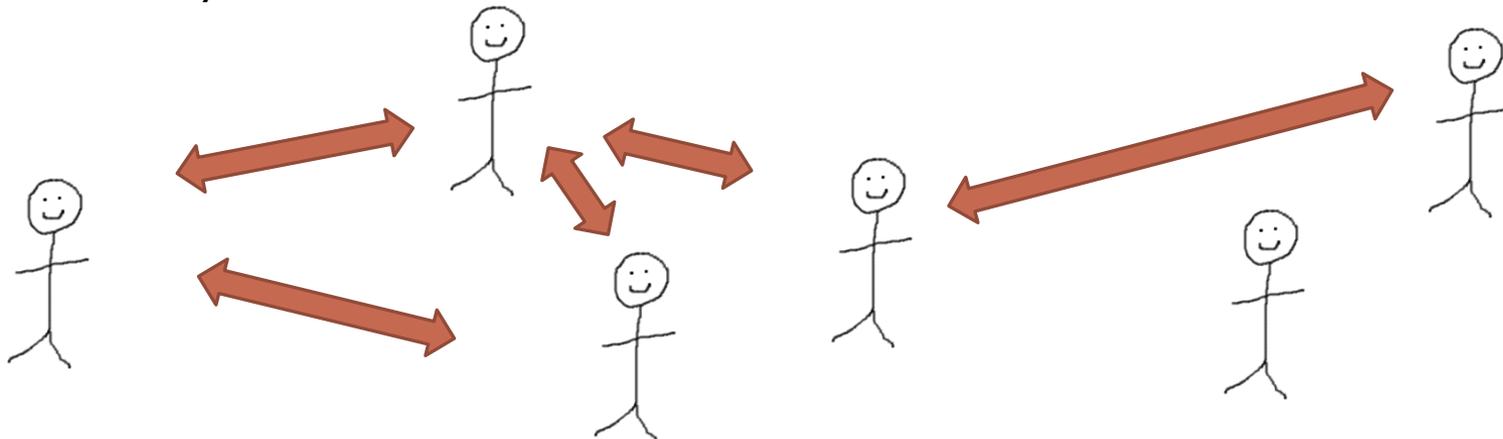
- Agent-based modeling: What are the minimal assumptions needed to explain

- that highly frequent verbs better retain their strong forms?

(Calaioni et al. 2015; Pijpops & Beuls subm.)

- that a nascent weak inflection overthrew a more frequent and regular strong system?

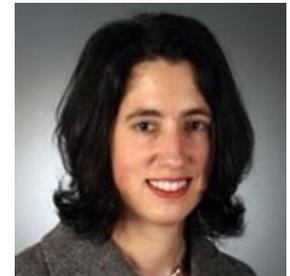
(Pijpops, Beuls & Van de Velde subm.)



PROGRAM

- Lieselotte Anderwald
Going from strength to strength – on the persistence of (certain) strong verbs in English
- Julia Schlüter
Alternant forms of strong and weak verbs in English: The interplay between the principles of rhythmic alternation and morphological biuniqueness
- Jessica Nowak
The past tense-debate from a diachronic point of view: regularization and irregularization of German verbs

Lunch



PROGRAM

- Bernard De Clerck & Klaar Vanopstal
Survival of the fittest? Verb weakening in postcolonial varieties of English
- Freek Van de Velde & Britta Kestemont
Using mixed-effects logistic regression to assess the determinants of regularisation of strong inflection in Dutch
- Oscar Strik & Remco Knooihuizen
Jocular analogy and verbal ablaut

Coffee break & poster session

- Dirk Pijpops, Katrien Beuls & Freek Van de Velde
Fighting in broken formation. The competition between the Dutch strong ablaut classes and weak suffix inflection in an agent-based model
- Discussion



DISCUSSION

Methodology

- How do our different methodologies tie together? To what extent should large-scale corpus research and computational simulations take heed of meticulous philological details?
- Should we look for more factors determining the weakening/strengthening of verbs, or fewer, but more general underlying causes of these factors?
- Should our explanations focus on a single, representative language user or on the language community?

The competition itself

- How can we account for both strong verbs becoming weak and weak verbs becoming strong?
- Can and should we draw a line between regular and irregular past tenses, and if so, where?
- What's the relation between finite past forms and past participles?
- Why this unremitting struggle between strong and weak? Is there an end-point to this competition, and if so, what is it?

DISCUSSION

Context

- What are the similarities and differences between the various Germanic languages and (L2) varieties and why do they exist?
- What is the influence of extralinguistic environmental changes, e.g. demographic fluctuations, and how can we investigate this?
- What is the influence of intralinguistic environmental changes, e.g. the present perfect losing its aspectual meaning in German, Dutch, Afrikaans,...?

Language in general

- What is the relevance of our findings for explaining other (language) phenomena, e.g. for understanding (cultural) evolution of language?
- What's the relation between past tense competition and similar competitions, e.g. in plural noun formation?

REFERENCES

- Ball, Christopher. 1968. The Germanic dental preterite. *Transactions of the Philological Society* 67. 162–188.
- Bammesberger, Alfred. 1986. *Der Aufbau der germanischen Verbalsystems*. Heidelberg: Heidelberg Winter, 1986.
- Begeman, Wilhelm. 1873. *Das schwache Praeteritum der germanischen Sprachen. Em Beirrag zur Geschichte der deutschen Sprache*. Berlin: Weidmannsche Buchhandlung.
- Begeman, Wilhelm. 1874. *Zur Bedeutung des schwachen Praeteritums der germanischen Sprachen*. Berlin: Weidmannsche Buchhandlung.
- Birkhan, Helmut. 1979. *Das "Zipsche Gesetz", das schwache Präteritum und die germanische Lautverschiebung*. Wien: Wien Österreichische Akademie der Wissenschaften, 1979.
- Colaïori, Francesca, Claudio Castellano, Christine Cuskley, Vittorio Loreto, Martina Pugliese and Francesca Tria. 2015. General three-state model with biased population replacement: Analytical solution and application to language dynamics. *Physical review. E, Statistical, nonlinear, and soft matter physics* 91(1-1). 12808.
- Collitz, Hermann. 1912. *Das schwache Praeteritum und seine Vorgeschichte*. Göttingen: Vandenhoeck and Ruprecht.
- Friesen, Otto von. 1925. *Om det svagapraeteritum i germanska språk*. *Acta Societatis humaniorum Lundensis*. Vol. 22. Lund: Gleerup.
- Hare, Mary and Jeffrey Elman. 1995. Learning and morphological change. *Cognition* 56(1). 61–98.
- Hermann, Eduard. 1948. *Zusammengewachsene Präteritum- und Futurum- Umschreibungen in mehreren indogermanischen Sprachzweigen*. *Zeitschrift für vergleichende Sprachforschung auf dem Gebiete der Indogermanischen Sprachen* 69(1/2). 31–75.
- Hill, Eugen. 2010. A case study in grammaticalized inflectional morphology: Origin and development of the Germanic weak preterite. *Diachronica* 27(3). 411–458.
- Krause, Wolfgang. 1968. *Handbuch des Gotischen*. 3rd ed. München: Beck.
- Lehmann, Winfred. 1943. The Indo-European dh-Determinative as Germanic Preterite Formant. *Language: Journal of the Linguistic Society of America* 19(1). 19–26.
- Ling, Charles and Marin Marinov. 1993. Answering the connectionist challenge: a symbolic model of learning the past tenses of English verbs. *Cognition* 49(3). 235–290.
- Loewe, Richard. 1898. Das schwache Präteritum des Germanischen. *Indogermanische Forschungen* 8. 254–266.
- MacWhinney, Brian and Jared Leinbach. 1991. Implementations are not conceptualizations: revising the verb learning model. *Cognition* 40(1-2). 121.
- Marcus, Gary, Ursula Brinkmann, Harald Clahsen, Richard Wiese and Steven Pinker. 1995. German inflection: the exception that proves the rule. *Cognitive Psychology* 29(3). 189.
- Meid, Wolfgang. 1971. *Das germanische Praeteritum: indogermanische Grundlagen und Ausbreitung im Germanischen*. Innsbruck: Innsbruck Institut für vergleichende Sprachwissenschaft der Universität Innsbruck, 1971.
- Pinker, Steven and Alan Prince. 1988. On language and connectionism: Analysis of a parallel distributed processing model of language acquisition. *Cognition* 28(1). 73–193.
- Plunkett, Kim and Patrick Juola. 1999. A Connectionist Model of English Past Tense and Plural Morphology. *Cognitive Science* 23(4). 463–490.
- Plunkett, Kim and Virginia Marchman. 1991. U-shaped learning and frequency effects in a multi-layered perception: Implications for child language acquisition. *Cognition* 38(1). 43–102.
- Plunkett, Kim and Virginia Marchman. 1993. From rote learning to system building: acquiring verb morphology in children and connectionist nets. *Cognition* 48(1). 21–69.
- Prokosch, Eduard. 1960. *A comparative Germanic grammar*. Repr. Philadelphia: Philadelphia Linguistic society of America, 1960.
- Rumelhart, David and James McClelland. 1986. On learning the past tense of English verbs. In David Rumelhart & James McClelland (eds.), *Parallel distributed processing: explorations in the microstructure of cognition*, 216–271. Cambridge: MIT Press.
- Sehr, Edward. 1944. The Origin of the Germanic Weak Preterite. *Language* 20(4). Linguistic Society of America. 238–240.
- Shields, Kenneth. 1982. The origin of the Germanic dental preterite: A new proposal. *Leuvense Bijdragen* 71. 427–440.
- Sievers, Eduard. 1924. Vedisches und Indogermanisches. *Indogermanische Forschungen* 42. Strassburg. 193.
- Sverdrup, Jakob. 1929. Das germanische dentalpraeteritum. *Norsk tidsskrift for Sprogvidenskap* 2. 5–96.
- Taatgen, Niels and John Anderson. 2002. Why do children learn to say "Broke"? A model of learning the past tense without feedback. *Cognition* 86. 123–155.
- Tops, Guy. 1974. *The origin of the Germanic dental preterit*. Leiden: Brill.
- Wagner, Heinrich. 1960. Keltisches t-Praeteritum, slavischer Wurzelaorist und germanisches schwaches Praeteritum. *Zeitschrift für celtische Philologie* 28. 1–18.
- Watkins, Calvert. 1962. The Origin of the t-Preterite. *Ériu* 19. 25–38.
- Wisniewski, Roswitha. 1963. Die Bildung des Präteritums und die primäre Berührungseffekte. *Beiträge zur Geschichte der deutschen Sprache und Literatur (PBB)* 85. 1–17.
- Yang, Charles. 2002. *Knowledge and learning in natural language*. Oxford: Oxford University Press.