Realization and implication

The lexical distribution of the aspect prefixes of Highlands Chatino (Figure 1) appears nearly random. If adherence to constraints such as the No-Blur Principal (Carstairs-McCarthy 1994) is diagnostic of paradigmatic structure, then these classes have no structure. As normally understood, inflection classes have a hierarchical structure, which inter alia typically implies that the bulk of the paradigm is predictable. On the face of it, lexical classes such as those in Chatino, which display rampant cross-classification and hence little predictability, do not qualify as bona fide inflection classes. Instead, they must simply be listed in the lexical entry.

	lexical classes														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
FUT	ka	ka	ka	ka	ka	ka	ku	ku	ku	ku	ku	ku	Ø	Ø	Ø
PRS	n	n	nga	nga	nga	nga	nga	nga	n	n	nd	nd	n	n	nd
HAB	n	nga	n	n	n	nga	n	n	nd	n	nd	nd	n	n	nd
PRET	m	m	ngu	y	m	m	y	m	m	m	y	ngu	ngu	m	m

Figure 1: Aspect prefixes in Chatino (Pride & Pride 1997)

But as work on principal parts (Finkel & Stump 2009) and conditional entropy (Blevins, Ackerman & Malouf 2009, Malouf & Ackerman & 2010) has shown, predictability can be uncovered even in the absence of any apparent hierarchical structure. Thus from among the 15 classes in, an average of 2.4 forms are sufficient to predict the rest of the paradigm. Factoring in other elements of the paradigm, such as stem alternations, may further increase the predictability (Stump 2010).

What these approaches to the paradigm mean for inflectional rules of the traditional sort has yet to be explored. For example, the conditional entropy model of Blevins, Ackerman & Malouf (2009) presupposes an abstractive model of morphology (Blevins 2006). If this were necessarily so, rule-based, 'constructive' approaches to inflection would be left by the wayside of one of the more promising research programmes in morphology. This would be a pity, since rule-based approaches offer a clear and concise means of representing and testing (computationally) different models of inflectional organization.

This paper offers a way to join these two approaches by incorporating the sort of implicational network foreseen by principal parts and conditional entropy into a system of realization rules. It employs the DATR language (Evans & Gazdar 1996, Brown & Hippisley forthcoming), making extensive use of evaluable paths to represent conditional defaults, which contribute to the optimization of the lexical entry. The focus is the lexical entry, in which just enough information is encoded to deduce inflectional behaviour -- in effect, underspecified principal parts, encoded as morphological indices. The optimized lexical entry then allows a comparison both across competing analyses of an inflectional system -- so long as the lexical entry is the same, the analyses are considered to be notational variants of each other -- as well as comparison between different languages, using an explicit measure of inflectional complexity.