

Describing comparative and superlative forms in Finnish¹

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Abstract

Comparative and superlative forms in Finnish apply to all adjectives and to part of adverbs. As the number of such words is big, there is motivation for describing them by using sub-lexicons, so that the stem is listed only once, and comparative and superlative forms are listed in the sub-lexicons. This method is normally used in describing the inflection suffixes. In the method suggested here, one more phase is added to the lexicon structure. From the base form of the adjective, there is access to the sub-lexicon of the appropriate inflection class. In this sub-lexicon, inflection forms are described. In addition, this sub-lexicon includes comparative and superlative suffixes as well as adverbial extensions. The difference between inflection forms of the basic stem and comparative plus superlative suffixes is that the former terminate here, but the latter continue to the appropriate inflection sub-lexicons. Also, comparative and superlative forms of adjectives inflect in all inflection classes. On the other hand, adverbs derived from adjectives do not inflect in cases.

Key Words: *degree of comparison, comparative degree, superlative degree, morphological description.*

1 Introduction

The full description of a language such as Finnish is a formidable task. The large number of inflection classes of nominals and verbs forms the basic challenge. Words have a front or back vowel inflection, and this adds to the complexity of description. The profuse word compounds form another headache. Word forms cannot be simply listed into the lexicon. Means must be found for shrinking the lexicon as small as possible.

In this report I discuss comparative and superlative forms of adjectives and adverbs. In a language such as English, the comparative and superlative suffixes can simply be listed in the sub-lexicon. In Finnish they inflect in cases, following their own inflection paradigms. We must also note that while only part of adjectives has comparative and superlative forms in English, in Finnish practically all adjectives have such forms.

Adjectives and pronouns are not closed classes. The frequently appearing words can be found from large corpora. Yet new words appear every now and then. There should be

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means for describing also such words that are not included into the dictionary. For this we can use a heuristic guesser, which makes use of the endings of words. This method suits to such adjectives, which have a distinguishable unique ending. Fortunately, this is the group of adjectives, where most of the new adjectives are located. Adjectives with less distinguishable endings are old adjectives and they belong to the basic vocabulary.

2 Adjectives ending in *-nen*, *-nut* and *-nyt*

Fortunately, there are many adjectives in Finnish, which have a regular ending. More than half of the adjectives (6,525) in the current morphological lexicon has the ending *-nen*. The bigger part (4,968) has back-vowel inflection, and the smaller part (1557) has front-vowel inflection.

In addition, there are 383 such adjectives that end in *-nut* or *nyt*. These also can be treated so that comparative and superlative forms can be derived from base forms, without needing to list the words separately.

The total number of adjectives in the lexicon is 12,061. It means that more than half (57%) of the adjectives can be described using only six sub-lexicons of suffixes. The rest of adjectives requires the use of 70 sub-lexicons.

Below I will describe each of the three types of common adjectives.

2.1 Adjectives ending in *-nen*

This group contains back-vowel and front-vowel adjectives, both having the neutral ending *-nen*. However, both types must be handled separately, because the suffixes have a different set of vowels.

Example (1) shows how an adjective with the ending *-nen* is described in the finite-state dictionary.

(1)
ajankohtai A38 "ajankohtainen";

The first part *ajankohtai* is the stem part on the word *ajankohtainen*. The code A30 is the name of the sub-lexicon, to which the process should continue. The string between double quotes will be printed as the base form of the word. The semicolon ends the line.

This is the way how back-vowel adjectives ending in *-nen* are described in the lexicon.

Now we will see what the sub-lexicon A38 looks like (2). It is for the back-vowel adjectives of class A38.

(2)
LEXICON A38
! yksitoikkoi:nen
nen ### " SG NOM";
se POS " SG NOM/GEN/ACC";
sen ### " SG GEN/ACC";
sta POS-an " SG PAR";
ne ### " SG ACC-N";
sena POS-an " SG ESS";

```
sesta POS-an " SG INE";
sesta POS-an " SG ELA";
see POS " SG ILL";
seen ### " SG ILL";
sella POS-an " SG ADE";
selta POS-an " SG ABL";
selle POS-en " SG ALL";
setta POS-an " SG ABE";
sekse POS-en " SG TRA";
seksi ### " SG TRA";
set HanKo " PL NOM/ACC/ACC-N";
se POS " PL NOM/GEN/ACC";
sie ## " PL GEN";
sien ### " PL GEN";
ste ## " PL GEN";
sten ### " PL GEN";
sia POS-an " PL PAR";
sina POS-an " PL ESS";
sissa POS-an " PL INE";
sista POS-an " PL ELA";
sii ## " PL ILL";
siin ### " PL ILL";
silla POS-an " PL ADE";
silta POS-an " PL ABL";
sille POS-en " PL ALL";
sitta ## " PL ABE";
sikse POS-en " PL TRA";
siksi ### " PL TRA";
sin ## " PL INS";
sine POS-en " PL KOM";
! comparative, superlative and adverb
sem N16-H " CMP";
si N51 " SUP";
s ESTI " ADV";
```

Under the lexicon name, there is an example of adjectives of this class. It is not part of code. Then follows a set of various inflected forms. Each suffix leads to the appropriate sub-lexicon, or it can also terminate here (###). Note that the base form was already described in (1), and no lexical material is printed here. Only linguistic tags will be printed.

In the bottom part, there are three entries, one for comparative forms, one for superlative forms, and one for adverbs. Some material from the input string is added, and the process is directed to appropriate sub-lexicons. In (3) is the sub-lexicon N16-H.

```
(3)
LEXICON N16-H
!suurem:pi
pi ### " SG NOM";
pa POS " SG NOM/GEN/ACC";
```

```
man ### " SG GEN/ACC";
paa POS-an " SG PAR";
pi ### " SG ACC-N";
pana POS-an " SG ESS";
massa POS-an " SG INE";
masta POS-an " SG ELA";
paa POS " SG ILL";
paan ### " SG ILL";
malla POS-an " SG ADE";
malta POS-an " SG ABL";
malle POS-en " SG ALL";
matta POS-an " SG ABE";
makse POS-en " SG TRA";
maksii ### " SG TRA";
mat HanKo " PL NOM/ACC/ACC-N";
pa POS " PL NOM/GEN/ACC";
pie ## " PL GEN";
pien ### " PL GEN";
pai ## " PL GEN";
pain ### " PL GEN";
pia POS-an " PL PAR";
pina POS-an " PL ESS";
missa POS-an " PL INE";
mista POS-an " PL ELA";
pii ## " PL ILL";
piin ### " PL ILL";
milla POS-an " PL ADE";
milta POS-an " PL ABL";
mille POS-en " PL ALL";
mitta ## " PL ABE";
mikse POS-en " PL TRA";
miksi ### " PL TRA";
min ## " PL INS";
pine POS-en " PL KOM";
```

We see that this sub-lexicon has the whole set of nominal inflection of Finnish. Some forms are terminated here (###), but most continue to other sub-lexicons with clitics.

The superlative forms in (2) are directed to the sub-lexicon N51 (4).

(4)

LEXICON N51

! varmi:n

```
n Clit " SG NOM";
mpa POS " SG NOM/GEN/ACC";
mman ### " SG GEN/ACC";
nta POS-an " SG PAR";
n Clit " SG ACC-N";
mpana POS-an " SG ESS";
mmissa POS-an " SG INE";
mmasta POS-an " SG ELA";
```

```
mpaa POS " SG ILL";  
mpaan ### " SG ILL";  
mmalla POS-an " SG ADE";  
mmalta POS-an " SG ABL";  
mmalle POS-en " SG ALL";  
mmatta POS-an " SG ABE";  
mmakse POS-en " SG TRA";  
mmaksi ### " SG TRA";  
mmat HanKo " PL NOM/ACC/ACC-N";  
mpa POS " PL NOM/GEN/ACC";  
mpie ## " PL GEN";  
mpien ### " PL GEN";  
mpia POS-an " PL PAR";  
mpina POS-an " PL ESS";  
mmissa POS-an " PL INE";  
mmista POS-an " PL ELA";  
mpii ## " PL ILL";  
mpiin ### " PL ILL";  
mmilla POS-an " PL ADE";  
mmilta POS-an " PL ABL";  
mmille POS-en " PL ALL";  
mmitta ## " PL ABE";  
mmikse POS-en " PL TRA";  
mmiksi ### " PL TRA";  
mmin ## " PL INS";  
mpine POS-en " PL KOM";
```

Also this sub-lexicon contains the whole set of inflected forms.

The forms of the adverb are in the sub-lexicon ESTI (5).

(5)

LEXICON ESTI

```
esti Clitic " ";  
emmin Clitic " CMP";  
immin Clitic " SUP";
```

We see that all forms have back-vowel inflection. The process continues to the sub-lexicon Clitic, where the process can terminate or have such endings as *-ko*, *-pa-* *-han*, *-kin* and *-kaan*

The front-vowel adjectives of class A38 must be treated differently. Let us go through the whole sequence. The stem is first described in the adjective lexicon (6).

(6)

```
eetti A38-f "eettinen";
```

Now the access is to the sub-lexicon with the name A38-f. It contains the inflection paradigm of class 38 with front-vowel inflection (7).

(7)

LEXICON A38-f

! ensimmäi:nen

nen ### " SG NOM";
se POS-f " SG NOM/GEN/ACC";
sen #f# " SG GEN/ACC";
stä POS-an-f " SG PAR";
nen #f# " SG ACC-N";
senä POS-an-f " SG ESS";
sessä POS-an " SG INE";
sestä POS-an-f " SG ELA";
see POS-f " SG ILL";
seen #f# " SG ILL";
sellä POS-an-f " SG ADE";
seltä POS-an-f " SG ABL";
selle POS-en-f " SG ALL";
settä POS-an-f " SG ABE";
sekse POS-en-f " SG TRA";
seksi #f# " SG TRA";
set HanKo-f " PL NOM/ACC/ACC-N";
se POS-f " PL NOM/GEN/ACC";
sie #f " PL GEN";
sien #f# " PL GEN";
ste #f " PL GEN";
sten #f# " PL GEN";
siä POS-an-f " PL PAR";
sinä POS-an-f " PL ESS";
sissä POS-an-f " PL INE";
sistä POS-an-f " PL ELA";
sii #f " PL ILL";
siin #f# " PL ILL";
sillä POS-an-f " PL ADE";
siltä POS-an-f " PL ABL";
sille POS-en-f " PL ALL";
sittä #f " PL ABE";
sikse POS-en-f " PL TRA";
siksi #f# " PL TRA";
sin #f " PL INS";
sine POS-en-f " PL KOM";
! comparative, superlative and adverb
sem N16-H-f " CMP";
si N51-f " SUP";
s ESTI " ADV";

The inflection is identical with back-vowel inflection, except for vowels, which are converted to front-vowels.

The lexical material in comparative, superlative and adverb constructions is the same as in back-vowel adjectives, but the continuation sub-lexicons are different. They follow the rules of front-vowels.

The lexicon N16-H-f is in (8).

(8)

LEXICON N16-H-f

! **pienem:pi**

pi ### " SG NOM";
pi POS-f " SG NOM/GEN/ACC";
män #f# " SG GEN/ACC";
pää POS-an-f " SG PAR";
pi #f# " SG ACC-N";
päinä POS-an-f " SG ESS";
mässä POS-an-f " SG INE";
mästä POS-an-f " SG ELA";
pää POS-f " SG ILL";
pään #f# " SG ILL";
mällä POS-an-f " SG ADE";
mältä POS-an-f " SG ABL";
mälle POS-en-f " SG ALL";
mättä POS-an-f " SG ABE";
mäkse POS-en-f " SG TRA";
mäksi #f# " SG TRA";
mät HanKo-f " PL NOM/ACC/ACC-N";
pä POS-f " PL NOM/GEN/ACC";
pie #f " PL GEN";
pien #f# " PL GEN";
piä POS-an-f " PL PAR";
pinä POS-an-f " PL ESS";
missä POS-an-f " PL INE";
mistä POS-an-f " PL ELA";
pii #f " PL ILL";
piin #f# " PL ILL";
millä POS-an-f " PL ADE";
miltä POS-an-f " PL ABL";
mille POS-en-f " PL ALL";
mittä #f " PL ABE";
mikse POS-en-f " PL TRA";
miksi #f# " PL TRA";
min #f " PL INS";
pine POS-en-f " PL KOM";

Most lexical strings continue to sub-lexicons. All of them have front-vowel inflection.

Also the superlative forms continue to the corresponding sub-lexicon (9).

(9)

LEXICON N51-f

! **hölmöi:n**

n ### " SG NOM";
mpä POS-f " SG NOM/GEN/ACC";
mmän #f# " SG GEN/ACC";
ntä POS-an-f " SG PAR";
n #f " SG ACC-N";

mpänä POS-an-f " SG ESS";
mmässä POS-an-f " SG INE";
mmästä POS-an-f " SG ELA";
mpää POS-f " SG ILL";
mpään #f# " SG ILL";
mmällä POS-an-f " SG ADE";
mmältä POS-an-f " SG ABL";
mmälle POS-en-f " SG ALL";
mmättä POS-an-f " SG ABE";
mmäkse POS-en-f " SG TRA";
mmäksi #f# " SG TRA";
mmät HanKo-f " PL NOM/ACC/ACC-N";
mpä POS-f " PL NOM/GEN/ACC";
mpie #f " PL GEN";
mpien #f# " PL GEN";
mpiä POS-an-f " PL PAR";
mpinä POS-an-f " PL ESS";
mmissä POS-an-f " PL INE";
mmistä POS-an-f " PL ELA";
mpii #f " PL ILL";
mpiin #f# " PL ILL";
mmillä POS-an-f " PL ADE";
mmiltä POS-an-f " PL ABL";
mmille POS-en-f " PL ALL";
mmittä #f " PL ABE";
mmikse POS-en-f " PL TRA";
mmiksi #f# " PL TRA";
mmiin #f " PL INS";
mpine POS-en-f " PL KOM";

Since the adverb construction suffixes (example 5 above) do not have vowels that undergo front/back variation, no separate sub-lexicon for front-vowel suffixes would be needed. However, because the adverbs may have such clitics that undergo vowel variation, separate sub-lexicons for adverbial endings are needed.

2.2 Adjectives ending in *-nut* and *nyt*

There is a set of adjectives (a total of 393) that end in *-nut* (back-vowel inflection) or *-nyt* (front-vowel inflection). Also these can be treated in the way as we did with adjectives ending in *-nen*.

In (10) is an example of how the stem of the back-vowel adjectives of this type are described in the lexicon.

(10)
hermostun N47 "hermostunut";

The process continues to the sub-lexicon N47 (11).

(11)
LEXICON N47

```
! paatun:ut
ut ### " SG NOM";
ee POS " SG NOM/GEN/ACC";
een ### " SG GEN/ACC";
utta POS-an " SG PAR";
ut ### " SG ACC-N";
eena POS-an " SG ESS";
eessa POS-an " SG INE";
eesta POS-an " SG ELA";
eeseen POS " SG ILL";
eeseen ### " SG ILL";
eella POS-an " SG ADE";
eelta POS-an " SG ABL";
eelle POS-en " SG ALL";
eetta POS-an " SG ABE";
eekse POS-en " SG TRA";
eeksi ### " SG TRA";
eet HanKo " PL NOM/ACC/ACC-N";
ee POS " PL NOM/GEN/ACC";
eide ## " PL GEN";
eiden ### " PL GEN";
eitte ## " PL GEN";
eitten ### " PL GEN";
eita POS-an " PL PAR";
eina POS-an " PL ESS";
eissa POS-an " PL INE";
eista POS-an " PL ELA";
eisii ## " PL ILL";
eisiin ### " PL ILL";
eilla POS-an " PL ADE";
eilta POS-an " PL ABL";
eille POS-en " PL ALL";
eitta ## " PL ABE";
eikse POS-en " PL TRA";
eiksi ### " PL TRA";
ein ## " PL INS";
eine POS-en " PL KOM";
! comparative, superlative and adverb
eem N16-H " CMP";
ei N51 " SUP";
e ESTI " ADV";
```

In addition to the inflection suffixes, also comparative, superlative and adverb suffixes are described. The comparative and superlative extensions *eem* and *ei* lead to such sub-lexicons, where the whole set of nominal inflection is allowed. The adverb extension *e* leads to the sub-lexicon ESTI, where the three comparative degrees of the adverb are described.

In (12) is the sub-lexicon ESTI.

(12)
LEXICON ESTI
esti Clitic " ";
emmin Clitic " CMP";
immin Clitic " SUP";

It is possible to add further clitics to these three forms. The lexicon name Clitic leads to these clitics (13).

(13)
LEXICON Clitic
#;
han # " ";
pa # " ";
ko Han " QUE";
kin # " ";
kaan # " ";

Note that the single # means the termination of the process.
Let us look at the adjectives ending in *-nyt* (14).

(14)
järjestäytyn N47-f "järjestäytynyt";

The process continues to the sub-lexicon N47-f (15).

(15)
LEXICON N47-f
! syntyn:yt
yt ### " SG NOM";
ee POS-f " SG NOM/GEN/ACC";
een #f# " SG GEN/ACC";
yttä POS-an-f " SG PAR";
yt #f# " SG ACC-N";
eenä POS-an-f " SG ESS";
eessä POS-an-f " SG INE";
eestä POS-an-f " SG ELA";
eeseen POS-f " SG ILL";
eeseen #f# " SG ILL";
eellä POS-an-f " SG ADE";
eeltä POS-an-f " SG ABL";
eelle POS-en-f " SG ALL";
eettä POS-an-f " SG ABE";
eekse POS-en-f " SG TRA";
eeksi #f# " SG TRA";
eet HanKo-f " PL NOM/ACC/ACC-N";
ee POS-f " PL NOM/GEN/ACC";
eide #f " PL GEN";

```
eiden #f# " PL GEN";  
eitte #f " PL GEN";  
eitten #f# " PL GEN";  
eitä POS-an-f " PL PAR";  
einä POS-an-f " PL ESS";  
eissä POS-an-f " PL INE";  
eistä POS-an-f " PL ELA";  
eisii #f " PL ILL";  
eisiin #f# " PL ILL";  
eihi #f " PL ILL";  
eihin #f# " PL ILL";  
eillä POS-an-f " PL ADE";  
eiltä POS-an-f " PL ABL";  
eille POS-en-f " PL ALL";  
eittä #f " PL ABE";  
eikse POS-en-f " PL TRA";  
eiksi #f# " PL TRA";  
ein #f " PL INS";  
eine POS-en-f " PL KOM";  
! comparative, superlative and adverb  
eem N16-H-f " CMP";  
ei N51-f " SUP";  
e ESTI " ADV";
```

The inflection suffixes have front-vowel variants. The three comparative degrees (*eem*, *ei* and *e*) are the same as in back-vowel adjectives, but the inflection of the adjectives is described in separate front-vowel lexicons, N16-H-f and N51-f.

The three sub-lexicons are described above in (8), (9) and (12), and there is no need to reprint them here.

3 Testing the recognition of comparative, superlative and adverb forms

First we test various forms of the adjectives that were used here as examples. They are collected together in (16).

(16)
ajankohtainen (contemporary)
eettinen (ethical)
hermostonut (nervous)
järjestäytynyt (organised)

We look at the analysis of these basic forms (17).

(17)
"<ajankohtainen>"
"ajankohtainen" A SG NOM
"ajankohtainen" A SG ACC-N

```
"<eettinen>"
  "eettinen"  A SG NOM
  "eettinen"  A SG ACC-N

"<hermostunut>"
  "hermostunut"  A SG NOM
  "hermostunut"  A SG ACC-N
  "hermostua"    V NEG-PAST-SG
  "hermostua"    V PART-PERF SG123 A SG NOM
  "hermostua"    V PART-PERF SG123 A SG ACC-N

"<järjestäytynyt>"
  "järjestäytynyt"  A SG NOM
  "järjestäytynyt"  A SG ACC-N
  "järjestäytyä"    V NEG-PAST-SG
  "järjestäytyä"    V PART-PERF SG123 A SG NOM
  "järjestäytyä"    V PART-PERF SG123 A SG ACC-N
```

Each form is interpreted as nominative (NOM) and accusative in nominative form (ACC-N). Two last ones have also three verb interpretations each. They are interpreted as verbs (V) and adjectives (A). The reason for this double classification is that the adjective is derived from the verb. The same form acts also as a verb. In fact, these readings should be split into two readings, one with verb interpretation and another with adjective interpretation.

Then we look at the basic comparative form of each word (18).

```
(18)
"<ajankohtaisempi>"
  "ajankohtainen"  A CMP SG NOM
  "ajankohtainen"  A CMP SG ACC-N

"<eettisempi>"
  "eettinen"       A CMP SG NOM
  "eettinen"       A CMP SG ACC-N

"<hermostuneempi>"
  "hermostunut"    A CMP SG NOM
  "hermostunut"    A CMP SG ACC-N
  "hermostua"      V PART-PERF SG123 A CMP SG NOM
  "hermostua"      V PART-PERF SG123 A CMP SG ACC-N

"<järjestäytyneempi>"
  "järjestäytynyt"  A CMP SG NOM
  "järjestäytynyt"  A CMP SG ACC-N
  "järjestäytyä"    V PART-PERF SG123 A CMP SG NOM
  "järjestäytyä"    V PART-PERF SG123 A CMP SG ACC-N
```

Here again, each word has two interpretations. Two last ones have also two such interpretations, which are verbs and adjectives at the same time.

Then we look at superlative forms (19).

(19)

"<ajankohtaisin>"
"ajankohtainen" A PL INS
"ajankohtainen" A SUP SG NOM
"ajankohtainen" A SUP SG ACC-N

"<eettisin>"
"eettinen" A PL INS
"eettinen" A SUP SG NOM
"eettinen" A SUP SG ACC-N

"<hermostunein>"
"hermostunut" A PL INS
"hermostunut" A SUP SG NOM
"hermostunut" A SUP SG ACC-N
"hermostua" V PART-PERF SG123 A PL INS
"hermostua" V PART-PERF SG123 A SUP SG NOM
"hermostua" V PART-PERF SG123 A SUP SG ACC-N

"<järjestäytynein>"
"järjestäytynyt" A PL INS
"järjestäytynyt" A SUP SG NOM
"järjestäytynyt" A SUP SG ACC-N
"järjestäytyä" V PART-PERF SG123 A PL INS
"järjestäytyä" V PART-PERF SG123 A SUP SG NOM
"järjestäytyä" V PART-PERF SG123 A SUP SG ACC-N

The superlative forms above have also one additional interpretation, instructive (INS). For example, *Hän tuli hermostunein hevosin* (He came with nervous horses).

The adverbial forms are in example (20).

(20)

"<ajankohtaisesti>"
"ajankohtainen" ADV

"<eettisesti>"
"eettinen" ADV

"<hermostuneesti>"
"hermostunut" ADV

"<järjestäytyneesti>"
"järjestäytynyt" ADV

The comparative forms of these adverbs derived from adjectives are in (21).

(21)

"<ajankohtaisemmin>"
"ajankohtaisempi" A CMP PL INS

```
"ajankohtainen"  ADV CMP

"<eettisemmin>"
  "eettinen"  A CMP PL INS
  "eettinen"  ADV CMP

"<hermostuneemmin>"
  "hermostunut"  A CMP PL INS
  "hermostunut"  ADV CMP
  "hermostua"  V PART-PERF SG123 A CMP PL INS

"<järjestäytyneemmin>"
  "järjestäytynyt"  A CMP PL INS
  "järjestäytynyt"  ADV CMP
  "järjestäytyä"  V PART-PERF SG123 A CMP PL INS
```

The readings above do not need much comment. The two last ones have adjective interpretations with instructive form in two places. The reason is that they are listed as adjectives, but also the verb listing produces adjective interpretation.

Superlative forms of these adverbs are in (22).

```
(22)
"<ajankohtaisimmin>"
  "ajankohtainen"  A SUP PL INS
  "ajankohtainen"  ADV SUP

"<eettisimmin>"
  "eettinen"  A SUP PL INS
  "eettinen"  ADV SUP

"<hermostuneimmin>"
  "hermostunut"  A SUP PL INS
  "hermostunut"  ADV SUP
  "hermostua"  V PART-PERF SG123 A SUP PL INS
  "hermostua"  V PART-PERF SG123 ADV SUP

"<järjestäytyneimmin>"
  "järjestäytynyt"  A SUP PL INS
  "järjestäytynyt"  ADV SUP
  "järjestäytyä"  V PART-PERF SG123 A SUP PL INS
  "järjestäytyä"  V PART-PERF SG123 ADV SUP
```

The result is much the same as with comparative forms, except that the forms are in superlative (SUP).

4 Testing the inflection of comparative and superlative forms

We test how inflection works with comparative and superlative forms. The test has the forms as in (23).

(23)
ajankohtaisemmalla (with a more contemporary)
eettisemmässä (in a more ethical)
hermostuneemmille (to more nervous [pl])
jäsjestyneemmälle (to more organised [sg])

The analysis result is in (24).

(24)
"<ajankohtaisemmalla>"
 "ajankohtainen" A CMP SG ADE

"<eettisemmässä>"
 "eettinen" A CMP SG INE

"<hermostuneemmille>"
 "hermostunut" A CMP PL ALL
 "hermostua" V PART-PERF SG123 A CMP PL ALL

"<järjestäytyneemmälle>"
 "järjestäytynyt" A CMP SG ALL
 "järjestäytyä" V PART-PERF SG123 A CMP SG ALL

The analysis is correct, and the two last ones have two interpretations each.
We still take a look at the same inflected forms but with superlative stem (25).

(25)
"<ajankohtaisimmalla>"
 "ajankohtainen" A SUP SG ADE

"<eettisimmässä>"
 "eettinen" A SUP SG INE

"<hermostuneimmille>"
 "hermostunut" A SUP PL ALL
 "hermostua" V PART-PERF SG123 A SUP PL ALL

"<järjestäytyneimmälle>"
 "järjestäytynyt" A SUP SG ALL
 "järjestäytyä" V PART-PERF SG123 A SUP SG ALL

We can conclude that all forms of comparative and superlative grades of adjectives and adverbs derived from them can be described using the single base-form listing.

5 Comparative and superlative forms of the rest of adjectives

Above we have discussed four groups of adjectives, back-vowel adjectives ending in

-*nen*, front-vowel adjectives ending in *-nen*, back-vowel adjectives ending in *-nut*, and front-vowel adjectives ending in *-nyt*. These form more than half of the adjectives that normally appear in text.

The rest of adjectives are distributed into 70 inflection classes, some having only a few adjectives. Note that only a small part of the 296 inflection classes has adjectives. Nouns inflect according to one of the 296 inflection classes.

In (26) is a selection of adjectives in their three degrees of comparison

- (26)
- äksy äksympi äksyin* (cranky)
 - heikko heikempi heikoin* (weak)
 - huippu huipumpi huipuun* (top)
 - suiippo suipumpi suipoin* (pointed)
 - kuokittu kuokitumpi kuokituun* (hoed)
 - hemmoteltu hemmotellumpi hemmotelluun* (spoiled)
 - veltto veltumpi veltoin* (sluggish)
 - rutinoitu rutinoidumpi rutinoiduun* (experienced)
 - outo oudumpi oudoin* (strange)
 - lenko lengempi lengoin* (crooked)
 - epäilty epäilympi epäillyn* (doubted)
 - rento rennompia rennoin* (relaxed)
 - tyrkky tyrkempi tyrkyin* (pyshy)
 - törppö törpömpi törpöin* (bungling)
 - törtö törtömpi törtöin* (bugger)
 - kristitty kristitympi kristityin* (christian)
 - peitely peiteltympi peiteltyin* (covered)
 - lyöty lyödympi lyödyin* (hit)
 - höperö höperömpi höperöin* (potty)
 - lojaali lojaalimpi lojaalein* (loyal)
 - fertiili fertiilimpi fertiilein* (fertile)
 - akuutti akuutimpi akuutein* (acute)
 - inertti inertimpi inertein* (inert)
 - rehti rehdimpi rehdein* (honest)
 - brutaali brutaalimpi brutaalein* (brutal)
 - seniili seniilimpi seniilein* (senile)
 - hauska hauskempi hauskin* (jolly)
 - rankka rankempi rankin* (harsh)
 - arka arempi arin* (sensitive)
 - halpa halvempi halvin* (cheap)
 - rampa rammempi rammin* (lame)
 - ahkera ahkerampi ahkerin* (industrious)
 - pöhöttämä pöhöttämpi pöhöttämin* (bloated)
 - herkkä herkempi herkin* (delicate)
 - tylppä tylpempi tylpin* (blunt)
 - märkä märempi märin* (wet)
 - hyvinvoipa hyvinvoivempi hyvinvoivin* (healthy)

käypä käyvempi käyvin (suited)
hatara hatarampi hatarin (tenuous)
käkkärä käkkärämpi käkkärin (frizzy)
kupura kupurampi kupurin (bump)
napakka napakampi napakin (vigorous)
räväkkä räväkämpi räväkin (pert)
apea apeampi apein (melancholic)
eheä eheämpi ehein (whole)
harmaa harmaampi harmain (grey)
nuori nuorempi nuorin (young)
pieni pienempi pienin (small)
tosi todempi tosin (true)
täysi täydempi täysin (full)
avoin avoimempi avoimin (open)
alaston alastomampi alastomin (naked)
aateliton aatelittomampi aatelittomin (commoner)
eleetön eleettömämpi eleettömin (expressionless)
lämmiin lämpimämpi lämpimin (warm)

The analysis of the above adjectives is in (27),

```
(27)
arvi@aakkl60:~/suo$ cat eksa2 | anas
"<äksy>"
    "äksy"  N SG NOM
    "äksy"  N SG ACC-N

"<äksympi>"
    "äksy"  N CMP SG NOM
    "äksy"  N CMP SG ACC-N

"<äksyin>"
    "äksy"  N PL INS
    "äksy"  N SUP SG NOM
    "äksy"  N SUP SG ACC-N

"<heikko>"
    "heikko" A SG NOM
    "heikko" A SG ACC-N

"<heikompi>" Heur
"<heikoin>"
    "heikko" A SUP SG NOM
    "heikko" A SUP SG ACC-N
    "heikko" A PL INS

"<huippu>"
    "huippu" N SG NOM
    "huippu" N SG ACC-N
```

"huippu" A SG NOM
"huippu" A SG ACC-N

"<huipumpi>"
"huippu" N CMP SG NOM
"huippu" N CMP SG ACC-N
"huippu" A CMP SG NOM
"huippu" A CMP SG ACC-N

"<huipuin>"
"huippu" N PL INS
"huippu" N SUP SG NOM
"huippu" N SUP SG ACC-N
"huippu" A PL INS
"huippu" A SUP SG NOM
"huippu" A SUP SG ACC-N

"<suippo>"
"suippo" A SG NOM
"suippo" A SG ACC-N

"<suipompi>"
"suippo" A CMP SG NOM
"suippo" A CMP SG ACC-N

"<suipoin>"
"suippo" A PL INS
"suippo" A SUP SG NOM
"suippo" A SUP SG ACC-N

"<kuokittu>"
"kuokittu" A SG NOM
"kuokittu" A SG ACC-N
"kuokkia" V TRV PASS-2PART-NOM
"kuokkia" V TRV PASS/PASS-NEG-PAST
"kuokkia" V TRV PASS A SG NOM
"kuokkia" V TRV PASS A SG ACC-N

"<kuokitumpi>"
"kuokittu" A CMP SG NOM
"kuokittu" A CMP SG ACC-N
"kuokkia" V TRV PASS A CMP SG NOM
"kuokkia" V TRV PASS A CMP SG ACC-N

"<kuokituin>"
"kuokittu" A PL INS
"kuokittu" A SUP SG NOM
"kuokittu" A SUP SG ACC-N
"kuokkia" V TRV PASS A PL INS
"kuokkia" V TRV PASS A SUP SG NOM
"kuokkia" V TRV PASS A SUP SG ACC-N

"<hemmoteltu>"
"hemmoteltu" A SG NOM
"hemmoteltu" A SG ACC-N
"hemmotella" V TRV PASS-2PART-NOM
"hemmotella" V TRV PASS/PASS-NEG-PAST
"hemmotella" V TRV PASS A SG NOM
"hemmotella" V TRV PASS A SG ACC-N

"<hemmotellumpi>"
"hemmoteltu" A CMP SG NOM
"hemmoteltu" A CMP SG ACC-N
"hemmotella" V TRV PASS A CMP SG NOM
"hemmotella" V TRV PASS A CMP SG ACC-N

"<hemmotelluin>"
"hemmoteltu" A PL INS
"hemmoteltu" A SUP SG NOM
"hemmoteltu" A SUP SG ACC-N
"hemmotella" V TRV PASS A PL INS
"hemmotella" V TRV PASS A SUP SG NOM
"hemmotella" V TRV PASS A SUP SG ACC-N

"<veltto>"
"veltto" A SG NOM
"veltto" A SG ACC-N

"<velttopi>"
"veltto" A CMP SG NOM
"veltto" A CMP SG ACC-N

"<velttoin>"
"veltto" A PL INS
"veltto" A SUP SG NOM
"veltto" A SUP SG ACC-N

"<rutinoitu>"
"rutinoitu" A SG NOM
"rutinoitu" A SG ACC-N

"<rutinoidumpi>"
"rutinoitu" A CMP SG NOM
"rutinoitu" A CMP SG ACC-N

"<rutinoiduin>"
"rutinoitu" A PL INS
"rutinoitu" A SUP SG NOM
"rutinoitu" A SUP SG ACC-N
"rutinoitua" V PAST SG1

"<outo>"
 "outo" A SG NOM
 "outo" A SG ACC-N

"<oudompi>"
 "outo" A CMP SG NOM
 "outo" A CMP SG ACC-N

"<oudoin>"
 "outo" A SUP SG NOM
 "outo" A SUP SG ACC-N
 "outo" A PL INS
 "outo" A SUP SG NOM
 "outo" A SUP SG ACC-N

"<lenko>"
 "lenko" A SG NOM
 "lenko" A SG ACC-N

"<lengompi>"
 "lenko" A CMP SG NOM
 "lenko" A CMP SG ACC-N

"<lengoin>"
 "lenko" A PL INS
 "lenko" A SUP SG NOM
 "lenko" A SUP SG ACC-N

"<epäilty>"
 "epäilty" A SG NOM
 "epäilty" A SG ACC-N
 "epäillä" V TRV PASS-2PART-NOM
 "epäillä" V TRV PASS/PASS-NEG-PAST
 "epäillä" V TRV PASS A SG NOM
 "epäillä" V TRV PASS A SG ACC-N

"<epäillympi>" Heur
"<epäillyin>"
 "epäilty" A PL INS
 "epäillä" V TRV PASS A PL INS

"<rento>"
 "rento" A SG NOM
 "rento" A SG ACC-N

"<rennompi>"
 "rento" A CMP SG NOM
 "rento" A CMP SG ACC-N

"<rennoin>"
 "rento" A SUP SG NOM

"rento" A SUP SG ACC-N
"rento" A PL INS
"rento" A SUP SG NOM
"rento" A SUP SG ACC-N

"<tyrkky>"
"tyrkky" N SG NOM
"tyrkky" N SG ACC-N

"<tyrkympi>"
"tyrkky" N CMP SG NOM
"tyrkky" N CMP SG ACC-N

"<tyrkyin>"
"tyrkky" N PL INS
"tyrkky" N SUP SG NOM
"tyrkky" N SUP SG ACC-N

"<kökkö>"
"kökkö" A SG NOM
"kökkö" A SG ACC-N

"<kökömpi>"
"kökkö" A CMP SG NOM
"kökkö" A CMP SG ACC-N

"<kököin>"
"kökkö" A PL INS
"kökkö" A SUP SG NOM
"kökkö" A SUP SG ACC-N

"<törppö>"
"törppö" N SG NOM
"törppö" N SG ACC-N
"törppö" A SG NOM
"törppö" A SG ACC-N
"törppö" A SG NOM
"törppö" A SG ACC-N

"<törpömpi>"
"törppö" N CMP SG NOM
"törppö" N CMP SG ACC-N
"törppö" A CMP SG NOM
"törppö" A CMP SG ACC-N
"törppö" A CMP SG NOM
"törppö" A CMP SG ACC-N

"<törpöin>"
"törppö" N PL INS
"törppö" N SUP SG NOM
"törppö" N SUP SG ACC-N

"törppö" A PL INS
"törppö" A SUP SG NOM
"törppö" A SUP SG ACC-N
"törppö" A PL INS
"törppö" A SUP SG NOM
"törppö" A SUP SG ACC-N

"<törttö>"
"törttö" N SG NOM
"törttö" N SG ACC-N

"<törtömpi>"
"törttö" N CMP SG NOM
"törttö" N CMP SG ACC-N

"<törtöin>"
"törttö" N PL INS
"törttö" N SUP SG NOM
"törttö" N SUP SG ACC-N

"<kristitty>"
"kristitty" N SG NOM
"kristitty" N SG ACC-N
"kristitty" A SG NOM
"kristitty" A SG ACC-N

"<kristitympi>"
"kristitty" N CMP SG NOM
"kristitty" N CMP SG ACC-N
"kristitty" A CMP SG NOM
"kristitty" A CMP SG ACC-N

"<kristityin>"
"kristitty" N PL INS
"kristitty" N SUP SG NOM
"kristitty" N SUP SG ACC-N
"kristitty" A PL INS
"kristitty" A SUP SG NOM
"kristitty" A SUP SG ACC-N

"<peitelty>"
"peitelty" A SG NOM
"peitelty" A SG ACC-N
"peitellä" V TRV PASS-2PART-NOM
"peitellä" V TRV PASS/PASS-NEG-PAST
"peitellä" V TRV PASS A SG NOM
"peitellä" V TRV PASS A SG ACC-N

"<peitellympi>" Heur
"peitelty" A PL INS

"peitellä" V TRV PASS A PL INS

"<lyöty>"
"lyöty" A SG NOM
"lyöty" A SG ACC-N
"lyödä" V TRV PASS-2PART-NOM
"lyödä" V TRV PASS/PASS-NEG-PAST
"lyödä" V TRV PASS A SG NOM
"lyödä" V TRV PASS A SG ACC-N

"<lyödympi>"
"lyöty" A CMP SG NOM
"lyöty" A CMP SG ACC-N
"lyödä" V TRV PASS A CMP SG NOM
"lyödä" V TRV PASS A CMP SG ACC-N

"<lyödyin>"
"lyöty" A PL INS
"lyöty" A SUP SG NOM
"lyöty" A SUP SG ACC-N
"lyödä" V TRV PASS A PL INS
"lyödä" V TRV PASS A SUP SG NOM
"lyödä" V TRV PASS A SUP SG ACC-N

"<höperö>"
"höperö" N SG NOM
"höperö" N SG ACC-N
"höperö" A SG NOM
"höperö" A SG ACC-N

"<höperömpi>"
"höperö" N CMP SG NOM
"höperö" N CMP SG ACC-N
"höperö" A CMP SG NOM
"höperö" A CMP SG ACC-N

"<höperöin>"
"höperö" N PL INS
"höperö" N SUP SG NOM
"höperö" N SUP SG ACC-N
"höperö" A PL INS
"höperö" A SUP SG NOM
"höperö" A SUP SG ACC-N

"<lojaali>"
"lojaali" A SG NOM
"lojaali" A SG ACC-N

"<lojaalimpi>"
"lojaali" A CMP SG NOM
"lojaali" A CMP SG ACC-N

"<lojaalein>"
"lojaali" A SUP SG NOM
"lojaali" A SUP SG ACC-N
"lojaali" A PL INS
"lojaali" A SUP SG NOM
"lojaali" A SUP SG ACC-N

"<fertiili>"
"fertiili" N SG NOM
"fertiili" N SG ACC-N
"fertiili" A SG NOM
"fertiili" A SG ACC-N

"<fertiilimpi>"
"fertiili" N CMP SG NOM
"fertiili" N CMP SG ACC-N
"fertiili" A CMP SG NOM
"fertiili" A CMP SG ACC-N

"<fertiilein>"
"fertiili" N PL INS
"fertiili" N SUP SG NOM
"fertiili" N SUP SG ACC-N
"fertiili" A PL INS
"fertiili" A SUP SG NOM
"fertiili" A SUP SG ACC-N

"<akuutti>"
"akuutti" A SG NOM
"akuutti" A SG ACC-N

"<akuutimpi>"
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"akuutti" A CMP SG ACC-N

"<akuutein>"
"akuutti" A SUP SG NOM
"akuutti" A SUP SG ACC-N
"akuutti" A PL INS
"akuutti" A SUP SG NOM
"akuutti" A SUP SG ACC-N

"<inertti>"
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"inertti" A SG ACC-N

"<inertimpi>"
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"inertti" A CMP SG ACC-N

"<inertein>"
 "inertti" A SUP SG NOM
 "inertti" A SUP SG ACC-N
 "inertti" A PL INS
 "inertti" A SUP SG NOM
 "inertti" A SUP SG ACC-N

"<rehti>"
 "rehti" A SG NOM
 "rehti" A SG ACC-N

"<rehdimpi>"
 "rehti" A CMP SG NOM
 "rehti" A CMP SG ACC-N

"<rehdein>"
 "rehti" A PL INS
 "rehti" A SUP SG NOM
 "rehti" A SUP SG ACC-N

"<brutaali>"
 "brutaali" A SG NOM
 "brutaali" A SG ACC-N

"<brutaalimpi>"
 "brutaali" A CMP SG NOM
 "brutaali" A CMP SG ACC-N

"<brutaalein>"
 "brutaali" A PL INS
 "brutaali" A SUP SG NOM
 "brutaali" A SUP SG ACC-N

"<seniili>"
 "seniili" N SG NOM
 "seniili" N SG ACC-N
 "seniili" A SG NOM
 "seniili" A SG ACC-N

"<seniilimpi>"
 "seniili" N CMP SG NOM
 "seniili" N CMP SG ACC-N
 "seniili" A CMP SG NOM
 "seniili" A CMP SG ACC-N

"<seniilein>"
 "seniili" N PL INS
 "seniili" N SUP SG NOM
 "seniili" N SUP SG ACC-N
 "seniili" A PL INS
 "seniili" A SUP SG NOM

"seniili" A SUP SG ACC-N

"<hauska>"
"hauska" A SG NOM
"hauska" A SG ACC-N

"<hauskempi>"
"hauska" A CMP SG NOM
"hauska" A CMP SG ACC-N

"<hauskin>"
"hauska" A SUP SG NOM
"hauska" A SUP SG ACC-N

"<rankka>"
"rankka" A SG NOM
"rankka" A SG ACC-N

"<rankempi>"
"rankka" A CMP SG NOM
"rankka" A CMP SG ACC-N

"<rankin>"
"rankki" N SG GEN
"rankki" N SG ACC
"rankka" A SUP SG NOM
"rankka" A SUP SG ACC-N
"rankka" A SUP SG NOM
"rankka" A SUP SG ACC-N

"<arka>"
"arka" A SG NOM
"arka" A SG ACC-N

"<arempi>"
"arka" A CMP SG NOM
"arka" A CMP SG ACC-N

"<arin>"
"arka" A SUP SG NOM
"arka" A SUP SG ACC-N
"arka" A SUP SG NOM
"arka" A SUP SG ACC-N

"<halpa>"
"halpa" A SG NOM
"halpa" A SG ACC-N

"<halvempi>"
"halva" N CMP SG NOM
"halva" N CMP SG ACC-N

"halpa" A CMP SG NOM
"halpa" A CMP SG ACC-N

"<halvin>"
"halva" N SUP SG NOM
"halva" N SUP SG ACC-N
"halpa" A SUP SG NOM
"halpa" A SUP SG ACC-N
"halpa" A SUP SG NOM
"halpa" A SUP SG ACC-N

"<rampa>"
"rampa" N SG NOM
"rampa" N SG ACC-N
"rampa" A SG NOM
"rampa" A SG ACC-N

"<rammempi>"
"rampa" N CMP SG NOM
"rampa" N CMP SG ACC-N
"rampa" A CMP SG NOM
"rampa" A CMP SG ACC-N

"<rammin>"
"rampa" N SUP SG NOM
"rampa" N SUP SG ACC-N
"rampa" A SUP SG NOM
"rampa" A SUP SG ACC-N

"<ahkera>"
"ahkera" A SG NOM

"<ahkerampi>"
"ahkera" A CMP SG NOM
"ahkera" A CMP SG ACC-N

"<ahkerin>"
"ahkera" A SUP SG NOM
"ahkera" A SUP SG ACC-N
"ahkera" A PL INS
"ahkera" A SUP SG NOM
"ahkera" A SUP SG ACC-N

"<pöhöttämä>"
"pöhöttämä" A SG NOM
"pöhöttämä" A SG ACC-N
"pöhöttää" V TRV 3INF

"<pöhöttämämpi>"
"pöhöttämä" A CMP SG NOM
"pöhöttämä" A CMP SG ACC-N

"<pöhöttämin>"
 "pöhöttämä" A PL INS
 "pöhöttämä" A SUP SG NOM
 "pöhöttämä" A SUP SG ACC-N

"<herkkä>"
 "herkkä" A SG NOM
 "herkkä" A SG ACC-N

"<herkempi>"
 "herkkä" A CMP SG NOM
 "herkkä" A CMP SG ACC-N

"<herkin>"
 "herkkä" A PL INS
 "herkkä" A SUP SG NOM
 "herkkä" A SUP SG ACC-N

"<tylppä>"
 "tylppä" A SG NOM
 "tylppä" A SG ACC-N

"<tylpempi>"
 "tylppä" A CMP SG NOM
 "tylppä" A CMP SG ACC-N

"<tylpin>"
 "tylppä" A PL INS
 "tylppä" A SUP SG NOM
 "tylppä" A SUP SG ACC-N

"<märkä>"
 "märkä" A SG NOM
 "märkä" A SG ACC-N

"<märempi>"
 "märkä" A CMP SG NOM
 "märkä" A CMP SG ACC-N

"<märin>"
 "märkä" A PL INS
 "märkä" A SUP SG NOM
 "märkä" A SUP SG ACC-N
 "märkiä" V PRES SG1
 "märkiä" V PAST SG1

"<hyvinvoipa>"
 "hyvinvoi" N SG ACC-N
 "hyvinvoipa" A SG NOM
 "hyvinvoipa" A SG ACC-N

"<hyvinvoivempi>"
"hyvinvoiva" A CMP SG NOM
"hyvinvoiva" A CMP SG ACC-N
"hyvinvoipa" A CMP SG NOM
"hyvinvoipa" A CMP SG ACC-N

"<hyvinvoivin>"
"hyvinvoiva" A PL INS
"hyvinvoiva" A SUP SG NOM
"hyvinvoiva" A SUP SG ACC-N
"hyvinvoipa" A PL INS
"hyvinvoipa" A SUP SG NOM
"hyvinvoipa" A SUP SG ACC-N

"<käypä>"
"käypä" A SG NOM
"käypä" A SG ACC-N
"käydä" V PRES SG3 CLIT
"käydä" V IMP SG2 CLIT
"käydä" V NEG-PRES CLIT

"<käyvempi>"
"käyvä" A CMP SG NOM
"käyvä" A CMP SG ACC-N
"käypä" A CMP SG NOM
"käypä" A CMP SG ACC-N
"käydä" V PART-PRES A CMP SG NOM
"käydä" V PART-PRES A CMP SG ACC-N

"<käyvin>"
"käyvä" A PL INS
"käyvä" A SUP SG NOM
"käyvä" A SUP SG ACC-N
"käypä" A SUP SG NOM
"käypä" A SUP SG ACC-N
"käydä" V PART-PRES A PL INS
"käydä" V PART-PRES A SUP SG NOM
"käydä" V PART-PRES A SUP SG ACC-N

"<hatara>"
"hatara" A SG NOM
"hatara" A SG ACC-N

"<hatarampi>"
"hatara" A CMP SG NOM
"hatara" A CMP SG ACC-N

"<hatarin>"
"hatara" A SUP SG NOM
"hatara" A SUP SG ACC-N

"hatara" A PL INS
"hatara" A SUP SG NOM
"hatara" A SUP SG ACC-N

"<käkkärä>"
"käkkärä" A SG NOM
"käkkärä" A SG ACC-N

"<käkkärämpi>"
"käkkärä" A CMP SG NOM
"käkkärä" A CMP SG ACC-N

"<käkkärin>"
"käkkärä" A PL INS
"käkkärä" A SUP SG NOM
"käkkärä" A SUP SG ACC-N

"<kupura>"
"kupura" N SG NOM
"kupura" N SG ACC-N
"kupura" A SG NOM
"kupura" A SG ACC-N

"<kupurampi>"
"kupura" N CMP SG NOM
"kupura" N CMP SG ACC-N
"kupura" A CMP SG NOM
"kupura" A CMP SG ACC-N

"<kupurin>"
"kupura" N SUP SG NOM
"kupura" N SUP SG ACC-N
"kupura" A SUP SG NOM
"kupura" A SUP SG ACC-N

"<napakka>"
"napakka" A SG NOM
"napakka" A SG ACC-N

"<napakampi>"
"napakka" A CMP SG NOM
"napakka" A CMP SG ACC-N

"<napakin>"
"napa" N SG NOM
"napa" N SG ACC-N
"napakka" A SUP SG NOM
"napakka" A SUP SG ACC-N

"<räväkkä>"
"räväkkä" A SG NOM

"<räväkämpi>"
 "räväkkä" A CMP SG NOM
 "räväkkä" A CMP SG ACC-N

"<räväkin>"
 "räväkkä" A PL INS
 "räväkkä" A SUP SG NOM
 "räväkkä" A SUP SG ACC-N

"<apea>"
 "apea" A SG NOM
 "apea" A SG ACC-N

"<apeampi>"
 "apea" A CMP SG NOM
 "apea" A CMP SG ACC-N

"<apein>"
 "apea" A PL INS
 "apea" A SUP SG NOM
 "apea" A SUP SG ACC-N

"<eheä>"
 "eheä" A SG NOM
 "eheä" A SG ACC-N

"<eheämpi>"
 "eheä" A CMP SG NOM
 "eheä" A CMP SG ACC-N

"<ehein>"
 "eheä" A PL INS

"<harmaa>"
 "harmaa" A SG NOM
 "harmaa" A SG ACC-N

"<harmaampi>"
 "harmaa" A CMP SG NOM
 "harmaa" A CMP SG ACC-N

"<harmain>"
 "harmaa" A SUP SG NOM
 "harmaa" A SUP SG ACC-N
 "harmaa" A PL INS
 "harmaa" A SUP SG NOM
 "harmaa" A SUP SG ACC-N

"<nuori>"
 "nuori" A SG NOM

"nuori" A SG ACC-N

"<nuorempi>"
"nuora" N CMP SG NOM
"nuora" N CMP SG ACC-N
"nuori" A CMP SG NOM
"nuori" A CMP SG ACC-N

"<nuorin>"
"nuora" N PL INS
"nuora" N SUP SG NOM
"nuora" N SUP SG ACC-N
"nuori" A SUP SG NOM
"nuori" A SUP SG ACC-N
"nuori" A PL INS
"nuori" A SUP SG NOM
"nuori" A SUP SG ACC-N

"<pieni>"
"pieni" A SG NOM
"pieni" A SG ACC-N
"pieniä" V IMP SG2
"pieniä" V NEG-PRES
"pieniä" V PAST SG3

"<pienempi>"
"piena" N CMP SG NOM
"piena" N CMP SG ACC-N
"pieni" A CMP SG NOM
"pieni" A CMP SG ACC-N

"<pienin>"
"piena" N SUP SG NOM
"piena" N SUP SG ACC-N
"pieni" A SUP SG NOM
"pieni" A SUP SG ACC-N
"pieni" A PL INS
"pieni" A SUP SG NOM
"pieni" A SUP SG ACC-N
"pieniä" V PRES SG1
"pieniä" V PAST SG1

"<tosi>"
"tosi" A SG NOM
"tosi" A SG ACC-N

"<todempi>"
"tosi" A CMP SG NOM
"tosi" A CMP SG ACC-N

"<tosin>"
 "tosi" A SUP SG NOM
 "tosi" A SUP SG ACC-N
 "tosi" A PL INS
 "tosi" A SUP SG NOM
 "tosi" A SUP SG ACC-N
 "tosin" ADV

"<täysi>"
 "täysi" A SG NOM
 "täysi" A SG ACC-N

"<täydempi>"
 "täysi" A CMP SG NOM
 "täysi" A CMP SG ACC-N

"<täysin>"
 "täysi" A SUP SG NOM
 "täysi" A SUP SG ACC-N
 "täysi" A PL INS
 "täysi" A SUP SG NOM
 "täysi" A SUP SG ACC-N
 "täysin" ADV

"<avoin>"
 "avoin" A SG NOM
 "avoin" A SG ACC-N

"<avoimempi>"
 "avoin" A CMP SG NOM
 "avoin" A CMP SG ACC-N

"<avoimin>"
 "avoin" A SUP SG NOM
 "avoin" A SUP SG ACC-N
 "avoin" A PL INS
 "avoin" A SUP SG NOM
 "avoin" A SUP SG ACC-N

"<alaston>"
 "alaston" A SG ACC-N
 "alaston" A SG NOM

"<alastomampi>"
 "alaston" A CMP SG NOM
 "alaston" A CMP SG ACC-N

"<alastomin>"
 "alaston" A PL INS
 "alaston" A SUP SG NOM
 "alaston" A SUP SG ACC-N

"<aateliton>"
 "aatelito" N SG GEN
 "aatelito" N SG ACC
 "aateliton" A SG NOM
 "aateliton" A SG ACC-N

"<aatelittomampi>"
 "aateliton" A CMP SG NOM
 "aateliton" A CMP SG ACC-N

"<aatelittomin>"
 "aateliton" A PL INS
 "aateliton" A SUP SG NOM
 "aateliton" A SUP SG ACC-N

"<eleetön>"
 "eleetön" A SG NOM
 "eleetön" A SG ACC-N

"<eleettömämpi>"
 "eleetön" A CMP SG NOM
 "eleetön" A CMP SG ACC-N

"<eleettömin>"
 "eleetön" A PL INS
 "eleetön" A SUP SG NOM
 "eleetön" A SUP SG ACC-N

"<lämmin>"
 "lämmin" A SG NOM
 "lämmin" A SG ACC-N

"<lämpimämpi>"
 "lämmin" A CMP SG NOM
 "lämmin" A CMP SG ACC-N

"<lämpimin>"
 "lämmin" A SUP SG NOM
 "lämmin" A SUP SG ACC-N
 "lämmin" A PL INS
 "lämmin" A SUP SG NOM
 "lämmin" A SUP SG ACC-N

All word-forms were analysed accordingly. Note that part of the words are nouns and adjectives. Also the combination of adjective and verb is common.

6 Compound adjectives

There is still need to discuss the description of such adjectives that are compounds of two or more words. Finnish language uses compounding by clueing words together. This method applies also to adjectives. In an earlier report I discussed mostly noun compounding (Technical Report No 75²).

Consider the examples in (28).

(28)

köyhysorientoitunut (oriented towards poverty)
markkinaorientoitunut (oriented towards market)
politiikkaorientoitunut (oriented towards politics)
turismiorientoitunut (oriented towards tourism)
loppuunkulunut (word out)
perhesuuntautunut (family-oriented)
sukupuolisuuntautunut (sex-oriented)
yhteiskunnallistaloudellinen (societal-economic)
yhteiskuntapoliittinen (societal-political)

Using the current implementation of the analyser, we get the results as in (29).

(29)

```
"<köyhysorientoitunut>"
  "köyhysorientoitunut"  A SG NOM
  "köyhysorientoitunut"  A SG ACC-N

"<markkinaorientoitunut>"
  "markkinaorientoitunut"  A SG NOM
  "markkinaorientoitunut"  A SG ACC-N
  "markkinaorientoitunut"  A SG NOM
  "markkinaorientoitunut"  A SG ACC-N

"<politiikkaorientoitunut>"
  "politiikkaorientoitunut"  A SG NOM
  "politiikkaorientoitunut"  A SG ACC-N

"<turistiorientoitunut>"
  "turistiorientoitunut"  A SG NOM
  "turistiorientoitunut"  A SG ACC-N

"<loppuunkulunut>"
  "loppuunkulunut"  A SG NOM
  "loppuunkulunut"  A SG ACC-N
  "loppuunkulunut"  A SG NOM
```

² <http://www.njas.helsinki.fi/salama/describing-compound-words-in-finnish.pdf>

```
"loppuunkulunut" A SG ACC-N

"<perhesuuntautunut>"
  "perhesuuntautunut" A SG NOM
  "perhesuuntautunut" A SG ACC-N
  "perhesuuntautunut" A SG NOM
  "perhesuuntautunut" A SG ACC-N

"<sukupuolisuuntautunut>"
  "sukupuolisuuntautunut" A SG NOM
  "sukupuolisuuntautunut" A SG ACC-N

"<yhteiskunnallistaloudellinen>"
  "yhteiskunnallistaloudellinen" A SG NOM

"<yhteiskuntapoliittinen>"
  "yhteiskuntapoliittinen" A SG NOM
```

We see that most of them have at least two interpretations, but three of them have four interpretations. The reason is that the words are listed twice, but in different ways. In one method, the words are listed as single strings as in (30).

```
(30)
köyhyyssorientoitun N47 "köyhyyssorientoitunut";
markkinaorientoitun N47 "markkinaorientoitunut";
politiikkaorientoitun N47 "politiikkaorientoitunut";
turistiorientoitun N47 "turistiorientoitunut";
loppuunkulun N47 "loppuunkulunut";
perhesuuntautun N47 "perhesuuntautunut";
sukupuolisuuntautun N47 "sukupuolisuuntautunut";
yhteiskunnallistaloudelli A38 "yhteiskunnallistaloudellinen";
yhteiskuntapoliitti A38 "yhteiskuntapoliittinen";
```

Using this method, one is in need of constantly adding new compound adjectives, and the system cannot be kept up to date.

The more efficient way is to split the compounds so that we list the first parts into a separate sub-lexicon and give access to the appropriate sub-lexicon(s) for finding the last part. We add the first parts to the separate sub-lexicon (31).

```
(31)
köyhyys NounA "= ";
markkina NounA "= ";
politiikka NounA "= ";
turisti NounA "= ";
loppuun NounA "= ";
perhe NounA "= ";
sukupuoli NounA "= ";
yhteiskunnallis NounA "= ";
yhteiskunta NounA "= ";
```

Note that the equal mark '=' immediately after the first double quote means that the string in the beginning of the line should be printed as such in analysis as a stem.

Now in the adjective lexicon, we need to list such entries as in (32) instead of the list in (30).

(32)
orientoitun N47 "orientoitunut";
kulun N47 "kulunut";
suuntautun N47 "suuntautunut";
taloudelli A38 "taloudellinen";
poliitti A38 "poliittinen";

After making these amendments, we get the result as in (33).

(33)
"<köyhyysorientoitunut>"
 "köyhyysorientoitunut" A SG NOM
 "köyhyysorientoitunut" A SG ACC-N

"<markkinaorientoitunut>"
 "markkinaorientoitunut" A SG NOM
 "markkinaorientoitunut" A SG ACC-N

"<politiikkaorientoitunut>"
 "politiikkaorientoitunut" A SG NOM
 "politiikkaorientoitunut" A SG ACC-N

"<turistiorientoitunut>"
 "turistiorientoitunut" A SG NOM
 "turistiorientoitunut" A SG ACC-N

"<loppuunkulunut>"
 "loppuunkulunut" A SG NOM
 "loppuunkulunut" A SG ACC-N

"<perhesuuntautunut>"
 "perhesuuntautunut" A SG NOM
 "perhesuuntautunut" A SG ACC-N

"<sukupuolisuuntautunut>"
 "sukupuolisuuntautunut" A SG NOM
 "sukupuolisuuntautunut" A SG ACC-N

"<yhteiskunnallistaloudellinen>"
 "yhteiskunnallistaloudellinen" A SG NOM

"<yhteiskuntapoliittinen>"
 "yhteiskuntapoliittinen" A SG NOM

The solution we made does not only help to describe the examples correctly. It also makes it possible to describe a large number of other adjectives that match with any combination of strings in these two sub-lexicons.

Note that the lexicon name in (31) is NounA. It means that access is to the noun lexicon and adjective lexicon. Therefore, we can test the analysis, when we convert our adjectives into nouns (34).

(34)

```
"<köyhyysorientoituneisuus>"
  "köyhyysorientoituneisuus"  N SG NOM
  "köyhyysorientoituneisuus"  N SG ACC-N

"<markkinaorientoituneisuus>"
  "markkinaorientoituneisuus" N SG NOM
  "markkinaorientoituneisuus" N SG ACC-N

"<politiikkaorientoituneisuus>"
  "politiikkaorientoituneisuus" N SG NOM
  "politiikkaorientoituneisuus" N SG ACC-N

"<turistiorientoituneisuus>"
  "turistiorientoituneisuus"  N SG NOM
  "turistiorientoituneisuus"  N SG ACC-N

"<loppuunkuluneisuus>"
  "loppuunkuluneisuus"       N SG NOM
  "loppuunkuluneisuus"       N SG ACC-N

"<perhesuuntautuneisuus>"
  "perhesuuntautuneisuus"    N SG NOM
  "perhesuuntautuneisuus"    N SG ACC-N

"<sukupuolisuuntautuneisuus>"
  "sukupuolisuuntautuneisuus" N SG NOM
  "sukupuolisuuntautuneisuus" N SG ACC-N

"<yhteiskunnallistaloudellisuus>"
  "yhteiskunnallistaloudellisuus" N SG NOM
  "yhteiskunnallistaloudellisuus" N SG ACC-N

"<yhteiskuntapoliittisuus>"
  "yhteiskuntapoliittisuus"    N SG NOM
  "yhteiskuntapoliittisuus"    N SG ACC-N
```

Using our solution we got clean results also about the corresponding nouns, without including any further listing.

7 Conclusion

The above discussion shows that it is possible to derive comparative and superlative forms as well as adverbial forms from the base form of the adjective. This method greatly reduces the size of the dictionary. Also all inflection forms of base forms as well as of comparative and superlative forms are recognised. The system was applied to adjectives of all inflection classes.

Another method of compressing the lexicon is to split compound adjectives into two parts, and their joining is done from two separate sub-lexicons. This method makes it possible to describe also compound nouns and verbs.