

The gradual loss of NPI-hood with 'need' verbs in Germanic

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Overview I

The spectrum of 'need' verb uses in Germanic

Old High German

Middle High German

Modern German

English

Dutch

Old Saxon

Danish

Norwegian

Swedish

Icelandic

Gothic

Summary

NPI vs. distributionally unrestricted 'need' verb uses in Germanic

Finnish *tarvita*

Licensing conditions of NPIs in Germanic language

Overview II

The structuring individual uses as complex lexical dependencies

The acquisition of 'need' verbs and modal flavours

Analysis

Uses

Modelling Acquisition of 'need' verbs

Summary

- ▶ Model linguistic representations of lexical polysemy in a way that is
 - ▶ in line with data from L1 acquisition
 - ▶ in line with the historical development
 - ▶ can account for the existence of *phantom use spectra*
- ▶ account for the anomalous behaviour of ‘need’ verbs in Germanic languages and neighbouring
- ▶ account for the distribution of negative polar uses and their individual licensing conditions

1. Why did the etymologically unrelated 'need' verbs *need* (English), *hoeven* (Dutch), *brauchen* (German) and *trenger* (Norwegian/Norsk) and the related *behøve* in Mainland Scandinavian all develop morphosyntactic and/or semantic anomalies?
2. How come all of these verbs developed independantly epistemic interpretations?
3. Why are all of them (partially) NPIs?
4. Why are the epistemic uses in each of the languages NPIs?
5. Why is it that if the use of a 'need' verb is an NPI all the forms which grammaticalised from that form are NPIs too?

How to account for the principled variation among Germanic ‘need’ verbs? I

1. Germanic ‘need’ verbs have a common ancestor:
ProtoGermanic **þurþan*
2. Collision of phonetic forms of the descendants of the modal **þurþan* ‘need’ and the modal **durzan* ‘dare’ in the 15th century (cf. Birkmann 1987, S. 371–373)
 - ▶ Olddanish *thorfa* ‘need’ – *thora* ‘dare’ (cf. Birkmann 1987, S. 332–334)
 - ▶ Middle High German *durfen* ‘need’ – *turren* ‘dare’
 - ▶ Middle English *tharf* ‘need’ – *dare* (cf. Visser 1969, S. 1423–1424)
3. The phonetic form disappeared, the remaining feature specifications remained intact, filled with new phonetic content

How to account for the principled variation among Germanic 'need' verbs? II

4. A specific spectrum of lexical uses can emancipate from its phonological form (phantom use spectrum)
5. Two scenarios for the grammaticalisation of epistemic forms
 - ▶ they grammaticalised independently in each language
 - ▶ there was already an epistemic 'need' verb **þurþan* in Proto-Germanic

The spectrum of 'need' verb uses in Germanic

- ▶ Old High German
- ▶ Middle High German
- ▶ Modern German
- ▶ Old English
- ▶ Modern English
- ▶ Old Saxon
- ▶ Dutch
- ▶ Danish
- ▶ Norwegian (Bokmål/Norsk)
- ▶ Swedish
- ▶ Icelandic

- ▶ *Deutsches Textarchiv*
- ▶ *Referenzkorpus Altdeutsch*
- ▶ *Referenzkorpus Mittelhochdeutsch*
- ▶ *Nordic Dialect Corpus and Syntax Database*
- ▶ *Wulfila Project*

	intr.	NP _{gen}	impers.	fin. clause	dir. PP	bare inf. circ.	bare inf. epist	TOTAL
unrestr.	–	–	–	??	–	–	??	
NPI	?7	1	–	??	1	25	??	34

- ▶ Attested in 4 syntactic patterns
 1. (?) idiomatic intransitive pattern
 2. with NP_{gen}
 3. with verbless directional Phrase
 4. with bare infinitive in circumstantial interpretation (almost all with animate subject referent)
- ▶ But only in NPI licensing contexts (negation, interrogatives)
 1. in the scope of a clause mate negation
 2. in the scope of negation in a superordinate clause
 3. in interrogatives

?intransitive *thurfan*

- (1) So wér so wilit máнно, so dóufu ih
whoever wants man-GEN.P so baptise-1 S I
inan géрно, ouh íagilichan wíhu,
him.ACC.S willingly also everyone sanctify-1 S
thero úndonо ni irzíhu. Ir ni
DEM.F.GEN.P wave-GEN.P NEG deny-1 S you.P NEG
thúrfut thoh bi thíu; ther man ist nú untar
need yet ?therefore the man is now among
iu, thaz sínu wort giméinent waz
you.DAT.P that his word.P explain what
thisu wérk zeinent.¹
this-N.NOM.P act.NOM.P mean-3S
'Whoever among you wants to be baptised, I can baptise
him and also I will not deny him of the ripples of water. You
will not leave empty-handed, the man is among you in order
to show with his words what these acts mean.'

¹DDD-AD-Otfrid_1.1 > O_Otfr.Ev.1.27 (edition 559 - 579).

?intransitive *thurfan*

- (2) In múat in iz ni lázen, ouh
in soul them.DAT it.ACC NEG let-SBJV.PRS.3P also
wíht inan ni ríazen; ni thúrfun
thing him.ACC NEG beweeep-SBJV.PRS.3P NEG need.3S
sie in war mín, er sprichit scíoro mit
they in truth my he speak-PRS.3S soon with
in.²
them.M.DAT.P

(Angel talking to Maria Magdalena after she found empty grave) 'They (disciples) should not allow it (disappearance of Christ's body) to affect their souls, they should not beweeep him, they are truly not suffering any wont, he will soon talk to them.'

- ▶ Either with the adverbials *in war* 'truly' or *bi thíu* 'therefore'
- ▶ Idiomatic use?

²DDD-AD-Otfrid_1.1 > O_Otfr.Ev.5.4 (edition 640 - 682).

- (3) Tho ther herosto thero
then DEM.M.NOM.S highest DEM.M.GEN.P
heithaftono sleiz
belonging.to.priest.class.M.GEN.P tear.PST.3S
sin giuuati quedenti:
POSS.M.ACC coat.ACC speak-PTCP.PRS.NOM
bismarota. Uuaz thurfun uuir noh nu
taunt.PST.3S what need-3S we.NOM yet now
urcundono?³
witness.GEN.P
'Then the most honorable of the priests tore his coat
speaking and taunted: What need we yet now witnesses?'

³DDD-AD-Tatian_1.1 > T_Tat191 (edition 1–41)

- (4) Tház kind ouh thaz
DEM.N.?NOM.S child though DEM.N?NOM.S
wurti fon gómmannes gibúrti; bi
develop;SBJV.PST from husband-gen procreation by
thíu ni drafun thárasun thiu thíarna noh ther
this NEG need;PST.3P there.to the girl-NOM nor the
íra sun.⁴
her son-NOM
‘The child grew from the procreation of the husband. For that
reason, neither the young woman nor her son need come
there.’

⁴DDD-AD-Otfrid_1.1 > O_Otfr.Ev.1.14 (edition 161 - 181)

- ▶ With infinitive that refers to an unwelcome sensation of the subject referent

	intr.	NP _{acc/gen}	impers.	fin. clause	dir. PP	zu/bare inf. circ.	zu/bare inf. epist	TOTAL
unrestr.	-	✓	✓	-	-	-	-	
NPI	-			✓	✓	✓	✓	

- ▶ Attested with 6 syntactic patterns
 1. with NP_{acc/gen}
 2. impersonal
 3. with verbless directional Phrase (NPI only)
 4. with bare infinitive in circ. interpretation (NPI only, majority all with animate subject referent)
 5. with bare infinitive in epist. interpretation (NPI only, majority all with animate subject referent)
- ▶ Exhibits morpho-syntactic anomalies
 1. *infinitivus pro participio/Ersatzinfinitiv* (SE German varieties)
 2. lack of 3S.IND.PRS -s in NW German varieties
 3. fronted vowel in SBJV.PST stem

brauchen with NP complements

Transitive uses (5), impersonal uses (6):

- (5) Du weißt / daß ich ein Haus und
you know that I a house and apartment
Wohnung brauche.⁵
need
- (6) Daß ihm der Schad nicht komme/ braucht
that him the harm NEG come-SBJV.PRS need
es mehr Betens/ daß ihn Gott
EXPL more pray-INF.NMLZ-GEN it God turn
abwenden wolle.⁶
away want-SBJV.PRS
'In order to prevent the harm from affecting him, more
prayers are needed, such that God may turn it away.'

⁵DTA: Birken, Sigmund von: Heiliger Sonntags-Handel und Kirch-Wandel. Nürnberg, 1681. #308.

⁶DTA: Wülfer, Daniel: Das vertheidigte Gottes-geschick/ und vernichtete Heyden-Glück. Nürnberg, 1656. #490.

- (7) Ich brauche nicht, dass meine Fingerabdrücke
I need NEG that my fingerprints
irgendwo abgespeichert sind, [...] ⁷
somewhere store-PPP are
'I do not need that my fingerprints are recorded.'

⁷<http://www.computerbase.de/forum/archive/index.php/t-842737.html>,
accessed on 23th May 2012.

- (8) Das Fahrrad braucht nicht zum TÜV.⁸
the bicycle need NEG to.the TÜV
'The bicycle needn't be approved by the Technical
Inspection Authority.'

⁸DeReKo: RHZ09/JAN.18261 Rhein-Zeitung, 24.01. 2009.

zu-Infinitives with circumstantial modality, initially only with animate subject referents (9)

- (9) Man braucht nicht weit zu sehn, viel Jammer und
one need NEG far to look-INF much misery and
Gefahr.⁹
peril
'One needn't look far, much misery and peril.'

⁹Johann Christian Günther Ode an Herrn Marckard von Riedenhausem
Ivris Vtrivsque Cvltor (1720) in Johann Christian Günther Werke edited by
Reiner Bölhoff, Frankfurt: Deutscher Klassiker Verlag, p.620.

Bare infinitives with circumstantial modality (10)

- (10) Wandern braucht ihr nicht zum Süden, weil
 wander-INF need you NEG to.the south because
 ihn ihr Gesang euch bringt.¹⁰
 him her song you brings
 ‘You needn’t wander to the South, as her song will
 bring it to you.’

¹⁰Friedrich Rückert, Nachklang in Gedichte (1841), p. 299. First published in Morgenblatt für gebildete Stände N° 243, Mittwoch 10. October 1821 (1821).

brauchen with epistemic non-finite clausal complements (NPI)

zu-infinitives with epistemic modality (11)

- (11) es braucht aber im Innern nicht grade
it need yet in.the inside NEG just
Magneteisenstein sich zu befinden, der eine
magnetic.iron.ore REFL to be-INF REF a
Dichtigkeit von 4,5 hat, noch selbst Granat von 2,3
density of 4,5 has nor even garnet from 2,3
bis 2,5, es können auch komprimierte Flüssigkeiten
to 2,5 it could also compressed liquids
oder Luft sein.¹¹
or air be-INF
'The inside needn't consist of magnetic iron ore, which
has a density of 4.5, nor garnet with 2.3 to 2.5, it could
be compressed liquids or air, as well.'

¹¹DTA Parthey, Gustav: Alexander von Humboldt[:] Vorlesungen über physikalische Geographie. Novmbr. 1827 bis April.[!] 1828. Nachgesprochen

brauchen with epistemic non-finite clausal complements (NPI)

Examples from DECOW14:

- (12) Deshalb braucht das Schiff nicht aus Neustadt sein,
therefore need the ship NEG from Neustadt be-INF
weil hin und wieder auch fertige Schiffe von der
as once and again too completed ships by the
Krone aufgekauft worden sind, z.B. von
crown buy PASS.AUX PRF.AUX e.g by
Kaufleuten.¹²
traders

‘That is why the ship needn’t be built in Neustadt, as every now and then the crown also bought ships that had been already completed.’

¹²DECOW14: 705746092,

<http://tychsen.homepage.t-online.de/sv/history/schiffbau.htm>.

brauchen with epistemic non-finite clausal complements (NPI)

Examples from DECOW14:

- (13) Als Diakon erscheint zuerst Kaspar Wagen. Er braucht
as deacon appears first Kaspar Wagen he need
aber nicht der erste gewesen sein, da er sicher
but NEG the first be-PPP PRF.AUX as he certainly
mit dem Jasperus Wagenius, der 1544 als Prädikant
with the Jasperus Wagenius who 1544 as predicant
an der Kapelle zu Schlichting in Norderdithmarschen
at the chapel at Schlichting in Norderdithmarschen
unterzeichnet, identisch ist.¹³
signes identical is
'It is Kaspar Wagen who is mentioned as first deacon.
But he needn't have been the first one, as he is certainly
identical to Jasperus Wagenius, who signed 1544 as
predicant at the chapel in Schlichting in
Norderdithmarschen'

brauchen with epistemic non-finite clausal complements (NPI)

Examples from DECOW14:

- (14) Selbstverständlich brauchen die beiden nicht denselben
of.course need the both NEG the.same
Vater zu haben. Ich denke aber, da einige Merkmale
father to have-INF I think but as some features
gleich sind, haben sie diese wohl von der
identical are have they them perhaps from the
Mutter geerbt.¹⁴
mother inherited

'Of course, the two of them needn't have the same father.
Yet I assume, as two features are identical, they must
have inherited them from the mother.'

¹⁴DECOW14: 912717026,

<http://www.katzen-links.de/katzenforum2/archive/index.php/t-55361.html>.

- (15) dem Soldaten hätt' ich nicht einmal
the-DAT soldier have-SBJV.PST I NEG PRT
brauchen einen Schlaftrunk zu geben, er
need-IPP a sleeping.draught to give-INF he
wär' doch nicht aufgewacht.¹⁵
be-SBJV.PST wake.up-PPP

'I wasn't even necessary to sedate the soldier with a sleeping draught, he wouldn't wake up at all.'

- (16) * dem Soldaten hätte ich nicht einmal
the-DAT soldier have-SBJV.PST I NEG PRT
einen Schlaftrunk zu geben gebraucht.
a sleeping.draught to give-INF need-PPP

¹⁵DTA: Grimm, Jacob; Grimm, Wilhelm: Kinder- und Haus-Märchen. Bd. 2. Berlin, 1815. #263.

brauchen – morphosyntactic anomalies: irregular forms

Irregular subjunctive of the past (17); loss of 3S.PRS.IND (18)
cf. Girnth 2000, S. 122–136)

- (17) aber wenn ich dich schon genug kente;
 but if I you already enough know;SBJV.PST
 so **bräucht** ich dich ja nicht zu
 so need;SBJV.PST I you PRT NEG search-INF
 suchen.¹⁶

‘but if I knew you already well enough, so I needn’t
look for you.’

- (18) Sie **brauch-Ø** keine Angst zu haben.
 she need.3S no fear to have-INF

¹⁶DTA: Klopstock, Friedrich Gottlieb: Deutsche Gelehrtenrepublik.
Hamburg, 1774. #234.

Modern English *need* + bare infinitive and *need* with *to*-infinitive

	intr.	NP _{acc/gen}	impers.	fin. clause	dir. PP	to/bare inf. circ.	to/bare inf. epist	TOTAL
<i>need</i> + bare Inf.								
veridical.	-	✓	-	-	-	-	-	
non-veridical	-		-	-	-	✓	✓	
<i>need</i> + <i>to</i> -Inf.								
veridical	-	✓	-	-	-	✓	-	
non-veridical	-	✓	-	-	-	✓	-	

At least from early 19th century two distinct forms (cf. F. Müller 2008, S. 76–80)

1. a NPI with bare infinitive reminiscent of German
 - 1.1 with bare infinitive in circ. interpretation (NPI only, majority all with animate subject referent)
 - 1.2 with bare infinitive in epist. interpretation (NPI only, majority all with animate subject referent)
 - 1.3 exhibiting morphosyntactic anomalies
 - 1.3.1 NICE properties
 - 1.3.2 lack of 3S.IND.PRS -s
 - 1.3.3 lack of past stem

Modern English *need* + bare infinitive and *need* with *to*-infinitive II

	intr.	NP _{acc/gen}	impers.	fin. clause	dir. PP	<i>to</i> /bare inf. circ.	<i>to</i> /bare inf. epist	TOTAL
<i>need</i> + bare Inf.								
veridical.	–	✓	–	–	–	–	–	
non-veridical	–		–	–	–	✓	✓	
<i>need</i> + <i>to</i> -Inf.								
veridical	–	✓	–	–	–	✓	–	
non-veridical	–	✓	–	–	–	✓	–	

At least from early 19th century two distinct forms (cf. F. Müller 2008, S. 76–80)

2. a form with *to*-infinitives predominantly found in affirmative contexts
 - 2.1 with NP_{acc}
 - 2.2 with *to*-infinitives

- (19) þanne ne þarf us noðer gramien ne shamien.¹⁷
then NEG need us neither grieve-INF nor shame-INF
'In that case, we needn't grieve or be ashamed.'

¹⁷Trin. Coll. Hom. 69, 1200 as cited in *OED* online.

need with non-finite clausal complements (NPI)

Circumstantial modal with *to*-infinitives (20), with bare infinitives (21)

(20) Be ye togeder as brethrn both! No man
be.IMP you.PL together as brothers both no man
ye nedith to drede.¹⁸
you.PL need to fear-INF

(21) If wyt myght haue me saued, I neded not
if reason might have me saved I needed NEG
fere.¹⁹
fear-INF

‘If reason could have saved me, there was no need to be afraid.’

¹⁸Sowdone, Bab, 3216, 1400, cited as in OED online.

¹⁹St. Th. More, Wks, *Lamentation 4*, 1 1513, as citet in Visser (1969, S. 1428).

Epistemic uses:

(22) He may be there, but he needn't be.²⁰

(23) He needn't have done it deliberately.²¹

²⁰As cited in Palmer (1990, S. 61).

²¹As cited in Huddleston und Pullum (2002, S. 180)

A second type of uses with infinitives has developed:
to-infinitives, no longer restricted to NPI environment:

(24) I need *(to) get some fresh air.²²

²²As cited in Duffley (1994, S. 225)

Loss of 3S.PRS.IND (25); Loss of PST in English (26) cf. Poutsma (1926, S. 408–409):

- (25) An unpolished man **need-0** not be an ill mannered one.²³
- (26) He told me that I **need-0** not make myself at all uneasy about his daughter's unhappiness

²³1853 LYNCH Self-Improv v. 112, as cited in F. Müller (2008, S. 88–89).

²³Charles Dickens, The personal history of Copperfield, Ch XXXVIII 276 a, as cited in Poutsma (1926, S. 408–409).

need – morphosyntactic anomalies: primary verb negation and subject-auxiliary inversion

Huddleston und Pullum (2002, S. 93, 110), Bolinger (1942):
only a small set of auxiliaries exhibit the NICE properties
(negation, inversion, code, emphasis)

(27) He **needn't** tell her

(28) **Need he** tell her?

- ▶ *need* with bare infinitive takes primary verb negation rather than *do*-support
- ▶ *need* with bare infinitive undergoes subject-auxiliary inversion rather than *do*-support

Data from *Referenzkorpus Altdeutsch*

	intr.	NP _{gen}	impers.	fin. clause	dir. PP	bare inf. circ.	bare inf. epist	TOTAL
veridical	–	–	–	–	–	–	??	
non-veridical	–	–	–	–		23	??	23

- ▶ Attested in a single syntactic pattern, always NPI
 1. with bare infinitive in circumstantial interpretation (almost all with animate subject referent)

- (29) Than scalt thu eft uuord sprekan, hebbean
then shall you again word speak-INF raise-INF
thînaro stemna giuuald; ni tharft thu stum
your-GEN.S voice-GEN power NEG need you mute
uuesan lengron huîla.²⁴
be-INF long time
'Then you will speak words again, rising your voice's power,
you need not keep silent anylonger.'

²⁴DDD-AD-Heliand_1.0 > Hel_03 (edition 97 - 107).

thurban with bare infinitive (circumstantial)

- (30) Bethiu ne thurbon gi umbi
for.that NEG need-2.SBJV.PRS.P 2.NOM.P about
iuua geuâdi sorgon, ne gornot
2.GEN.P cloth-ACC worry-INF NEG lament-IMP.P
gi umbi iuua gegariuui te
2.NOM.P about 2.GEN.P-ACC garment-ACC too
suuîdo: god uuili is alles rãdan,
much god wants 3.N.GEN.S all-N.GEN.S provide-INF
helpan fan hebenes uuange, ef gi
help-INF from heaven-GEN.S field-DAT.S if 2.NOM.P
uulliad aftar is huldi theonon.²⁵
want after 3.M.GEN.S.ACC favour serve-INF
'For that reason, you needn't worry about your cloth, don't
lament your garments too much, God will provide for it and
help you with the heaven's power if you are ready to serve
his will.'

²⁵DDD-AD-Heliand_1.1 > Hel_19 (edition 872–942).

	intr.	NP _{acc}	impers.	fin. clause	dir. PP	te inf. circ.	te inf. epist	TOTAL
veridical	-	-	-	-	-	-	-	
non-veridical	-	✓	✓	-	✓	✓	✓	

- ▶ Attested in 5 syntactic patterns, all of them NPI
 1. with NP_{acc}
 2. impers
 3. with verbless directional Phrase
 4. with *te* infinitive in circumstantial interpretation (almost all with animate subject referent)
 5. with *te* infinitive in epistemic interpretation (almost all with animate subject referent)
- ▶ Exhibiting morpho-syntactic anomalies
 1. IPP
- ▶ Diverse NPI licensing contexts
 1. in the scope of a clause mate/superordinate negation
 2. in interrogatives
 3. in comparatives, equatives

As transitive verb (31)

- (31) Ik hoef *(geen) applesap.²⁶
I need no apple.juice

²⁶As cited in van der Wouden (2001, S. 206)

Dutch *hoeven* with verbless clausal complements (NPI)

With verbless clausal complements (32):

- (32) Morgen hoeven we *(niet) naar school.²⁷
tomorrow need we NEG to school
'Tomorrow, we needn't go to school.'

²⁷As cited in van der Wouden (2001, S. 206)

Acceptable only with *te*-infinitives:

(33) Jan hoeft niet te kommen.²⁸
John need NEG to come

(34) * Jan hoeft niet kommen.²⁹
John need NEG come

²⁸As cited in van der Wouden (2001, S. 206)

²⁹As cited in van der Wouden (2001, S. 206)

Acceptable only with *te*-infinitives (cf. Barbiers 1995, S. 145):

- (35) Jan hoeft die moord niet gepleegt te hebben.³⁰
Jan need DET murder NEG commit-PPP to have-INF
'Jan needn't have committed the murder.'(Dutch)

³⁰As cited in Barbiers (1995, S. 145).

Mandatory IPP, drop of infinitive particle *te* (cf. van der Wouden 2001, S. 206):

- (36) a. Jan had niet **hoeven** komen.³¹
Jan has NEG need-IPP come-INF
'Jan didn't have to come.'
- b. * Jan had niet **gehoeft** te komen.³²
Jan has NEG need-PPP to come-INF

³¹As cited in van der Wouden (2001, S. 206).

Data from *Nordic Dialect Corpus*:³³

	intr.	NP _{acc}	impers.	fin. clause	dir. PP	inf. circ.	inf. epist	TOTAL
veridical	–	–	–	–	–	–	–	
non-veridical	3	–	–	–	–	7 <i>at</i> -inf/5 <i>0</i> -inf	(✓)	15

- ▶ Attested in three syntactic patterns
 1. with NP_{acc} (in *NDC* only in non-veridical environments, but acceptable as distributionally unrestricted)
 2. with *att* and bare infinitive in circumstantial interpretation
 3. with *att* and bare infinitive in epistemic interpretation (no occurrences in the *NDC*, only mentioned in Davidsen-Nielsen 1990, S. 36, 82)

³³Numbers reflect the frequencies in the *NDC*, the symbol (✓) indicates that uses are not attested in the *NDC* but they are reported in grammars, literature or other corpora.

Transitive uses:

- (37) vi behøve Religion, naar vi skulle gaae
we need religion if we should go-INF
Døden i Møde.³⁴
dead-DEF and encounter
'We need the religion in contemplation of death'
Transl. Bjarne Ørsnes

³⁴C. Bastholm (1740-1819). Sørge-Tale ove r Arve-Prindsesse Sophie Friderikke. 1795, p. 16, as cited in ODS.

Danish *behøve* with clausal complements (NPI)

Since 18th century attested with *at*-infinitives (38) and later with bare infinitives (39):

- (38) Det behøver I ikke at frygte for.³⁵
DET need you NEG to fear-INF of
'You (PL) needn't be afraid of that.' Transl. by B. Ørsnes.
- (39) slig Ganger ei behøver Kræfter sanke.³⁶
such horse NEG need strength-PL collect-INF
'Such a horse needn't rest.' Transl. by B. Ørsnes.

³⁵J. L. Heiberg (1791-1860) *Poetiske Skrifter*. I. 1862. S. 230, as cited in ODS

³⁶Adam Oehlenschläger (1779-1850), as cited in ODS Supplement

Danish *behøve* with epistemic clausal complements (NPI)

- (40) Behøver dette overhovedet (at) være sandt?³⁷
need this at.all to be-INF true
'Need this be true at all?'
- (41) Boris behøver ikke have begået denne
Boris need NEG have-INF commit-PPP the
forbrydelse.³⁸
crime
'Boris needn't have committed the crime.'

³⁷As cited in Davidsen-Nielsen (1990, S. 36).

³⁸As cited in Davidsen-Nielsen (1990, S. 82).

Data from the *Nordic Dialect Corpus*:³⁹

	intr.	NP _{acc}	impers.	fin. clause	dir. PP	inf. circ.	inf. epist	TOTAL
<i>behøve</i>								
veridical.	–	3	–	–	–	2 <i>å</i> -inf/1 \emptyset -inf		6
non-veridical	–	8	–	–	3	25 <i>å</i> -inf/27 \emptyset -inf	(✓)	63
<i>treng</i>								
veridical.	–	162	–	–	1	9 <i>å</i> -inf/1 \emptyset -inf		173
non-veridical	–	82	–	–	2	74 <i>å</i> -inf/49 \emptyset -inf	(✓)	205

► Attested in four syntactic patterns

1. with NP_{acc}
2. with verbless directional Phrase
3. with *å* and bare infinitive in circumstantial interpretation
4. with *å* and bare infinitive in epistemic interpretation (not attested in the *NDC*, only in Eide 2005, S. 77–79)

► patterns with clausal arguments predominantly in non-veridical environments, but not exclusively

³⁹Numbers reflect the frequencies in the *NDC*, the symbol (✓) indicates that uses are not attested in the *NDC* but they are reported in grammars, literature or other corpora.

Norwegian *trenger* with verbless clausal complements. (NPI)

- (42) Trenger ikke ut hver dag .⁴⁰
need NEG out each day
'(I) don't need to go out each day.'

⁴⁰<https://www.adressa.no/nyheter/trondheim/article1293848.ece>, example provided by Eide (pers. comm.)

Norwegian *trenger/behøver* with epistemic non-finite clausal complements (NPI)

Only as NPI, particle å is optional:

- (43) Jon trenger/behøver ikke (å) være morderen.⁴¹
Jon need NEG to be-INF murder-DET
'Jon needn't be the murderer.' (Norwegian)

⁴¹As cited in Eide (2005, S. 77–79)

Data from the *Nordic Dialect Corpus*:⁴²

	intr.	NP _{acc}	impers.	fin. clause	dir. PP	bare inf. circ.	bare inf. epist	TOTAL
veridical.	–	21	–	–	–	20		41
non-veridical	–	34	–	–	–	66	(✓)	100

► Attested in two syntactic patterns

1. with NP_{acc} (mostly NPI-like)
2. with bare infinitive in circumstantial interpretation (mostly NPI-like)
3. with bare infinitive in circumstantial interpretation (only in Teleman, Hellberg und Andersson 1999, S. 290–291)

⁴²Numbers reflect the frequencies in the *NDC*, the symbol (✓) indicates that uses are not attested in the *NDC* but they are reported in grammars, literature or other corpora.

From 16th century without negation:

- (44) Herren behöffuer them (dvs. åsninnan o. hennes
sir-DET need them ie donkey-DET and his
fåle).⁴³
foa,
'Our Sir needs them, that is the donkey an its foal.'
Transl. E. Engdahl.

⁴³ *Thet nya testamentit på swensko*. Stockholm, 1526, Mat. 21: 3, cited as in *SAOB*.

From 16th century without negation:

- (45) Jagh troor at Gudh .. besörrier migh .. medh
I believe that God provides me with
klädhe .. och födho och alt thet iagh til timeligh
clothes and food and all that I to earthly
näring behöffuer.⁴⁴
nourishment need
'I believe that God provides me with clothes and food
and everything I need for nourishment on earth.'
Transl. E. Engdahl.

⁴⁴Catechismus eller christeligh kennedom för vngt och eenfaldigt folck ganska nyttigh. Item een liten bönebook. Stockholm, 1572. Kat. 1572, B 1 b. as cited in *SAOB*.

Swedish *behöva* with non-finite clausal complements

From 16th century attested with *ath*-infinitives and bare infinitives without negation (46):

- (46) Ath the (dvs. de hedningkristna) intit sådant
COMP they ie the pagan nothing such
(dvs. den judiska lagen) behöffua ath holla.⁴⁵
ie the Jewish law need to keep
'That they needn't keep such.' Transl. E. Engdahl
- (47) Det som .. behöfde att repareras⁴⁶
the REL need-PST to repair-INF-PASS
'The one which had to be fixed.' Transl. E. Engdahl

⁴⁵*Thet nya testamentit på swensko*. Stockholm, 1526. Apg. 21: 25, cited as in *SAOB*.

⁴⁶G. O. Stenbock (1662) in *Handlingar rörande Skandinaviens historia*. 1-40. Stockholm, 1816–60. 1865: 336 (1662), cited as in *SAOB*.

In present day Swedish only with bare infinitives (cf. Teleman, Hellberg und Andersson (1999, S. 290–291)):

- (48) Det behöver regna snart för att inte grönsakerna
it need rain-INF soon for that NEG vegetables
ska torka bort.⁴⁷
FUT dry-INF from.it
'It must rain soon in order to prevent the vegetables
from withering.'

- ▶ *behöver* with bare infinitives in the *Nordic Dialect Corpus*:
66 in non-veridical/20 in affirmative contexts

⁴⁷Cited as in Teleman, Hellberg und Andersson (1999, S. 290–291)

Swedish *behöva* with epistemic non-finite clausal complements (NPI)

With epistemic interpretation only as NPI (cf. Teleman, Hellberg und Andersson 1999).

- (49) Det behöver inte ha regnat där i
it need NEG have.INF rain-PPP there in
går.⁴⁸
yesterday
'It needn't have rained there yesterday.'

⁴⁸As cited in Teleman, Hellberg und Andersson (1999, S. 290–291)

Data from the *Nordic Dialect Corpus*:⁴⁹

	intr.	NP _{gen}	impers.	fin. clause	dir. PP	að-inf. inf. circ.	að-inf. epist	TOTAL
veridical	–	12	–	–	(✓)	125	–	137
non-veridical		11	–	–	(✓)	74	(✓)	85

- ▶ Attested in syntactic patterns
 1. with NP_{acc}
 2. with verbless directional Phrase
 3. with *að*-inf. infinitive in circumstantial interpretation
 4. with *að*-inf. infinitive in epistemic interpretation
- ▶ But only in NPI licensing contexts (negation, interrogatives)
 1. in the scope of a clause mate negation
 2. in the scope of negation in a superordinate clause
 3. in interrogatives

⁴⁹Numbers reflect the frequencies in the *NDC*, the symbol (✓) indicates that uses are not attested in the *NDC* but they are reported in grammars, literature or other corpora.

- (50) Ég þarf bifvélavirkja (til þess að gera við bílinn
I need car.mechanic to it-GEN to repair mit car
minn)..⁵⁰
mine
'I need a car mechanic to get my car repaired.'

⁵⁰Example and translation by Heimir F. Viðarsson.

With verbless directional phrases (51) and *að*-infinitives

(51) Jón þarf á klóið.⁵¹

John need at toilet

‘John needs to go to the toilet.’

(52) ég þurfti að fara.⁵²

I need-PST to go-INF

‘I had to go.’

- ▶ *þurfa* with *að*-infinitives the *Nordic Dialect Corpus*: 75 in non-veridical/ 125 in affirmative contexts

⁵¹Example and translation by Heimir F. Viðarsson.

⁵²As cited in Einarsson (1949, S. 166)

Only as NPI:

- (53) það þarf ekki að vera satt.⁵³
it need NEG to be-INF true
'It needn't be true.'

⁵³cited as in Thráinsson und Vikner (1995, S. 55), (=14e).

	intr.	NP _{gen}	impers.	fin. clause	dir. PP	bare inf. circ.	bare inf. epist	TOTAL
unrestr.	–	–	–	–	–	?1		
NPI	–	14	–	2	–	1	–	19

- ▶ Attested in 3 syntactic patterns
 1. with NP_{gen}
 2. with finite *ei*-clauses
 3. with bare infinitive in circumstantial interpretation (almost all with animate subject referent)
- ▶ Almost exclusively in well known NPI licensing contexts (15)
 1. scope of a negation (12)
 2. interrogatives (3)
 - ▶ relative clauses (3) (licensing context?)
 - ▶ declarative clause (1)

17 instances of *þaurban*

- ▶ **polarity:**
 - ▶ 13 from non-veridical environments
 - ▶ 4 from relative clauses
- ▶ **argument-structure:** 13 with NP_{gen}, 2 with bare infinitives, 2 with finite clauses
 - ▶ 13 with NP_{gen}
 - ▶ 2 with bare infinitives
 - ▶ 2 with finite clauses

With genitive NPs:

- (54) ip lesus gahausjands qaþ du im:
if Jesus PRFV-hear-PTCP.PRS-NOM spoke to them
ni þaurbun hailai lekeis, ak þai
NEG need-3P healthy-NOM doctor-GEN but the-NOM
unhaili habandans. .⁵⁴
ailment-ACC have-PTCP.PRS.P.NOM
‘As Jesus heard that, he spoke onto them: It is not the
healthy ones who need a doctor but the ill ones.’

⁵⁴ *Wulfila Bible Codex Argenteus*, Matthias 9:12, cited as in *Wulfila Project*.

With negation:

- (55) nu witung ei þu kant alla,
now know-1P COMP you can-2S everything-ACC.P
jah ni þarft [ei þuk hvas raihna; bi
and NEG need-2S COMP you-ACC who ask by
þamma galaubjam þatei þu fram guda urrant.].⁵⁵
that PRF-believe-1P that you from God come-
'Now we know that you know everything and that you
needn't be asked. That is why we believe that you
came from God.'

⁵⁵ *Wulfila Bible Codex Argenteus*, Johannes 16:30, cited as in *Wulfila Project*.

With negation (56):

- (56) appan bi broþrulubon ni þaurbum meljan
but by brother.love-DAT NEG need-1P write-INF
izwis, unte silbans jus at guda
you-DAT.P because self-NOM.P her to God-DAT.S
uslaisidai sijup du frijon
educate-PTCP.PST.NOM.P be.2P to love-INF
izwis misso.⁵⁶
izwis.ACC.P each.other
‘About the brother love, I needn’t write you; God has
already taught you how to love each other.’

⁵⁶ *Wulfila Bible Location: Codex Ambrosianus B, Thessalonicher I 4:9, as cited in Wulfila Project.*

... and without negation (57):

- (57) jah dugunnun suns faurqipan allai. sa
and begin-PST-3S suddenly forgive-INF all-NOM the
frumista qap: land bauhta jah
first.M.NOM.S spoke land-ACC buy-PST-1S and
þarf galeipan jah saihvan þata; bidja
NEED.1S PRF-go-INF and see-INF it.ACC beg-1S
þuk, habai mik faurqipanana.⁵⁷
you.ACC have-IMP2.S me forgive-PTCP.PST.ACC
'And all of a sudden everybody began to apologize.
The first on spoke: I bought land and I need to go to
take a look at it. I ask you to excuse me.'

⁵⁷ *Wulfila Bible Codex Argenteus*, Lukas 14:18, cited as in *Wulfila Project*.

NPI vs. distributionally unrestricted ‘need’ verb uses in Germanic

	intrans	trans	impers.	fin. clause	dir. PP	inf. circ.	inf. epist
Goth. <i>þaurban</i> + bare Inf.	–	NPI	–	NPI	NPI	NPI	–
O. Sax. <i>thurban</i> + bare Inf.	–	–	–	–	NPI	NPI	–
O. Eng. <i>þurfan</i> + bare Inf.	–	?NPI	–	–	–	NPI	–
O. H. Ger. <i>thurfan</i> + bare Inf.	NPI	NPI	–	–	NPI	NPI	–
M. H. Ger. <i>thurfan</i> + bare Inf.	NPI	NPI	–	–	NPI	NPI	–
Mod. Dt. <i>hoeven</i> + <i>te</i> -Inf.	–	NPI	NPI	–	NPI	NPI	NPI
Mod. Ger. <i>brauchen</i> + (<i>zu</i>)-Inf.	–	unrestr.	unrestr.	NPI	NPI	NPI	NPI
Mod. Dan. <i>behøve</i> + (<i>at</i>)-Inf.	–	unrestr.	–	–	–	NPI	NPI
Mod. Eng. <i>need</i> + bare Inf.	–	unrestr.	–	–	–	NPI	NPI
Mod. Nor. <i>trengje</i> + bare Inf.	–	unrestr.	–	–	–	NPI	NPI
Mod. Den. <i>behøve</i> + bare Inf.	–	unrestr.	–	–	–	NPI	NPI
Mod. Swe. <i>behöva</i> + bare Inf.	–	unrestr.	–	–	–	unrestr.	NPI
Mod. Isl. <i>þurfa</i> + <i>að</i> -Inf.	–	unrestr.	–	–	(unrestr.)	unrestr.	NPI
Mod. Nor. <i>behøve</i> + <i>å</i> -Inf.	–	unrestr.	–	–	–	unrestr.	–
Mod. Nor. <i>trengje</i> + <i>å</i> -Inf.	–	unrestr.	–	–	–	unrestr.	–
Mod. Engl. <i>need</i> + <i>to</i> -Inf.	–	unrestr.	–	–	–	unrestr.	–

Kangasniemi (1992, S. 80–81, 353–356):

- ▶ Finnish *tarvita* has a complex use spectrum too:
 1. transitive verb (non-npi)
 2. circumstantial modal verb (npi)
 3. epistemic modal verb (npi)
- ▶ loss of personal inflection (influence from *pitää*, cf. Saukkonen)
- ▶
- ▶ epistemic uses are rare but attested in corpora
- ▶ loan word from Germanic

- (58) Ruotsissa on kuulemma
Sweden-INA be-3S according.to.what.i.have.heard
kuusi uimarantaa, joissa ei tarvita
six beach-PAR REL-P-INE no-3S need
uimahousujen yläosia.⁵⁸
swimsuit-P-GEN upper.part-P-PAR
'I hear that there are six beaches in Sweden on which
one does not need the upper part of one's swimsuit.'

⁵⁸FCI cAU 3308801, as cited in Kangasniemi (1992)

- (59) Kun matkustatte Suomeen tai Suomessa
when travel-2P Finland-ILL or Finland-INE
teidän ei tarvitse ajatella miten
you-GEN NEG.DET.3S need-NEG think how
atkanne sujuu parhaiten. Me ajattelemme
journing-2P go-3S best we think-1P
puolestanne.⁵⁹
on-behalf-of-2P
- ‘When you travel to Finland or in Finland, you need not think how your journey will go best. We will do the thinking for you.’

⁵⁹M&N ADV 2206202, as cited in Kangasniemi (1992, S. 80–81)

- (60) Se voi ollak kyllä/ uskonnollinen ajatus/ mutta
it may-3S be well religious thought but
sen ei tarvitse olla kristillinen.⁶⁰
it-GEN NEG.DET-3S need-NEG be Christian
'It may well be/ a religious thought/ but it need not be
a Christian one.'

⁶⁰RAD REL 7509205, as cited in Kangasniemi (1992, S. 192)

Richter und Soehn (2006): NPIs may differ with respect to three dimensions

1. strength of licenser Zwarts (1996) und Zwarts (1997)
 - 1.1 anti-morphic (superstrong)
 - 1.2 anti-additive (strong)
 - 1.3 downward entailing (weak)
 - 1.4 question conditional comparative operator
 - 1.5 imperative operator
2. licensing domain
 - 2.1 same NP/same AdvP (*überhaupt*)
 - 2.2 same clause
 - 2.3 same utterance (allowing licenser in superordinate clause)
3. additional collocational restrictions
 - 3.1 conditions on extraction
 - 3.2 conditions on lexical collocates
 - 3.3 scope intervention conditions

Negative Polarity in HPSG: *brauchen*

PHON	\langle brauχŋ \rangle
SYNSEM	$\left[\begin{array}{l} \text{LOCAL} \left[\begin{array}{l} \text{CAT HEAD} \textit{verb} \\ \text{CONT MAIN} \boxed{1} \textit{scheren}' \end{array} \right] \end{array} \right]$
COLL	\langle $\left[\begin{array}{l} \textit{complete-utterance} \\ \text{LF-LIC} \left[\text{EXC} \textit{quest-cond-comp-op} (\boxed{1}) \right] \end{array} \right], \dots \rangle$

- ▶ LF-LIC determines minimum strength of licenser
- ▶ Type of elements in COLL value list determines size of licensing domain
- ▶ COLL may accomodate further collocational constraints
- ▶ Flexible analysis of variation among NPIs
- ▶ Necessary to capture different licensing conditions for 'need' verbs in each Germanic language

Licensers of *brauchen* need and *hoeven*

van der Wouden (2001)

licenser	<i>need</i>	<i>brauchen</i>	<i>hoeven</i>
negation	✓	✓	✓
superordinate negation	✓	✓	✓
<i>without(-to)-</i> infinitives	n.a.	✓	✓
semi-negatives	✓	✓	✓
only	✓	✓	✓
in restrictor of \forall	✓	(✓)	✓
comparative clauses	✓	✓	✓
after superlatives	✓	✓	✓
irreal equative infinitives with <i>too</i>	n.a.	✓	✓
questions	✓	✓	*
in subjunctive clauses	✓	✓??	*
in <i>before</i> -clauses	✓	no ex.	?
in concessive clauses	✓	no ex.	*
in antecedent of conditionals	✓	*	*

Licensing conditions: Questions

van der Wouden (2001): Questions license negative polar 'need' verbs in English and German, but not in Dutch:

(61) Need we say more?

(62) Brauchen wir noch weiter (zu) reden?
need we yet more to talk

(63) Was brauchen Sie Mitleiden mit ihm zu haben?⁶¹
What need you pity with him to have
'What need you pity him?'

(64) * Hoef ik meer te zeggen?
need I more to say

- ▶ In recent time, *hoeven* was still acceptable in rhetoric questions

⁶¹DTA: [Richardson, Samuel]: Clarissa. Bd. 2. Göttingen, 1748. #220.

Licensing Conditions: Antecedents of Conditionals

Antecedents of conditionals license negative polar 'need' verbs in English but not in Dutch. In German marginally acceptable.

(65) If you need borrow money at all, borrow as little as possible

(66) * Als je al geld hoeft te lenen, leen zo min
if you at.all money need to borrow borrow as little
mogelijk
possible

(67) ? WENN Du Geld zu (schon) leihen brauchst,
if you money to borrow need then
dann leihe so wenig wie möglich.⁶²
borrow as little as possible

⁶²Example JM

BUT!! Licensed in *wenn*-clefts:

- (68) Wenn einer Angst zu haben braucht, dann Du!⁶³
if anybody fear to have need than you
'If there is anybody who should be afraid, it is you.'

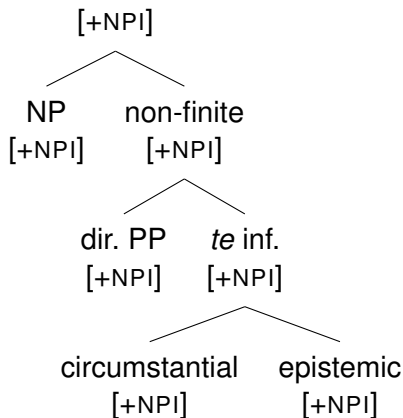
⁶³Example JM

Structure of lexicon entries

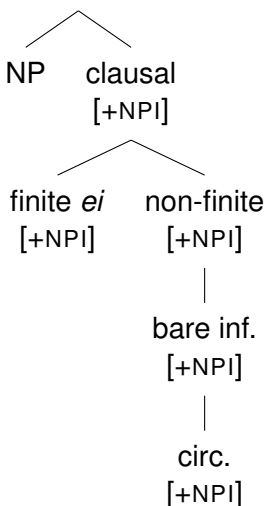
- ▶ How can one explain the distribution of negative polar uses of ‘need’ verbs?
- ▶ Depending on the language, only a subset of ‘need’ verb uses NPIs, the rest is distributionally unrestricted
- ▶ Two solutions:
 - ▶ NPI-hood as lexical feature or some lexical specification (cf. Richter und Soehn 2006)
 - ▶ NPI-hood as pragmatical inference on expressions that describe upper or lower ends of scales (cf. Israel 1996, Israel 2011)
- ▶ **Assumption here:** there has to be some specification for each single use
- ▶ Israel’s account does not explain why eg. Danish *behøver* is distributionally unrestricted as transitive verb, but an NPI as verb with non-finite complements.

Structure of lexicon entries I

Dutch *hoeven*

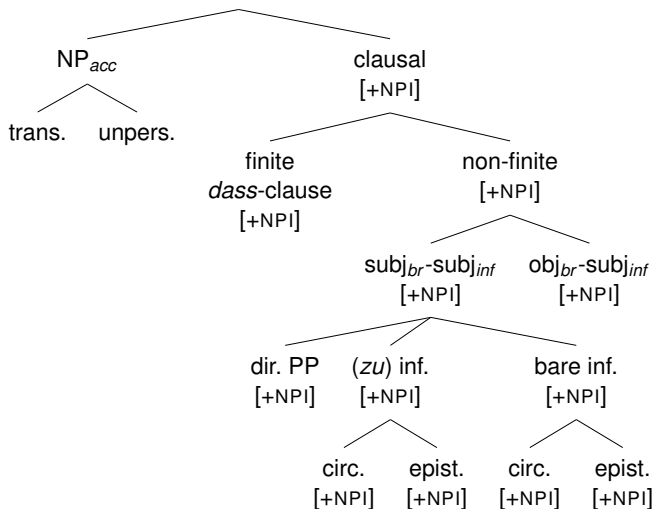


Gothic *þaurban*



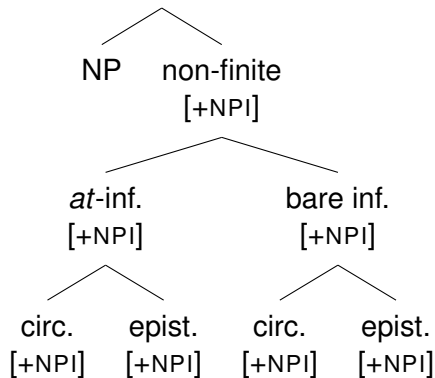
Structure of lexicon entries II

German *brauchen*

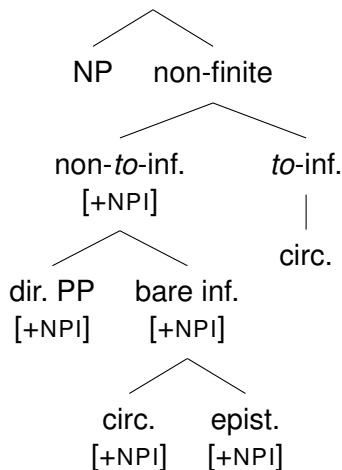


Structure of lexicon entries III

Danish *behøve*

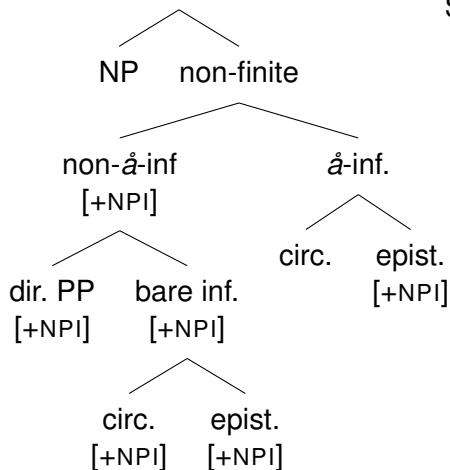


Engl. *need*

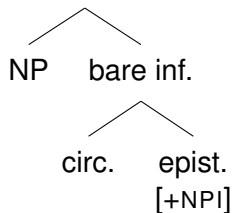


Structure of lexicon entries IV

Norwegian *trengje/behøve*

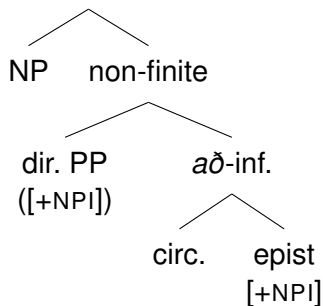


Swedish *behöver*



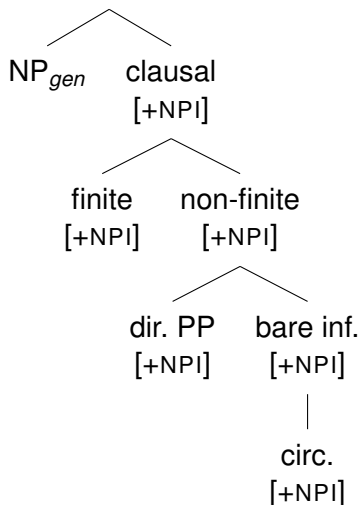
Structure of lexicon entries V

Icelandic *þurfa*



Structure of lexicon entries VI

ProtoGermanic **þurban*

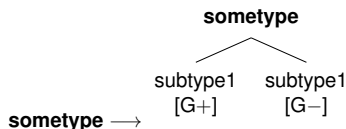


- ▶ Lin, Weerman und Zeijlstra (2015), Lin (2016), Lin, Weerman und Zeijlstra (2017): transitive ‘need’ verbs acquired before uses with infinitives
- ▶ Doitchinov (2007), Cournane (2014), Hacquard und Cournane (2016): circumstantial modality acquired before epistemic modality
- ▶

Type Differentiation

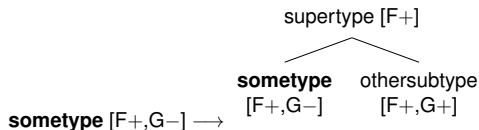
Green 2011, sec. 3: acquisition of structures with subtypes via *type differentiation*

1. acquisition of new subtypes based on a known supertype (top down, deductive learning)



- ▶ discovering a yet unnoticed difference between known objects of a certain type

2. acquisition of a reconstructed super type, by revising the value of an attribute (bottom up, inductive learning)



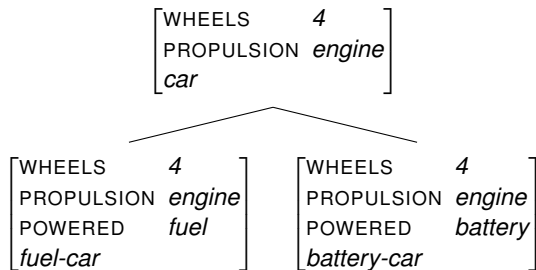
- ▶ reconstructing a new super type by abstracting over a feature of a already known type of objects

Type differentiation (top down)

WHEELS	4
PROPULSION	<i>engine</i>
<i>car</i>	

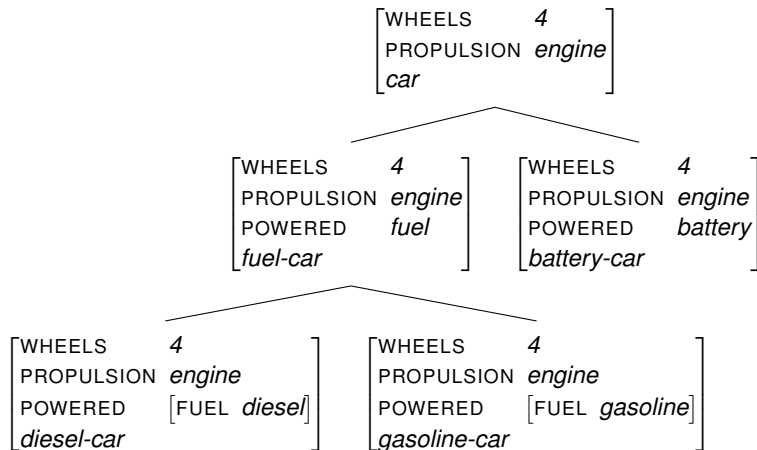
- ▶ learner makes revisions about the super type too
- ▶ assumes a underspecified feature of some property which was considered irrelevant at previous stage

Type differentiation (top down)



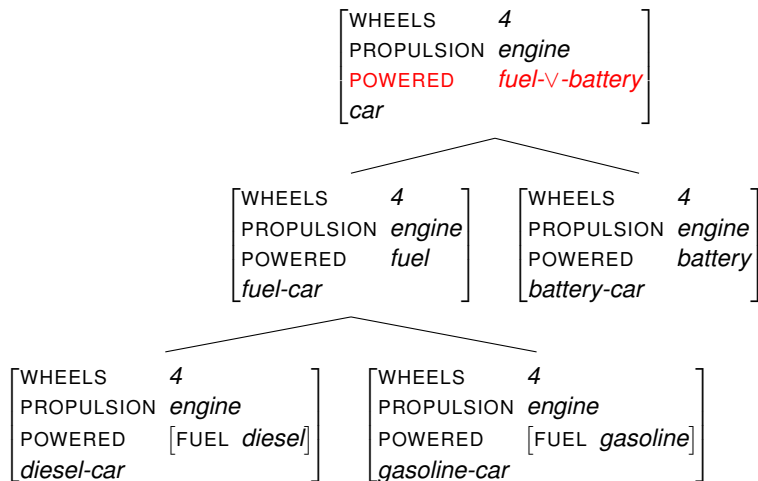
- ▶ learner makes revisions about the super type too
- ▶ assumes a underspecified feature of some property which was considered irrelevant at previous stage

Type differentiation (top down)



- ▶ learner makes revisions about the super type too
- ▶ assumes a underspecified feature of some property which was considered irrelevant at previous stage

Type differentiation (top down)



- ▶ learner makes revisions about the super type too
- ▶ assumes a underspecified feature of some property which was considered irrelevant at previous stage

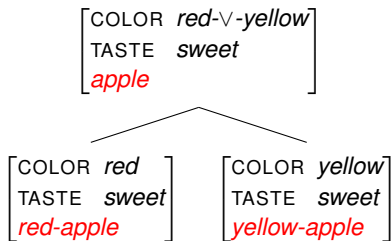
Type differentiation (bottom up)

[COLOR *red*
TASTE *sweet*
apple]

▶ 1

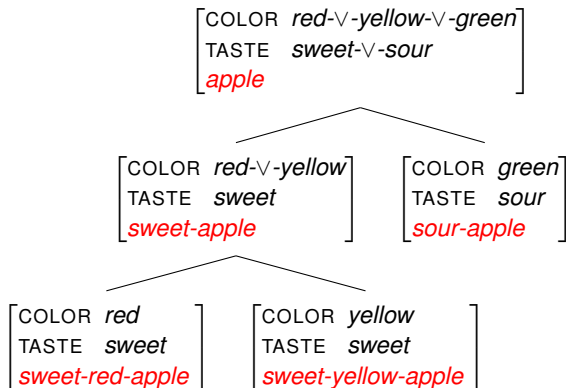
▶ 2

Type differentiation (bottom up)



- ▶ 1
- ▶ 2

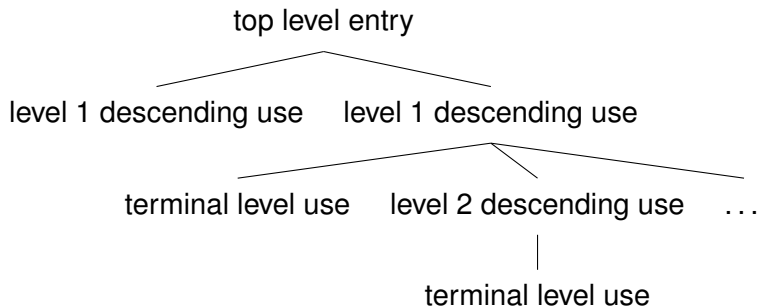
Type differentiation (bottom up)



► Main mechanisms:

- assumption of supertypes with underspecified features
- revision of types

Terminology

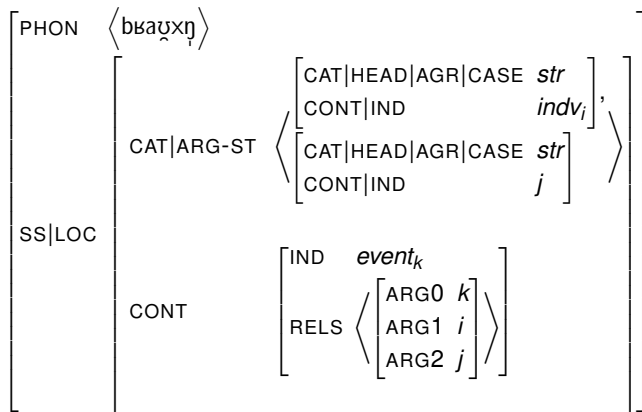


- ▶ **top level entry:** highest level use with full phonological specification
- ▶ **level n entry:** use that has a mother with full phonological specification
- ▶ **terminal level use:** use that has no daughters
- ▶ **use spectrum:** a tree that has a top level entry as its top and each branch and that has only branches that end as terminal level uses

Based on previous work:

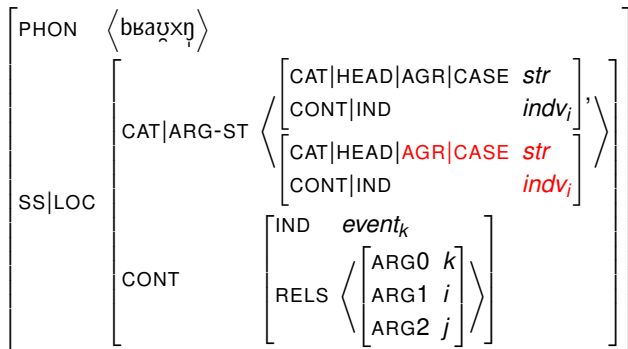
- ▶ transitive verbs in German cf. S. Müller (2002), S. Müller (2013)
- ▶ control verbs in German cf. S. Müller (2002), S. Müller (2013, S. 280–281)
- ▶ raising verbs in German cf. S. Müller (2002), S. Müller (2013, S. 277–280)
- ▶ minimal recursion semantics, situation semantics Pollard und Sag (1994), Copestake u. a. (2005)
- ▶ circumstantial modal verbs as event modifier cf. Maché (2013)
- ▶ epistemic modal verbs as speech event modifier cf. Hacquard (2006)

Stage 1: opaque transitive verb



- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ *brauchen* takes a NP argument with structural case as SUBJ
 - ▶ and another NP argument with structural case as DOBJ
- ▶ Semantic information: referent of ARG2 marked as opaque object

Stage 1: opaque transitive verb

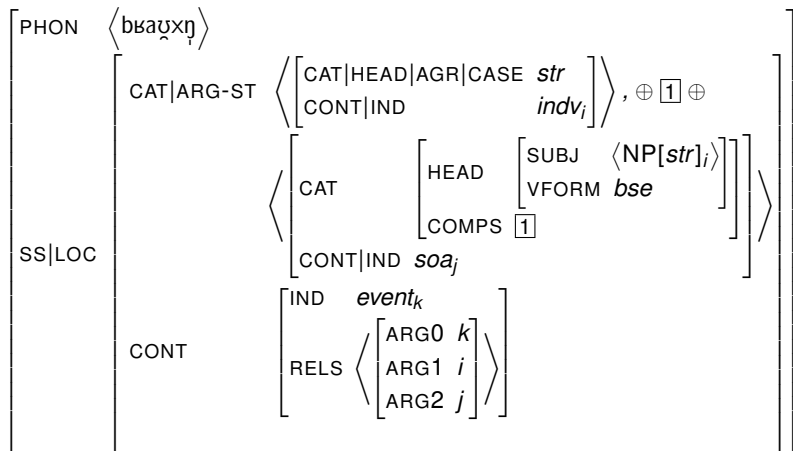


- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ *brauchen* takes a NP argument with structural case as SUBJ
 - ▶ and another NP argument with structural case as DOBJ
- ▶ Semantic information

Transition 1: Opaque transitive verb → circumstantial control verb

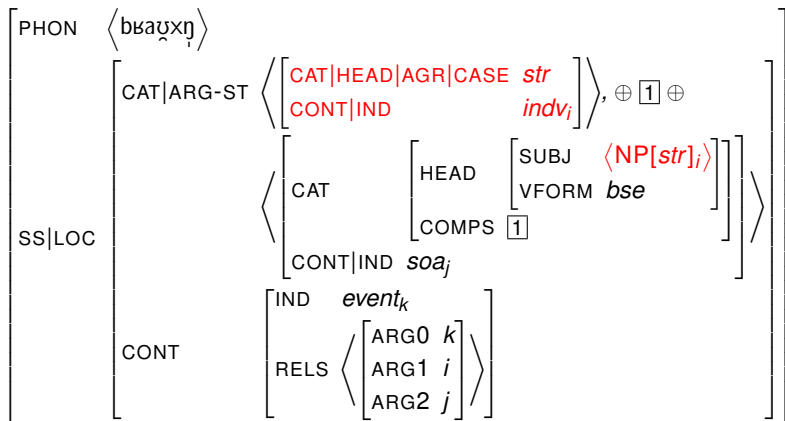
- ▶ As long as there is only evidence for an analysis as a transitive verb in the input data: L1 learner tends to analyze verb as transitive
 - ▶ accusative article/adjective
 - ▶ accusative ending in weak masculine declination *-en*
- ▶ To be tested: is there an increase of deverbal nouns (nominalized infinitives, *-ung*-derivations, ...)?
- ▶ Or a decrease in objects with articles??

Stage 2: Circumstantial control verb



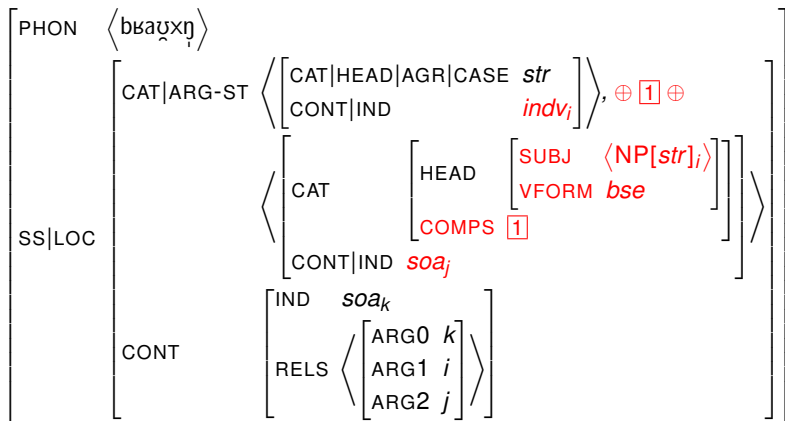
- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ *brauchen* takes a NP argument with structural case as SUBJ
 - ▶ and another infinitive complement whose REFERENTIAL SUBJ is correferent with the matrix SUBJ

Stage 2: Circumstantial control verb



- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ *brauchen* takes a NP argument with structural case as SUBJ
 - ▶ and another infinitive complement whose **referential SUBJ** is coreferent with the **matrix SUBJ**

Stage 2: Circumstantial control verb

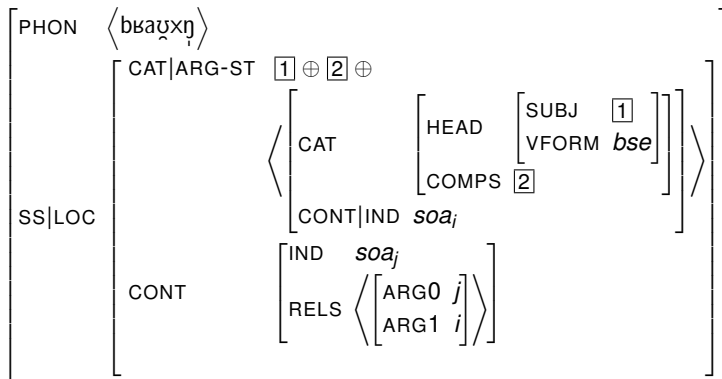


- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ *brauchen* takes a NP argument with structural case as SUBJ
 - ▶ and another infinitive complement whose referential SUBJ is coreferent with the matrix SUBJ

Transition 2: Circumstantial control verb \Rightarrow circumstantial raising verb

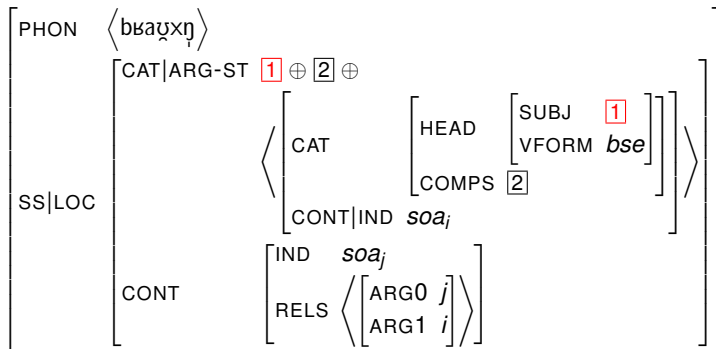
- ▶ As long as there is only evidence for control verb in input data: L1 learner tends to analyze verb as control verb
 - ▶ animate/agentive/referent noun phrase
- ▶ DTA corpus: steady increase of inanimate subjects from 1700: necessary for L1-learner to trigger reanalysis

Stage 3: Circumstantial raising verb



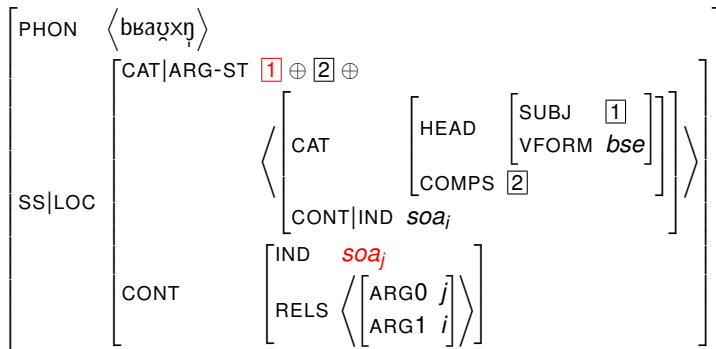
- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ and another infinitive complement whose SUBJ is coreferent with the matrix SUBJ

Stage 3: Circumstantial raising verb



- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ and another infinitive complement whose **SUBJ** is coreferent with the **matrix SUBJ**

Stage 3: Circumstantial raising verb

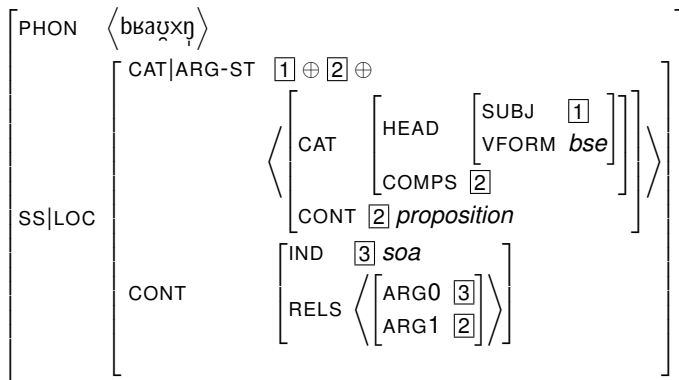


- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ and another infinitive complement whose SUBJ is coreferent with the matrix SUBJ

Transition 3: Circumstantial raising verb \Rightarrow epistemic modal verb

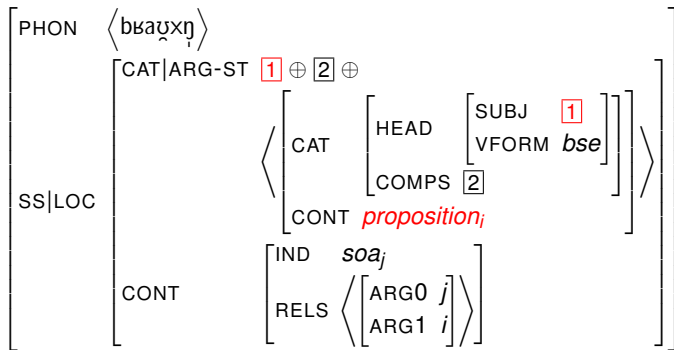
- ▶ As long as there is only evidence for circumstantial raising verb in input data: L1 learner tends to analyse verb as a circumstantial raising verb
 - ▶ embedded verb denotes a clearly temporally limited event
- ▶ To be investigated: Is there an increase of stative complements???

Stage 4: Epistemic raising verb



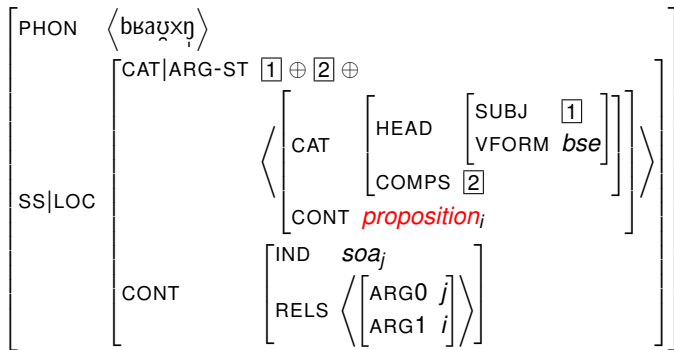
- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ *brauchen* takes a NP infinitive complement whose SUBJ is coreferent with the matrix SUBJ
 - ▶ modal operator modifies message type *proposition*, some higher presentation of VP like S (cf. Ginzburg und Sag 2000, S. 26, 42–46)?

Stage 4: Epistemic raising verb



- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ *brauchen* takes a NP infinitive complement whose **SUBJ** is coreferent with the matrix SUBJ
 - ▶ modal operator modifies message type *proposition*, some higher presentation of VP like S (cf. Ginzburg und Sag 2000, S. 26, 42–46)?

Stage 4: Epistemic raising verb



- ▶ Syntactic information of a sign is stored in the attribute CAT
 - ▶ *brauchen* takes a NP infinitive complement whose **SUBJ** is coreferent with the matrix SUBJ
 - ▶ modal operator modifies message type *proposition*, some higher presentation of VP like S (cf. Ginzburg und Sag 2000, S. 26, 42–46)?

- ▶ Lin, Weerman und Zeijlstra (2015), Lin (2016), Lin, Weerman und Zeijlstra (2017): transitive ‘need’ verbs acquired before uses with infinitives
- ▶ Doitchinov (2007), Cournane (2014), Hacquard und Cournane (2016): circumstantial modality acquired before epistemic modality
- ▶ Green (2011): L1-Acquisition is branching of lexicon entries adding more feature specification to their daughters

Opaque trans. verb \Rightarrow circ. control verb

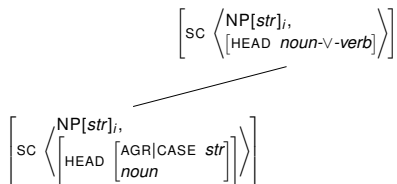
$$\left[\text{SC} \left\langle \left[\text{NP}[\text{str}]_i, \right. \right. \right. \\ \left. \left. \left. \left[\text{HEAD} \left[\text{AGR} | \text{CASE} \text{ str} \right] \right] \right] \right\rangle \right]$$

1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input
- 2.
- 3.
- 4.

$$\left[\text{SC} \left\langle \begin{array}{l} \text{NP}[\text{str}]_i, \\ [\text{HEAD } \textit{noun-V-verb}] \end{array} \right\rangle \right]$$

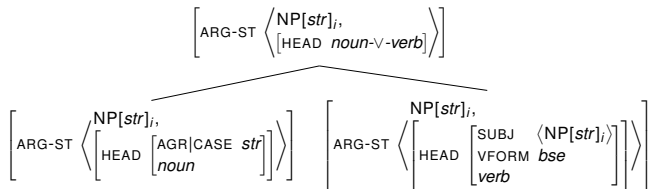
1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input
2. Due to increasing number of ambiguous input, L1 makes a new assumption about the mother node, dismissing its specification for the HEAD-feature
- 3.
- 4.

Opaque trans. verb \Rightarrow circ. control verb



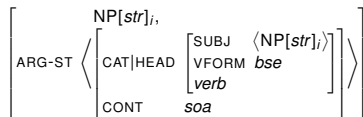
1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input
2. Due to increasing number of ambiguous input, L1 makes a new assumption about the mother node, dismissing its specification for the HEAD-feature
3. original target use becomes only one variant among others
- 4.

Opaque trans. verb \Rightarrow circ. control verb



1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input
2. Due to increasing number of ambiguous input, L1 makes a new assumption about the mother node, dismissing its specification for the HEAD-feature
3. original target use becomes only one variant among others
4. L1-learner starts to use lexical item in an innovative way

Circ. control verb \Rightarrow circ. raising verb



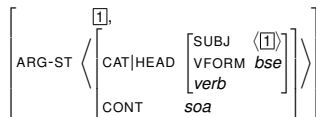
1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input

2.

3.

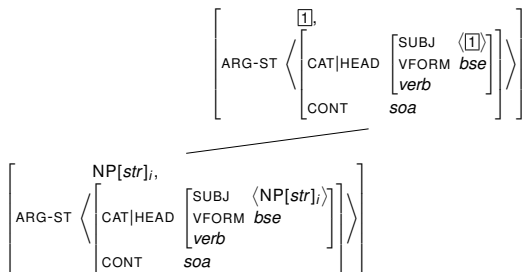
4.

Circ. control verb \Rightarrow circ. raising verb



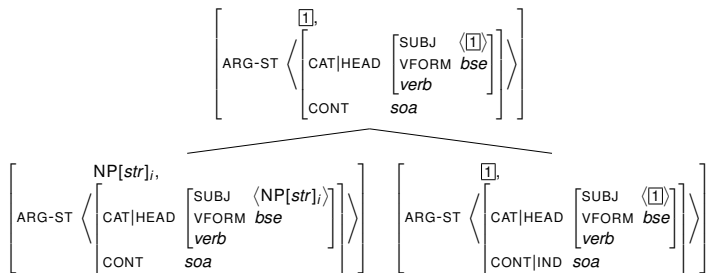
1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input
2. Due to increasing number of ambiguous input, L1 makes a new assumption about the mother node, dismissing its specification for the ?? feature
- 3.
- 4.

Circ. control verb \Rightarrow circ. raising verb



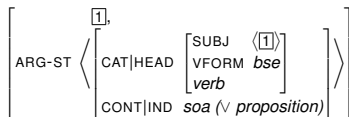
1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input
2. Due to increasing number of ambiguous input, L1 makes a new assumption about the mother node, dismissing its specification for the ?? feature
3. original target use becomes only one variant among others
- 4.

Circ. control verb \Rightarrow circ. raising verb



1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input
2. Due to increasing number of ambiguous input, L1 makes a new assumption about the mother node, dismissing its specification for the ?? feature
3. original target use becomes only one variant among others
4. L1-learner starts to use lexical item in an innovative way

Circ. raising verb \Rightarrow epist. raising verb



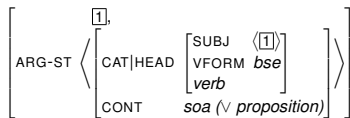
1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input

2.

3.

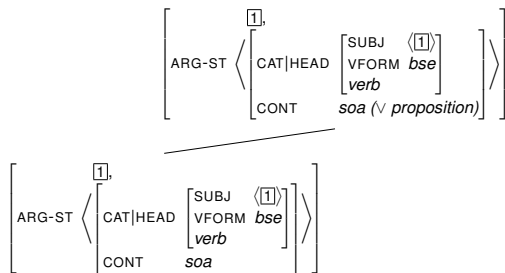
4.

Circ. raising verb \Rightarrow epist. raising verb



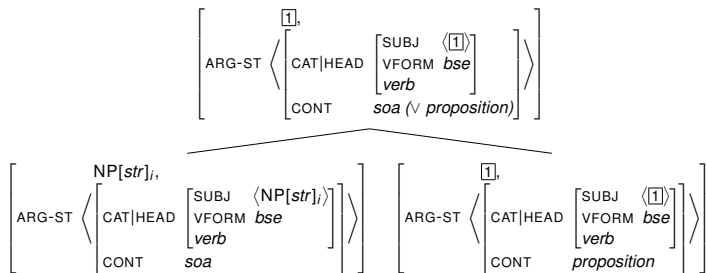
1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input
2. Due to increasing number of ambiguous input, L1 makes a new assumption about the mother node, dismissing its specification for the IND-feature
- 3.
- 4.

Circ. raising verb \Rightarrow epist. raising verb



1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input
2. Due to increasing number of ambiguous input, L1 makes a new assumption about the mother node, dismissing its specification for the IND-feature
3. original target use becomes only one variant among others
- 4.

Circ. raising verb \Rightarrow epist. raising verb

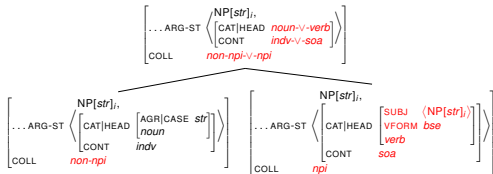


1. L1-learner assumes lexicon entry in accordance with most frequent unambiguous form in input
2. Due to increasing number of ambiguous input, L1 makes a new assumption about the mother node, dismissing its specification for the IND-feature
3. original target use becomes only one variant among others
4. L1-learner starts to use lexical item in an innovative way

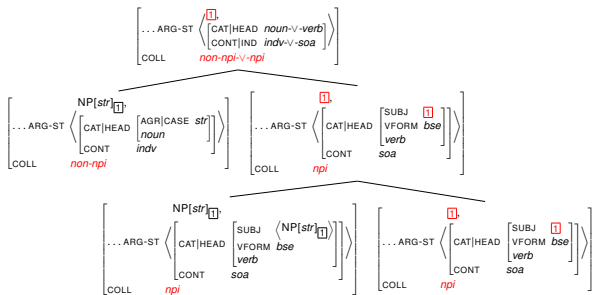
Acquisition of German *brauchen* – stage 1

$$\left[\begin{array}{l} \dots \text{ARG-ST} \left\langle \begin{array}{l} \text{NP}[\text{str}]_i \\ \left[\begin{array}{l} \text{CAT|HEAD} \left[\begin{array}{l} \text{AGR|CASE} \text{ str} \\ \text{noun} \end{array} \right] \right] \\ \text{CONT|IND} \text{ indiv} \end{array} \right] \end{array} \right\rangle \\ \text{COLL} \quad \text{non-npi} \end{array} \right]$$

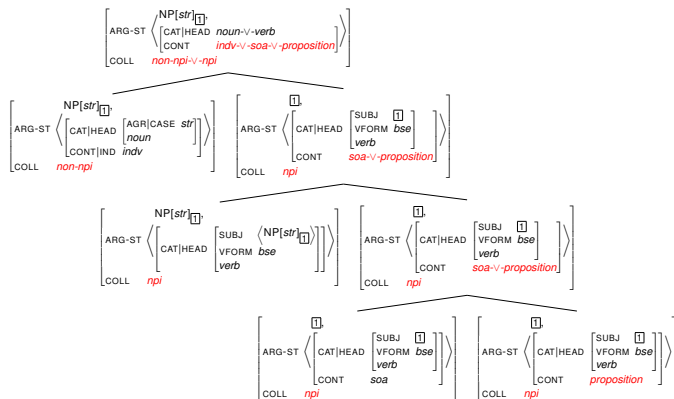
Acquisition of German *brauchen* – stage 2



Acquisition of German *brauchen* – stage 3



Acquisition of German *brauchen* – stage 4



Generalisation

If a learner acquires a use of lexical item that is NPI, all the further uses which descend from that use inherit its COLL value

The End



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