

## 1. Summary of Research Results

We used data on colour terms of the contemporary Slavonic languages to induce inheritance hierarchies which provided an hypothesis about the family's proto-language, together with the historical development of the language family. Because colour terms constitute a well defined area for cross-linguistic comparison, typological constraints on 'possible colour system' have been developed (Berlin and Kay 1969). Thus we had a means of testing our historical model. Furthermore, Slavonic is a language family where solid comparative work has already been done, allowing us to check the predictions of our historical model.

We input contemporary data about Slavonic colour terms into a computational tool which functioned to locate any generalizations that could be made over the data, and on this basis to induce a default inheritance tree. The induction was iterative: inheritance trees were induced for East, West and South Slavonic, and the upper portions of these trees were then used to induce a tree encompassing the entire language family. The major structure of the Slavonic Languages hierarchy is shown in Figure 1.

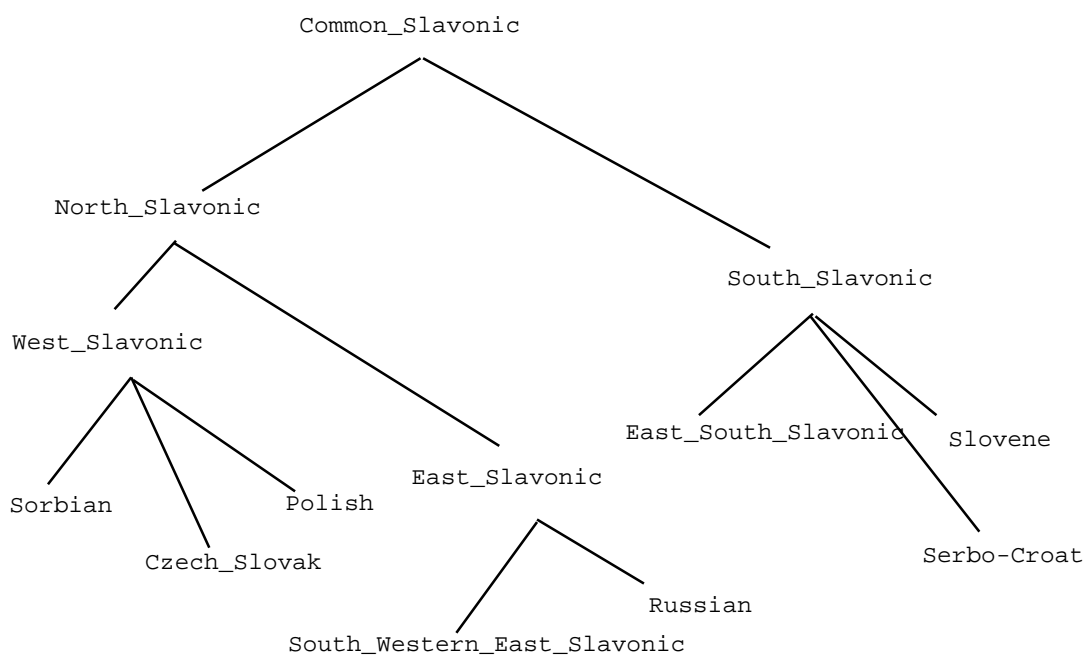


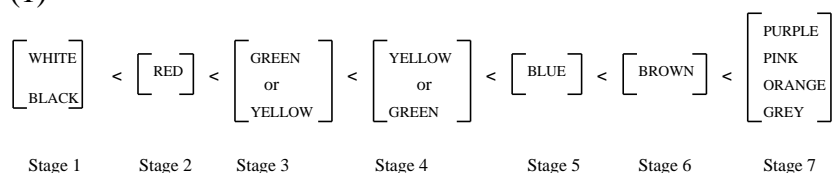
Figure 1. The major structure of the induced Slavonic languages hierarchy (some languages omitted for reasons of clarity)

The hierarchy captures generalizations over the colour terms of the contemporary Slavonic languages. Thus terms which are shared by all languages have been placed at the top-most node `Common_Slavonic`. Terms which only Lower and Upper Sorbian, Czech, Slovak and Polish share at `West_Slavonic`. And terms unique to individual languages are situated at the leaf nodes. Our innovation was to take the induced hierarchy about generalizations regarding contemporary data and lend it an historical interpretation.

Higher nodes express earlier stages of the language family, and highest, or root node, the proto-language Proto-Slavonic.

The results of our historical reconstruction proved encouraging. First the structure of the inheritance tree came close to the conventional wisdom. For example the initial split in Figure 1 is between West and East Slavonic on the one hand and South Slavonic on the other, the traditional division between North and South Slavonic. In East Slavonic, the initial split divides Belarusian and Ukrainian on the one hand and Russian on the other, echoing the South-Western East Slavonic and North-Eastern East Slavonic split. (See Schenker 1993 for details.) The second way in which the induced hierarchy seemed to be a positive outcome was how far it obeyed a set of typological constraints on the evolution of a language's colour lexicon, provided originally by Berlin and Kay (1969). Their evolutionary hypothesis is given in (1).

(1)



Languages evolve through Stages 1 to 7, and (1) shows the order in which the categories are lexicalized. Hence a Stage 5 language with a BLUE term must have emerged from a Stage 4 language which lacked a BLUE but had terms for WHITE, BLACK, RED, YELLOW and GREEN.

The arrangement of the terms on the hierarchy (Figure 1) was largely consistent with an arrangement predicted by the Berlin and Kay theory. Stage 4 colours appeared at the root node, suggesting that Proto-Slavonic was a Stage 4 language, consistent with Schenker's view. This is shown in (2).

(2)

Stage 1		WHITE	<i>bel</i>
		BLACK	<i>cr_ 'n</i>
Stage 2	(the above plus)	RED	<i>rud -&gt; cr_ 'vl'en?</i>
Stage 3	(the above plus)	GREEN	<i>zel-n</i>
Stage 4	(the above plus)	YELLOW	<i>žl_ 't</i>

The model's underlying notion of default inheritance was used as a way of filling knowledge gaps and charting lexical innovation. We captured the principle that language phenomena remain largely unchanged by default, from earliest times to the present, by setting up a Proto-Slavonic node from which basic and non-basic terms are inherited throughout the Slavonic family. Where the facts are at odds with this situation we invoked overrides, thereby pinpointing areas of obsolescence, innovation and semantic shift. For example, the Proto-Slavonic term *siv* 'grey' is overridden in Contemporary South and West Slavonic since it is now obsolete in languages belonging to these branches. Lexical replacement is captured as the overriding of a basic term in favour of

new term, for example the replacement of *cervlen(yj)* ‘red’ by *krasn(y)* in C18 Russian. The shift in *gned* ‘brown’ from a restricted term in Proto-Slavonic to an unrestricted basic term in Czech is captured by the overriding of this non-basic term at the Czech node.

In the original proposal we said we would use the language chapters in Comrie and Corbett (1993) as our main reference point for basic colour terms in Slavonic. However, since the historical reconstruction model that we developed relies heavily on accurate contemporary data we decided to augment this knowledge base with psycholinguistically informed data. We carried out a large-scale project which engaged speakers of eleven of the Slavonic languages. Instructions of the ‘list-task’, a recognized test to elicit basic colour terms, were translated into the various Slavonic languages, and native speakers (for the most part) were asked to conduct the task in the Slavonic speaking countries. For the endangered Slavonic languages of Lower and Upper Sorbian a special field trip was organized for additional colour data to be collected (and preserved on CD). These data then became the ‘prime’ data for the induction process. The results are as follows:

#### *East Slavonic*

Ukrainian and Belarusian lack an ORANGE category. However, presumably under the influence of Russian, they have a second BLUE category, which is a new finding.

#### *West Slavonic*

Only Sorbian lacks any of the eleven Berlin and Kay basic terms. There is evidence that ORANGE has not yet appeared, and from the additional colour naming tests that PINK is not established but emergent.

#### *South Slavonic*

Several languages lack a PINK category. Surprisingly the term *oker* ‘ochre’, not considered basic in any accounts, performs very well in three of the four South Slavonic languages, warranting further investigation.

We set out to construct a default inheritance model for historical reconstruction, following a number of procedural steps. This was accomplished and our results have shown the value of such an approach. In addition to what was planned in the proposal, we carried out a large-scale informant-based project on the Slavonic languages to lend psychological reality to the contemporary data on Slavonic, the data that drives our reconstruction model.