

Chapter 21

Phonology

Jesse Tseng

Université Paris Diderot

Put abstract here with \abstract.

1 Introduction: PHONOLOGY in the HPSG sign

The PHONOLOGY attribute in (Pollard & Sag 1987) and (Pollard & Sag 1994):

- rudimentary PHON value
- basic Phonology Principle constrained by Linear Precedence rules: corresponds to simple terminal spell-out of the phrase structure tree
- “Phonology-Free Syntax” (Miller et al. 1997): PHON information inaccessible for selection via SYNSEM

There has been relatively little work within HPSG on phonological representation and the analysis of phonological phenomena. Most references to the PHON attribute use it simply as a lexical identifier, or they are dealing with phenomena at the phonology-syntax interface (e.g. constituent order, ellipsis). For such applications, the actual content of the PHON value is unimportant. These topics are covered in other chapters.

2 Phonological representations in HPSG

Proposals for the detailed content of PHON values:

- encoding of phonological constituents (Bird & Klein 1994; Klein 2000; Höhle 1999)



- syllable structure [Tseng \(2008\)](#)
- metrical phonology ([Klein 2000](#); [Bonami & Delais-Roussarie 2006](#))

3 Phonological analysis in HPSG

- principles of constraint-based phonology vs derivational phonology ([Bird & Klein 1994](#)): compositionality, monotonicity
- compositional construction of prosodic structure in parallel with phrase structure ([Klein 2000](#))

But HPSG is formally compatible with many approaches, and there is as yet no emerging consensus among practitioners.

- Finite state phonology ([Bird 1992](#); [1995](#))
- need for abstract underlying forms ([Skwarski 2009](#)); phonologically empty categories
- OT in HPSG ([Orgun 1996](#))

4 Specific phenomena and case studies

- shape conditions ([Asudeh & Klein 2002](#))
- French ([Tseng 2003](#); [Bonami et al. 2004](#))
- phonological idioms [already covered in Manfred's chapter]
- ...

Abbreviations

Acknowledgements

References

- Asudeh, Ash & Ewan Klein. 2002. Shape conditions and phonological context. In Frank Van Eynde, Lars Hellan & Dorothee Beermann (eds.), *Proceedings of the HPSG-2001 Conference, Norwegian University of Science and Technology, Trondheim*, 20–30. Stanford, CA: CSLI Publications. <http://csli-publications.stanford.edu/HPSG/2001/>, accessed 2015-12-23.
- Bird, Steven. 1992. Finite-state phonology in HPSG. In *Proceedings of coling 92*, 74–80. Nantes, France.
- Bird, Steven. 1995. *Computational phonology: A constraint-based approach* (Studies in Natural Language Processing). Cambridge, UK: Cambridge University Press.
- Bird, Steven & Ewan Klein. 1994. Phonological analysis in typed feature systems. *Computational Linguistics* 20(3). 455–491.
- Bonami, Olivier, Gilles Boyé & Jesse Tseng. 2004. An integrated approach to French liaison. In Gerhard Jäger, Paola Monachesi, Gerald Penn & Shuly Wintner (eds.), *Proceedings of Formal Grammar 2004, Nancy*, 29–45. Stanford, CA: CSLI Publications. <http://csli-publications.stanford.edu/FG/2004/>, accessed 2018-2-25.
- Bonami, Olivier & Elisabeth Delais-Roussarie. 2006. Metrical phonology in HPSG. In Stefan Müller (ed.), *Proceedings of the 13th International Conference on Head-Driven Phrase Structure Grammar*, 39–59. Stanford, CA: CSLI Publications. <http://csli-publications.stanford.edu/HPSG/2006/>, accessed 2018-2-25.
- Höhle, Tilman N. 1999. An architecture for phonology. In Robert D. Borsley & Adam Przepiórkowski (eds.), *Slavic in Head-Driven Phrase Structure Grammar*, 61–90. Stanford, CA: CSLI Publications. Republished as **HoehlePhonology**.
- Klein, Ewan. 2000. A constraint-based approach to English prosodic constituents. In *38th Annual Meeting of the Association for Computational Linguistics: Proceedings of the conference*, 217–224. Hong Kong: Association for Computational Linguistics.
- Miller, Philip H., Geoffrey K. Pullum & Arnold M. Zwicky. 1997. The principle of Phonology-Free Syntax: Four apparent counterexamples in French. *Journal of Linguistics* 33(1). 67–90.

- Orgun, Cemil Orhan. 1996. *Sign-based morphology and phonology*. University of California, Berkeley dissertation.
- Pollard, Carl J. & Ivan A. Sag. 1987. *Information-based syntax and semantics* (CSLI Lecture Notes 13). Stanford, CA: CSLI Publications.
- Pollard, Carl J. & Ivan A. Sag. 1994. *Head-Driven Phrase Structure Grammar* (Studies in Contemporary Linguistics). Chicago: The University of Chicago Press.
- Skwarski, Filip. 2009. Accounting for underlying forms in HPSG phonology. In Stefan Müller (ed.), *Proceedings of the 16th International Conference on Head-Driven Phrase Structure Grammar, University of Göttingen, Germany*, 318–337. Stanford, CA: CSLI Publications. <http://cslipublications.stanford.edu/HPSG/2009/skwarski.pdf>, accessed 2018-2-25.
- Tseng, Jesse. 2003. Edge features and French liaison. In Jongbok Kim & Stephen Mark Wechsler (eds.), *The proceedings of the 9th International Conference on Head-Driven Phrase Structure Grammar*, 313–333. Stanford, CA: CSLI Publications. <http://csli-publications.stanford.edu/HPSG/3/>, accessed 2018-9-25.
- Tseng, Jesse. 2008. The representation of syllable structure in HPSG. In Stefan Müller (ed.), *Proceedings of the 15th International Conference on Head-Driven Phrase Structure Grammar*, 234–252. Stanford, CA: CSLI Publications. <http://csli-publications.stanford.edu/HPSG/2008/>, accessed 2018-2-25.