4. More FSM

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FSM behind the scenes

xfst[1]: read regex [a b* c]+ .o. [b -> 0 || b _];
208 bytes. 4 states, 6 arcs, Circular.

xfst[2]: print net
s0: a -> s1.
s1: b -> s2, c -> fs3.
s2: c -> fs3, <b:0> -> s2.
fs3: a -> s1.

Karok

?uaxyar	?uxyar	Vowel deleted
?uiksah	?uksah	
?uuksup	?uksup	
?uskak	?uskak	
?usiitva	?usiitva	
niaxyar	nixyar	
niiksah	nikshah	
niuksup	nikshup	
niskak	nishkak	s -> sh || i _
nisiitva	nishiitva	

Verbs

define Fill {axyar};
define Steal s ii t v a;
define Jump {skak};
define Point {uksup};
define Laugh i k s a h;

define Root [Fill | Steal | Jump | Point | Laugh];

Agreement

define You {ni};
define He "?" u;

define Agr [You | He];
read regex He Jump;
- 296 bytes. 7 states, 6 arcs, 1 path.

print words
- ?uskak

Upper lexicon

read regex Agr Root;
print words
?uaxyar
?uuksup
?uiksah
?usiitva
?uskak
niaxyar
niuksup
niiksah
nisiitva
niskak

Vowel Deletion

Delete second of two consecutive vowels.
define Vdel [V -> 0 || V _];

xfst[50]: read regex [He Fill] .o. Vdel;
324 bytes. 8 states, 7 arcs, 1 path.
xfst[51]: print words
?u<a:0>xyar

Palatalization

[s] becomes palatal after [i]
define Palatalize [s -> sh || i (C) _];

read regex [You Steal] .o. Palatalize;
print words
- ni<s:sh>iitva

Palatalization

Consonant can intervene

nikshup ‘you point’
*niksup

Rule interaction

ni+uksup ‘you point’
*niksup
nikshup

?u+iksah ‘he laughs’
*?ukshah
?uksah

Rule orders

define VdelPal [Agr Root] .o. Vdel .o. Palatalize;

define PalVdel [Agr Root] .o. Palatalize .o. Vdel;

Vdel then Pal

read regex VdelPal
?u<a:0>xyar
?u<i:0>ksah — Vdel bleeds Pal
?u<u:0>ksup
?uskak
?usiitva
ni<a:0>xyar
ni<i:0>k<s:sh>ah
ni<u:0>k<s:sh>up — Vdel feeds Pal
ni<s:sh>kak
ni<s:sh>iitva

Pal then Vdel

```
read regex PalVdel;
print words
?usiitva
?uskak
?u<a:0>xyar
?u<i:0>k<s:sh>ah
?u<u:0>ksup
ni<s:sh>iitva
ni<s:sh>kak
ni<a:0>xyar
ni<i:0>k<s:sh>ah
ni<u:0>ksup
```

Two Level Solution?

```
read regex VdelPal
?u<a:0>xyar
?u<i:0>ksah
?u<u:0>ksup
?uskak
?usiitva
ni<a:0>xyar
ni<i:0>k<s:sh>ah
ni<u:0>k<s:sh>up
ni<s:sh>kak
ni<s:sh>iitva
```