1 Introduction

embedded degree clauses: \textit{as}-clauses (equatives) and \textit{than}-clauses (comparatives)

(1)  
\begin{itemize}
  
  \item a. Anthony is \textit{as} tall \textbf{as} Mary is.
  \item b. Anthony is taller \textit{than} Mary is.
  \item c. Anthony is \textit{less} tall \textit{than} Mary is.
\end{itemize}

degree semantics:

\begin{itemize}
  \item \textit{as}-clauses: degree equality \((d=d')\)
  \item \textit{than}-clauses: degree inequality \((d \neq d')\)
\end{itemize}

semantics of (1):

(2)  
\begin{itemize}
  
  \item a. \(\exists d \exists d'[\text{TALL} (a,d) \& \text{TALL} (m,d') \& (d=d')]\)
  \item b. \(\exists d \exists d'[\text{TALL} (a,d) \& \text{TALL} (m,d') \& (d>d')]\)
  \item c. \(\exists d \exists d'[\text{TALL} (a,d) \& \text{TALL} (m,d') \& (d<d')]\)
\end{itemize}

relation between the degrees encoded by the matrix \text{Deg} and partially by the subclause:

\begin{itemize}
  \item \textit{as}-clauses: both encode degree equality
  \item \textit{than}-clauses: \text{Deg} encodes superiority or inferiority, subclause encodes merely degree inequality – “degree negation”
\end{itemize}

evidence: matrix degree determines choice between \textit{as} and \textit{than}, but no subtype according to superiority/inferiority

degree negation in \textit{than}-clauses: can also be reflected lower in the subclause
comparative subclause a negative polarity environment (Seuren 1973)

(3)  
She would rather die \textbf{than lift a finger} to help.
questions:

• whether degree negation has a reflex in the CP-domain
• whether and how C heads in AS-clauses and THAN-clauses differ
• whether comparative operators suffice as overt markers instead of complementisers

proposal: Slavic languages provide explicit answers to these questions

languages under scrutiny: Czech, Polish, Serbo-Croatian, Russian

2 Degree operators

equative/comparative subclauses contain relative operators as degree operators (overt or covert; cf. Bacskaia-Atkari 2014b)

these often have their interrogative counterparts - non-standard English how

(4) a. How tall is Mary?
    b. %Anthony is as tall as how tall Mary is.
    c. %Anthony is taller than how tall Mary is.

interrogatives: degree operator must be overt; movement to [Spec,CP]

theoretically possible configurations (cf. Bacskaia-Atkari 2014a;b):

(5) a. OP AP ...
    b. OP ...AP (...)
    c. OP ...

similar variation with lexical NPs

a single operator may allow more than one configuration

Slavic languages demonstrate all the following types:

• operators that always take an AP(/NP) to the [Spec,CP] - (5a)
• operators that may also strand the AP - (5a) and (5b)
• proform operators - (5c)


(6) a. Jak wysoki jest Karol?
    how tall is Charles
    ‘How tall is Charles?’

    b. *Jak jest Karol wysoki?
    how is Charles tall
    ‘How tall is Charles?’
stranding allowed with Czech *jak*, Polish *jako*, Serbo-Croatian *koliko*, probably Russian *naskol’ko*

Czech:

(7) a. **Jak** vysoký je Karel?
    how tall is Charles
    ‘How tall is Charles?’

    b. **Jak** je Karel **vysoký**?
    how is Charles tall
    ‘How tall is Charles?’


(8) a. **Jaki** wysoki jest Karol?
    how tall is Charles
    ‘How tall is Charles?’

    b. **Jaki** jest Karol **wysoki**?
    how is Charles tall
    ‘How tall is Charles?’

Serbo-Croatian:

(9) a. **Koliko** visok je Petar?
    how tall is Peter
    ‘How tall is Peter?’

    b. **Koliko** je Petar **visok**?
    how is Peter tall
    ‘How tall is Peter?’

Russian:

(10) a. **?Naskol’ko** vysok Piter?
    how tall Peter?
    ‘How tall is Peter?’

    b. **Naskol’ko** Piter **vysok**?
    how Peter tall
    ‘How tall is Peter?’

proforms: Czech *jaký*, optionally Polish *jako*

Czech:

(11) **Jaký** je Karel?
    how is Charles
    ‘What is Charles like?’

(12) **Jak**i jest Karol?  
    how is Charles  
    ‘What is Charles like?’

fronted *wh*-element in main clause interrogatives can only be interpreted as an operator

question: potential ambiguity of head-sized relative operators in equative/comparative
subclauses between operator and C head

cf. Jäger (2010), Bacskaï-Atkari (2014a) for German *wie*

expectation: ambiguity and reanalysis possible if the operator takes no AP
stranding or proform patterns

3 Equatives

As-clauses may be introduced by operators (↔ English)

  evidence for operator-status: co-occurring AP(/NP)

Czech *jak* and *jako*:

(13) a. Ten stůl je stejně dlouhý, **jak** siroká je ta kancelář.  
    the table is same long how wide is the office  
    ‘The table is longer than the office is wide.’

b. Ten stůl je stejně dlouhý, **jako** je ta kancelář siroká.  
    the table is same long how is the office wide  
    ‘The table is longer than the office is wide.’

c. *Ten stůl je stejně dlouhý, **jako** siroká je ta kancelář.  
    the table is same long as wide is the office  
    ‘The table is longer than the office is wide.’

d. Ten stůl je stejně dlouhý, **jak** je ta kancelář siroká.  
    the table is same long how wide is the office  
    ‘The table is longer than the office is wide.’

→ *jak* is an operator, *jako* is a C head

further evidence: co-occurrence with other operators:

(14) a. *Renault stojí stejně **jak** (kolik) stojí Dacia.  
    Renault costs same how much costs Dacia  
    ‘Renault costs as much as Dacia.’

b. ?Renault stojí stejně **jako** (kolik) stojí Dacia.  
    Renault costs same as how much costs Dacia  
    ‘Renault costs as much as Dacia.’
ungrammaticality of (14a): only one degree operator allowed

question: doubling in (14b)

proposal: split in the overt marking of semantic/syntactic properties

relevant properties in equatives: [rel] and [compr]

• [rel]: encoding the relative nature of the clause (cf. Chomsky 1977 on comparative clauses being relative clauses)

• [compr]: encoding the equative/comparative nature of the clause

structures for jak and jako:

\[
\begin{align*}
(15) \quad \text{a.} & \quad \text{CP} \\
& \quad \text{kao}[^{[\text{compr}],[\text{rel}]}, \text{C'} \\
& \quad \text{C}[^{[\text{compr}],[\text{rel}]}, \text{...} \\

& \quad \text{b.} & \quad \text{CP} \\
& \quad \text{kao}[^{[\text{compr}],[\text{rel}]}, \text{C'} \\
& \quad \text{koli}[^{[\text{compr}],[\text{rel}]}, \text{C'} \\
& \quad \text{C}[^{[\text{compr}],[\text{rel}]}, \text{...} \\
\end{align*}
\]

doubling: markedness due to redundancy, but a higher CP may still be generated selection by matrix degree element

evidence for the lower CP marking [rel]: Serbo-Croatian što

\[
\begin{align*}
(16) \quad \text{Pavao je visok kao što je visok Petar.} \\
& \quad \text{Paul is tall as what is tall Peter} \\
& \quad \text{‘Paul is as tall as Peter is.’}
\end{align*}
\]

structure:

\[
\begin{align*}
(17) \quad \text{CP} \\
& \quad \text{kao}[^{[\text{compr}],[\text{rel}]}, \text{C'} \\
& \quad \text{C}[^{[\text{compr}],[\text{rel}]}, \text{...} \\
& \quad \text{što}[^{[\text{rel}]}, \text{..} \\
\end{align*}
\]
overt encoding:

- C heads:
  - both [rel] and [compr] – e.g. Czech jak
  - only [rel]: lower C – e.g. Serbo-Croatian što
  - only [compr]: higher C, always followed by another overt element in lower CP
    (e.g. German als ‘as’ historically, cf. Jäger 2010)

- operators: both [rel] and [compr]

grammaticalisation of operators: possible because they encode the relevant properties overtly, may stand alone


(18)  

a. Maria jest tak wysoka **jak** wysoki byl Karol.  
Mary is as tall how tall was Charles  
‘Mary is as tall as Charles was.’

b. Maria jest tak wysoka **jak** Karol byl **wysoki**.  
Mary is as tall how Charles was tall  
‘Mary is as tall as Charles was.’

c. Maria jest taka wysoka **jaki** wysoki byl Karol.  
Mary is as tall how tall was Charles  
‘Mary is as tall as Charles was.’

d. Maria jest taka wysoka **jaki** Karol byl **wysoki**.  
Mary is as tall how Charles was tall  
‘Mary is as tall as Charles was.’

the behaviour of jako is expected on the basis of its behaviour as an interrogative operator, see (8) – similar to Czech jak

behaviour of jak in (18b) unexpected: stranding possible ↔ interrogatives

also: jak appears on its own in elliptical clauses:

(19)  

Maria jest tak wysoka **jak** Karol.  
Mary is as tall how Charles  
‘Mary is as tall as Charles.’

↔ jak demonstrates a first step towards reanalysis, but reanalysis is not complete

complete reanalysis: Czech jako, Serbo-Croatian kao and koliko, possibly Russian kak
Serbo-Croatian *koliko* in *as-clauses* different from interrogative operator:

(20)  
\begin{align*}
\text{a. } & \text{Pavao je visok } \textbf{koliko} \text{ je Petar } \textbf{visok}. \\
& \text{Paul is tall as is Peter tall} \quad \text{‘Paul is as tall as Peter.’} \\
\text{b. } & \text{*Pavao je visok } \textbf{koliko visok} \text{ je Petar.} \\
& \text{Paul is tall as tall is Peter} \quad \text{‘Paul is as tall as Peter.’}
\end{align*}

hence: operators show various stages with respect to reanalysis in Slavic

4 Comparatives

THAN-clauses have to express degree negation in addition to \[\text{rel}\] and \[\text{compr}\] – \[\text{d-neg}\]

comparative operator cannot encode this property: not a negative operator

- cross-linguistic evidence: \[\text{[d-neg]}\] marked by the C head above operator – double CPs

- C head encoding \[\text{[d-neg]}\] has to be overt – negative polarity/negation marked morphologically (Dryer 2013)

comparative complementiser: often morphologically transparently negative

Czech \textit{než}, Polish \textit{niż}, Serbo-Croatian \textit{nego} and \textit{no}

overt operator not always allowed – Polish (cf. Bacskai-Atkari 2015)

recall: no doubling in equatives either):

(21)  
\begin{align*}
\text{a. } & \text{Maria jest wyższa } \textbf{niż} \text{ Karol.} \\
& \text{Mary is taller than Charles} \quad \text{‘Mary is taller than Charles.’} \\
\text{b. } & \text{*Maria jest wyższa } \textbf{niż jak wysoki} \text{ był Karol.} \\
& \text{Mary is taller than how tall was Charles} \quad \text{‘Mary is taller than Charles was.’}
\end{align*}


(22)  
\begin{align*}
\text{a. } & \text{?Ten stůl je delší, } \textbf{než jak široká} \text{ je ta kancelář.} \\
& \text{the table is longer than how wide is the office} \quad \text{‘The table is longer than the office is wide.’} \\
\text{b. } & \text{Ten stůl je delší, } \textbf{než jak je ta kancelář široká.} \\
& \text{the table is longer than how is the office wide} \quad \text{‘The table is longer than the office is wide.’}
\end{align*}
presence of *než* obligatory:

(23)  a. *Ten stůl je delší, jak široká je ta kancelář.*

    the table is longer how wide is the office

    ‘The table is longer than the office is wide.’

    b. *Ten stůl je delší, jak je ta kancelář široká.*

    the table is longer how is the office wide

    ‘The table is longer than the office is wide.’

Czech pattern expected:

- behaviour of *jak* expected on the basis of its behaviour in interrogatives and in AS-clauses

- behaviour of *než* expected cross-linguistically: encoding of [d-neg] has to be on the head, and overt marker has to be overt

structure:

(24)  

\[
\begin{array}{c}
CP \\
C' \\
C[\text{compr},[d-neg]} \\
\text{než}[\text{compr},[d-neg]} \text{jak[compr],[rel]} \\
C'[\text{compr}] \\
\end{array}
\]

lower C head again can be merely [rel] – evidence from Serbo-Croatian:

(25)  a. Pavao je viši nego što je Petar.

    Paul is taller than what is Peter

    ‘Paul is taller than Peter.’

    b. Pavao je viši no što je Petar.

    Paul is taller than what is Peter

    ‘Paul is taller than Peter.’
two comparative C heads also possible – Serbo-Croatian *koliko* as a lower C:

(27)  

a. ?Pavao je viši **nego koliko** je Petar.
Paul is taller than as is Peter
‘Paul is taller than Peter.’

b. *Pavao je viši **nego koliko visok** je Petar.
Paul is taller than as tall is Peter
‘Paul is taller than Peter.’

Serbo-Croatian pattern expected:

- behaviour of *koliko* expected on the basis of its behaviour in *as*-clauses, as opposed to interrogatives: already a grammaticalised C head
- behaviour of *nego* and *no* expected cross-linguistically: encoding of [d-neg] has to be on the head, and overt marker has to be overt
overt marking (so far):

- comparative complementiser – Polish *niż*, Russian *chem*, Czech *než*, Serbo-Croatian *nego* and *no*
- operator in addition to comparative complementiser – Czech *jak*
- lower complementiser in addition to regular comparative complementiser – Serbo-Croatian *koliko* and *što*
- excluded pattern: comparative operator on its own

apparent counter-example: Czech *jak*

    Mary is taller how Charles
    ‘Mary is taller than Charles.’

but: no AP with *jak*, see (23); clause always elliptical:

    Mary is taller how is Charles
    ‘Mary is taller than Charles.’

proposal:

- only one CP generated
- operator moves to the C head, not to [Spec,CP]
- ellipsis: eliminated mismatch between base-generation site and landing site

structure:

(31) [C

  CP
  
  C’

  C[rel],[compr],[d-neg]

  jak[rel],[compr]

  FP

  NP

  Karel

  F’

  [E]

  jak vysoký je Karel . . .]
head-sized operators moving to C head:

- possible in certain German dialects (Alemannic, Bavarian) in relative clauses – Bayer & Brandner (2008)
- head-sized operator has dual status (head vs. phrase), no feature mismatch
- comparative operator moving to C head encoding [d-neg]: feature mismatch because operator cannot be [d-neg] → ellipsis saves the construction (cf. Merchant 2001 on sluicing repairing island violation effects)

comparative operator taking over complementiser function in THAN-clauses not as straightforward as in AS-clauses

behaviour of Czech jak: still consistent with the general theory

property of [d-neg] marked on C head

overt marking in comparatives:

- comparative complementiser – Polish niż, Russian chem, Czech než, Serbo-Croatian nego and no
- operator in addition to comparative complementiser – Czech jak
- lower complementiser in addition to regular comparative complementiser – Serbo-Croatian koliko and što
- comparative operator on its own, if it moves to the C head (language-specific, with ellipsis) – Czech jak

5 Conclusion

degree operators and embedded degree clauses in Slavic

- degree operators: with or without lexical XPs (latter: stranding or proforms)
- AS-clauses: marked overtly either by complementisers or by operators, or combinations (C+C, C+OP)
- THAN-clauses: marked overtly by a C head (complementiser, moved operator), or combinations (C+C, C+OP)

difference between AS-clauses and THAN-clauses: due to demands on overt marking of [d-neg] in THAN-clauses
References


