

# 1. ARTIHKAL/ARTICLE I:

Muohtatearpmaid sisdoallu ja geavahus. *Sámi dieđalaš áigečála*. 2/2010. s. 3-24.

Translated to English:

**Sámi Snow Terminology - Meaning and Usage.**

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# Muohtatearpmaid sisdoallu ja geavahus

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Sámi allaskuvla

## 1. Álggahus

Sámegielas lea rikkis luonddudilleterminologijja, earenoamážit muohttaga ja bohcco birra (Magga 2006: 26). Sámi boazodoallu adno dávjá ovdamearkan fágasuorggis mas lea dárkilis fágaterminologijja (Helander 1997: 22) ja muohtaterminologijja lea spesialiserentendeanssa ovdamearkan sámegielas (Nielsen 1947: 45; Jernsletten 1994: 235). Go áigu čilget makkár muohta lea, de leat sámegielas ollu doahpagat fállon mat čilgejit iešguđetge lágán muohtašlájaid iešguđet fáktoriid ektui. Ealát<sup>1</sup>-prošeavtta dutkamis leat dássázii registreren badjel 300 davvisámegiela doahpaga muohttaga birra.

Sápmelaččat leat eallán luonddus ja dainna maid luondu lea addán ja leat otnázii nagan doalahit stuora osiid duhájtahkásaš árbevieruin bivdoálbmogin ja árbevirolaš máhtu dálkki ja dálkkádaga birra, luonddu ja elliid birra. Bivdu, guolásteapmi ja boazodoallu leat leamaš vuodđoealáhusat maid haga ii livčče leamaš birgejupmi. Dain eallinvugiin lea sámegiella ovdánan ja dan dihte lea dieđusge rikkis sániide mat gusket luonddu dáhpáhusaide. Sámi vuodđoealáhusain lea sámegiella olu ain bissume bargo- ja fágagiellan (Helander 1997: 22). Sámegiela terminologijja historjjálaš duogáš lea guovttesuorat, namalassii ođđa ráhkaduvvon tearpmat ja tearpmat mat leat sámi árbevirolaš vuodđoealáhusaid gielas. Dát fágagiella speadjalastá boazodoalu fágamáhtu, mii addá vuodđoeavttuid árvoštallamii movt boazodoallu vuogádahkan hálddaša bohcco, eatnamiid ja olbmuid ovttasdoaimama.

Israel Ruong lei okta vuosttažiin gii čilgii muohttaga rolla boazodoalus, ja dan son dagai ekologalaš perspektiivvas (Ruong 1964). Muhto ovdal dan, 1900-logu álgogeahčen, čilgii Konrad Nielsen iežas grammatihkka- ja sátnegirjjiin oalle dárkilit davvisámegiela muohtaterminologijja mánga informántta bokte (Nielsen 1979 (1932–1962)). Jagiid 1976–1977 ráhkadedje E. Østby, I. Mysterud, N. Jernsletten ja N. I. Eira sámegiela várdosa muohtaterminologijas mas ovdanbukte

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1 Ealát-dutkan: *Reindeer Herders Vulnerability Network Study: Reindeer pastoralism in a changing climate*. Sámi allaskuvla, Guovdageaidnu.

barggu funkšunealla sekveansaanalysa ja syklusaskoviid. Jernsletten ja Eira čokkiiga davvisámegiela sániid Konrad Nielsena sátnegirjjiis mii almmuhuvvui 1926:s ja jearahalaiga sápmelaččaid dáid ektui. Jearahallamat ledje sámegillii maid maŋnil jorgaledje dárogillii. (Østby et al. 1976.) 1981 čálii Svonni Leavas-sámegiela dálke- ja muohtaterminologijja birra Upmi universitehtas (Svonni 1981). Juho-Niillas almmuhii jagis 1994 ekologalaš várdosa davvisámegiela muohta- ja jiekŋadilálašvuodain; dán artihkkala vuodđu lei dutkanbargu mas Juho-Niillas lei mielde 1976–1977:s (Jernsletten 1994). Maiddái Nils Isak Eira almmuhii jagis 1994 girjji sámi boazodoalu birra, mas okta kapihtal lea muohttaga birra boazodoalu ektui (Eira 1994). Ole Henrik Magga čálii artihkkala engelasgillii sámegiela terminologijja birra, mas maiddái muohtaterminologijja namuhuvvui (Magga 2006). Jagis 2007 almmuhuvvui girjji mii čilge julevsámegiela muohtadoahpagiid ruotagillii (Ryd 2007). Sámi Ealáhus- ja Guorahallanguovddáš almmuhii jagis 2009 unna girjjáža masa leat čohkken muohtasániid oktan definišuvnnaiguin mánáid várás (Porsanger et al. 2009).

Dán artihkkalis guorahallat muhtun davvisámegiel muohtadoahpagiid ja -tearpmaid semantihka ja geavahusa, dáid definišuvdnavuoduid ja saji gielas. Dás deatuhit earenoamážit muohtadoahpagiid maiguin čilgejuvvojit ja gaskkustuvvojit bohcco guohtunvejolašvuodát muohtamáilmmis. Artihkkala ulbmil lea govvidit ja digaštallet árbevirolaš muohtaterminologijja ja dan geavahusa. Muohtadoahpagiid suokkardallamis ii leat dieđus sáhka ođđa ráhkaduvvon sániid birra, muhto sániid birra mat leat leamaš árgabeaivválaš anus, ja mat áiggi mielde leat ožžon spesialiserejuvvon sisdoalu (Jernsletten 1994: 235). Dán artihkkala vuodđomateriála leat jearahallamat (báddemat ja transkripsuvnnat) maid Ceavvi-prošeakta<sup>2</sup> dássáži lea čađahan. Informánttat ledje badjel 60 jagi go jearahallojuvvojedje.

## 2. Boazodoalu vuodđoeavttut ja muohttaga rolla

Boazodoalu vuodđoeavttut leat bohccot, duovdagat ja olbmot. Boazu galgá oažžut doarvái biepmu, láktasa, suoji ja lihkanvejolašvuoda, earret eará bálgamii, luodus. Olbmo oassi lea áittardit sihke ovttaskasbohcco ja ealu nu ahte bohcco dárbbut devdojuvvojit. Dat máksá ahte ferte láchit bohccuid rievttis áigái rievttis báikái dan

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2 Ceavvi-prošeakta lea oassin Sámi allaskuvlla/International center for reindeer husbandry (ICR) Ealát-prošeavttas, ja gullá 3. bargopáhkki (wp3). Ceavvi-prošeavtta ulbmilin lea čohkket ja dokumenteret boazosápmelaččaid árbevirolaš boazodoallomáhtu muohttaga birra. Ođasmahttin-, hálddahuš- ja girkodepartemeanta lea ruhtadan prošeavtta.

mielde movt luondu lea ollislaččat sihke áiggi ja báikki dáfus. Fágatearbma *guođohit* vuolgá *guohtun*-sáni kausatiiva-suorggádusas *guođuhit* ('diktit/bidjat guohtu'). Vuolggasaji mearkašupmi čájeha man guovddáš sadji biebm- ja čáhcedárbbus lea boazosápmelačča áddejumis bohcco dili hárrái, vaikko *guođoheapmi* maiddái sistisdoallá suodjaleami ja oadjebasvuoda duddjoma bohccuide. Boazoguohtuneatnamat davvin leat muohttaga vuolde 8–9 mánu jagis. Muohtadilit ja dálkkit mearridit bohcco birgema masa juo ollásit. Dan čájeha *guohtun*-sáni geavatlaš atnu. Guohtun lea dieđus sihke dat maid boazu bargá go guohtu ja dat man boazu guohtu. Sátni adnojuvvo liikká eanemus jura guohtundili birra muohtan. *Guohtun*-doahpaga «lávejit geavahit go meroštallet man álkit boazu beassá goaivumiin muohttaga čađa bodnái eatnama rádjái gos borramuš gávdno. Dát čilgehus geavahuvvo duššo muohttaga birra makkár dat lea, iige čilge borramuša birra ja dan dihte dat adno dušše dálvet.» (Informánta 2). Dát duođašta man garrasit jura muohta mearrida guohtun- ja guođuhan-/guođohan-vejolašvuodaid. Nu lea ge muohtadilli okta dain dávjjimus ja dehálaččamus ságastallanfáttáin boazobargiin gaskaneaset beaivválaš boazodoalus.

Geavatlaš boazodoalus muohtamáilmmis ferte váldit vuhtii ovddemustá daid eavttuid mat duddjojit bohcco ceavzimii ja ahtanuššamii ja nuppádassii eavttuid mat duddjojit olbmo bargovejolašvuodaide. Dát juohkásit ná:

A	Bohcco dárbbuid ektui
I	<i>Guohtun</i>
II	<i>Suodji</i>
IIIa	<i>Siivu</i> , vai goastá lihkadit
B	Olbmo doaimmaid ja dárbbuid ektui
IIIb	<i>Siivu</i> , vai goastá lihkadit
IV	<i>Siivu</i> , vai sabet johtá
V	<i>Vuohtádat</i>
VI	<i>Oaidnin</i>

Govus 1: Muohttaga juohkin bohcco ja olbmo eavttuid mielde.

Vuosttažettiin sáhtta eavttuid juohkit bohcco dárbbuid ektui: (I) *guohtun*: namalassii beassat muohttaga čađa eatnama rádjái gos lea jeagil ja šattut biebmun ja oážžut láktasa muohttagis (ovddemustá vazaš), (II) *suodji* ja (IIIa) *siivu*: muohtadilli nu ahte

goastá lihkadit nu ahte seastá energiija ja nu ahte ii vaháguva. Dasto sáhtta eavttuid juohkit olbmo doaimmaid ja dárbbuid ektui: (IIIb) *siivu*: muohtadilli nu ahte goastá lihkadit nu ahte seastá energiija ja nu ahte ii vaháguva, (IV) *siivu*: muohtadilli nu ahte sabet dahje mielggas johtá, (V) *vuohádat*: muohtadilli nu ahte muohttagis vuoháta luottaidda ja sáhtta árvvoštallat luottaidda agi ja kronologiija ja (VI) *oaidnin*: dakkár áibmu dahje sealledilli ahte olmmoš sáhtta oaidnit sihke ealliid, olbmuid, luottaidda ja luonddu. Dát guhitta vuodđoeavttu orrot mearrideame eanemus movt boazodoallu lihkostuvvá muohtan.

Duovdagat ja makkár veahkkeneavvut leat anus, váikkuhit maiddá garrasit lihko-stuvvamii. Jagi mielde rievddadit dálkkat ja duovdagat ja buot doaimmat fertejit heivuhuvot dan mielde. Nubbi áigegierdu lea jánddur, man iešguđet áiggit váikkuhit bohcco meanuide ja luonddu dillái.

Go bohccuiguin bargá, lea dehálaš ahte máhtta birget bohccuiguin ja maiddá dovdat boazodoalu sániid ja tearpmiid, danne go okta sátni sáhtta muitalit ja čilget hui ollu. Go nubbi dadjá ahte dál lea «cuoŋu», de nubbi diehtá ahte dál lea sáhka das ahte muohta lea nu garas ahte lea buorre siivu vánddardit, muhto seammás diehtá ahte boazu lea dákkáriin hui garas mannat, mii de dagaha ahte šaddá garrasit guođohit nu ahte ii eallu biedgan dahje mana. Doahpágiin leat čanastagat bohcco, olbmo ja duovdagiid ovttasdoaimmamii, omd. movt eallu beassá lihkadit ja mo dat bissu iešguđetlágán duovdagiin dálvet (garra muohta lea buorre). Siidaguimmežat fertejit álo gulahallat ja hutkat ráđđálagaidda vai siidadoallu buoremusat lihkostuvvá (Eira 1994: 23).

### 3. Muohtaterminologiija

#### 3.1. Oanehaččat terminologiija birra

*Terminologiija*-doaba definerejuvvo earenoamáš fágasuorggi sátničoakkáldahkan (Sager 1990), muhto maiddá leksikála dási gielalaš áššin, mii váikkuha dasa ahte lea vejolaš gulahallat fágasuorggi doahpágiiguin (Laurén et al. 1997: 14).

Terminologiijas lea kognitiiva, lingvisttalaš ja sosiála bealli (Rey 1995: 116). Go definere terminologiija lingvisttalaš eavttuid mielde, de sáhtta dadjat ahte terminologiija lea dat earenoamáš sátnehivvodat, mii gullá dihto fágasuorgái (Lauren et al. 1997: 47). Terminologiija dieđasuorggi sáhtta guorrat maŋos semantihkka-vuodđudeddjiide,

ja nu sáhtttá dadjat ahte terminologiijas lea lingvisttalaš ja semantihkalaš vuodđu (Sager 1990: 1–2). Dat guoskkaha maiddái mearkaoahpa nu go lingvistihkka, semantihkka ja semiotihkka dahket. (Rey 1995: 25.) Go terminologiijabarggus lea bargame doahpágiiguin, de lea dárbbášlaš ráhkadit doabavuogádagaid, mat sáhttet veahkkin struktureret fágasuorggi ja dan máhtu. Doabavuogádagain oaiuvilduvvo relašuvnnat mat fágasuorggi doahpágiin leat gaskaneaset.

Árbevirolaš terminologiija teoriijas lea doahpaxis guovddáš doaimma ja Wüster (1985: 1) mielde lea doaba buot terminologalaš bargguid vuodđu. Doaba lea juoga mainna olmmoš govahallá jurdagiiddis ja man olmmoš geavaha vuodđun go dárbbáša jurdagiidda bidjat namahusaid. Doahpaga sáhtttá karakteriseret ipmárdus-sa, jurddan ja fenomenan, mii lea govva das movt olmmoš ipmirda oasi duohta máilmmis dahje mahkáš-máilmmis maid áigu čilget. Doaba sáhtttá govvidit sihke konkrehta ja abstrákta fenomenaid. (Laurén et al. 1997: 76.) Sager (1990: 22) dadjá ahte doahpagat leat olbmo jurddaproseassa buktagat. Danne sáhtttá gohčodit doabaovttadaga mentála ovddasteapmin dahje mentála govvan, mii váikkuha dasa ahte olbmot sáhttet dovdat ja ipmirdit máilmmi. Doaba dahje mentála govva gullá eará doahpágiid dahje doabačohkiid fárrui, nu dat ii sáhte leat akto (Antia 1999). Soames sajis ferte das leat oktavuoha eará doahpágiiguin ja gullelašvuoha daidda. Doabačilgehus čujuha dan máhttosuorgái masa doaba gullá (ibid.).

Go doahpaga galgá ovdanbuktit, de dárbbáša dasa gilgora dahje giela olgoža, *tearpma*, mii dábálaččat adnojuvvo doahpágiid namahussan main lea dárkilis mearriduvvon dahje šiehttojuvvon dahje sajáiduvvan sisdoallu. *Tearbma*-doaba adno dájvja fágagielaide doahpágiid namahusaid birra. Iešalddis ii leat gielalaččat mihkkege vuodđoerohusaid *tearpmaid* ja dábálaš sániid gaskka. (Maggá 2004: 1.)

Doahpaga ja *tearpma* vuodđoopposišuvdna ihtá dájvja dikotomiihan dahje juohkáseapmin jurdaga ja giela gaskka (Rey 1995: 24). Doahpagat leat ráhkaduvvon servodaga máhtus ja dan ráhkadeami vuodđu vuolgá das ahte earenoamáš suorggi fágolbmuiin dahje ekspearrtain lea oktahat mentála govva seamma fenomenas dahje ovttamielalašvuoha doahpaga dovdomearkkain ja iešvuodain (Antia 1999). Terminologiija oppalaš vuolgasadji ja ulbmil lea gulahallan. Go galgá gulahallat dahje ságastallat muhtun earenoamáš fága sisdoalus, de gáibida dat ahte ságastallit dovdet fágii gullelaš doahpágiid.

Mađi eanet geahčada gielaide, dađi čielgaseappot oaidná man olu biras, dilli ja dárbu váikkuha doahpágiid ásahepmái (Maggá 2004). Rey (1995: 35) čállá ahte Sapir

ja Whorf, geat ráhkadeigga hypotesa mii lea čadnon lingvisttalaš realismii, oaivvildeigga ahte birrasat ja dilit váikkuhit doahpagiid hutkamii ja ráhkadeapmái. Sudno hypotesa lea ahte jurdaga eaktun ja vuodđun lea giella, ja ahte olbmot oidnet máilmmi iešguđet ládje dan mielde makkár giela sii hupmet. Olmmoš vuodđuda ja klasifisere máilmmi daid kategoriijaid mielde mat su iežas gielas leat ja nu sáhtta dadjat ahte giella hábme, muhto maiddá ráddje olbmo jurdagiid ja jurddašuvugiid. (ibid.)

*Definišuvdna*-doahpaga vuodđu lea latiinnagiela definitio, mii mearkkaša ráddjet dahje čilget lagabuidda juoidá eastadan dihte seaguheami ja eahpečielggasvuoda (Store norske leksikon 2010). Doahpaga sisdoallu čilgejuvvo definišuvnnain dárkilit ja oktoládje (Laurén et al. 1997: 107). Temmerman (2000: 227) čállá ahte definišuvdna lea *x*-ovttadaga ipmárdusa vástádus dasa «mii lea *x*?» ja Suonuuti (2008: 15) fas dadjá ahte dat lea doahpaga njálmmálaš dahje čálalaš ovdanbuktin, mii ráddje nuppi doahpaga nuppi lagas doahpagis.

Definišuvnnas leat mánnga doaimma. Dat galgá čilget dahje spesifiseret doahpaga nu ahte dan sáhtta earuhit eará doahpagiin. Dat galgá maiddá defineret doahpaga relašuvnnaid eará doahpagiidda ja ásahtit norpmaid doahpaga geavaheapmái, earenoamážit dasa mii guoská ođđa tearpmaid ráhkadeapmái. Terminologijadiehtagis geavahit eanemusat dán guokte definišuvdnamálle: Vuosttaš lea *sisdoalodefinišuvdna*, mii čilge doahpagiid dovdomearkkaid ja sisdoalu ja ráddje doahpaga eará doahpagiin. Ođđa tearpmaid ráhkadeamis ráddjen dahkko dábálaččat generalaš bajit doahpaga vuodul, nappo ráhkadit bajit doahpagiid ja isket makkár erohusat leat daid ja eará bálddalasdoahpagiid gaskka. Nubbi lea *viidodatdefinišuvdna*, mii bidjá daid refereanttaid maŋŋálaga maid doaba gokčá, ja ovdanbuktá vuolledoahpaga/doahpaga viidodaga. (Suonuuti 2008: 14f; Laurén et al. 1997: 145.) Jus doahpagis váilu definišuvdna dahje jus definišuvdna lea eahpečielggas, de sáhtta dagahit boasttu ipmárdusaid gulahaladettiin, earenoamážit go tearpmat geavahuvvojit muhtun vissis konteavsttain. Terminologijija diehtaga definišuvnnain galget leat dušše dat dieđut mielde maid dárbbasa nu ahte sáhtta bidjat doahpaga rievttes doabavuogádahkii. Sániiguin hábmejuvvon definišuvnna lassin, sáhtta maiddá atnit govvosiid/govaid. (Suonuuti 2008: 32.)

Doahpagat bohciidit sihke vásáhusain ja giela iežas vuodul, ja doahpagiid hutkama ja geavahusa mearrida olbmo gulahallandárbu. Dan dihte lea prinsihpalaš erohus dieđalaš definišuvnna ja geavatlaš áddejumi gaskka dan hárrái mii lea eanemus «riekta» dahje «duohta». Goappašagaid vuodđun leat vásáhusat ja gulahallandárbut.



Lea gal geavvan nu oddá áiggis ahte servodat atná dieđalaš definišuvnnaid eanet ahte eanet ja ollugat dáidet jáhkkit ahte dat leat juoga ládje «buorebut». Dasto orru vel nu ahte ii dáidde leat čiekŋalis erohus doahpagiid gaskka mat leat bohciidan vásáhusa bokte ja mat leat bohciidan giela iežas bokte – namalassii nu ahte eará doahpagat leat adnojuvvon doabačilgehusa vuodđun.

## 3.2. Davvisámegiela muohtaterminologija

### 3.2.1. *Mii muohta lea*

Árbevirolaš sámegejala geavaheamis ii leat *muohta* dakkár maid olbmot leat čilgen sániiguin, dat lea baicca vuodđodoaba, mii lea intuitiivvalaččat ipmirduvvon. Nu leat eanas sánit lunddolaš gielas. Easka go sáhka šaddá iešguđetlágán muohtašlájaid birra, sáhtta nammejähkii definišuvdna hábmejuvvot sániiguin geavahusa ipmárdussii lassin. Go galgá čilget árbevirolaš doahpagiid, de dáidá fertet vuordit erohusaid olmos olbmui doabaviidodagaid hárrái sisdoalu dáfus, namalassii nu ahte rájit eai leat ávjočielgasat.

Fysihkkadutkiid čilgehusa mielde lea muohta ráhkaduvvon golmma vuoddo-elemeanttas; čázis, jienas ja áimmus (Jaedicke 2009). Dat lea guđačieगत jiekŋakristállá mii balvvas šaddá muohtakristállan (Meteorologisk institutt 2010). Áibmu ja temperaturavra váikkuhit eanemus dasa makkárin kristállahápmi šaddá. Kristállahápmi rievdá dađi mielde go dat gahččá eatnama guvlui (LaChapelle 1992 (1969): 3) ja šaddá omd. nástin go temperaturavra lea gaskal -12 ja -16 gráda ja go áibmu lea lávttas. Muohttagis lea kompleaksa struktuvra, mii ovtta ládje rievdá (Armstrong – Brun 2008: 13; Brattlien 2008: 59). Go muohtta iešguđetlágán dálkin, de dát čuočá muohtagierragii ja nu šaddet muohttagii gearddit (Brattlien 2008: 27). Muohttaga sáhtta defineret golmmalágánin: muohta mii gahččá, muohta eatnama alde ja muohta muohtagierragis, mii lea jikŋon (Halfpenny – Ozanne 1989: 38). Muohttaga rievdan gohčoduvvo metamorfosan (Brattlien 2008: 59; Lied – Kristensen 2003: 50).

Muohtafysihkkadutkiid mielde leat unnimusat njeallje iešguđetlágán proseassa mat rievdadit muohttaga: destruktiiiva dahje kristállauñnideapmi, sinteren<sup>3</sup>, konstruktiiiva dahje kristállastuorideapmi ja suddan-/jiekŋun-metamorfosa. Dát proseassat sáhttet dáhpáhuvvat oktanaga, muhto iešguđet áiggis. (Jaedicke 2009.) Golbma vuosttaža dáhpáhuvvet goike ja galbma muohttagis ja njealját fas njuoska muohttagis (Brattlien 2008: 60). Dát proseassat leat vuodđun doahpagiidda maid

3 Sinteren lea muohtarievdanproseassa mas molekyloid sirdin dagaha ahte kristállat galbmojit oktii vaikko muohta ii leat suddan.

muohtafysihkkadutkit atnet.

Sámegiela muohtadoahpágiid iešvuodaid terminologijja vuodđu orru leamen earalágán ja viidát go muohtafysihkkadutkiid terminologijja. Sámegiela muohtadoahpágiin sáhttet leat hui mánnga karakteristihka dahje iešvuoda. Dat sáhttet leat earret eará ahte muohta lea garas, dimis, unnán dahje gassa muohta, njuoska dahje goike muohta. Doahpágiid mihtilmasvuodát leat maiddái omd. áigi, luottat, muohtarievdan, muohtakvalitehta, muohta/arvi, temperatuvra, stratigráfijja (muohtagearddit muohttagis) mat veahkehit čuoldit doahpágiid iešguđet joavkun ja dimenšuvnnaid ektui. Boazodoalu doabavuogádagas orru doahpágiid lunddolaš kategoriseret dimenšuvnnaid nu ahte *vuohttin*, *oaidnin*, *siivu* ja *guohtun* leat dimenšuvnna dásis áššit. Doahpágiid sáhttá, sihke dimenšuvnna siskkobealde ja eará dimenšuvnna nuppi dimenšuvnnaid ektui, klassifiseret mihtu, gráda, proseassa, fenomena, dási jna. mielde. Dat ovddastit iešguđetlágán karakteriserendásiid mat čájehit movt oaidnit ja defineret guđege doahpaga. Muohtafysihka doabavuogádagas leat mánnga iešvuoda maid mielde muohttaga sáhttá čilget, ovdamearkka dihte muohtarievdan, garasvuolta, stratigráfijja jna.

### 3.2.2. Muhtun guovddáš muohtamáilbmedoahpagat

Vuoddoeavttut *guohtun*, *siivu*, *vuohttin* ja *oaidnin* orrot mearrideame boazodoalu lihkostuvvama muohtamáilmmis. Doahpagat, mat dáidda gullet, leat sisdoalu dáfus hui dehálaččat iešguđet eavttu hárrái. Guohtumii ja lávttasvuhtii (AI) (gč. govvosa 1) gullet omd. dát doahpagat: *oppas* (gokko ii leat čiegar ii ge šalka), *čiegar* (guđohagat mat leat galbmon ja garran, ii oppas), *seanáš* (gordnemuohta gertniid vuolde), *čearga* (biegga čohkken ja garradahtán muohttaga nu ahte ii šat beasa čađa, ahte guoddá), *vahca* (varas muohta, easkkabáliid muohttán). Doahpagat mat heivejit sihke siivui ja goastamii (IIIa) ja guohtumii (AI) leat ee. *cuoŋu* (go lea leamaš liggeren ja dasto idja-buolaš garradahtá muohttaga nu ahte ii guođo, ja guoddá bohcco) ja *ceavvi* (muohta nu garas ahte guoddá).

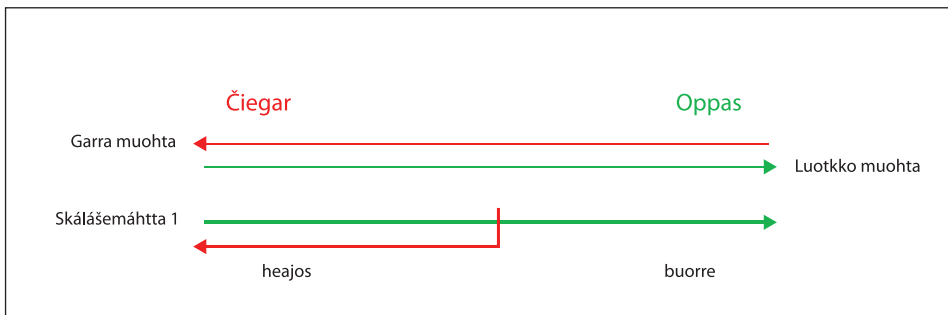
Olbmo doaimmaid ja dárbbuid ektui lea siivvus goit guovttelágán sisdoalu, nama-lassii siivu (IIIb), mii guoská goastamii nu ahte seastá energijja ja nu ahte ii vaháguva ja dasa gullet ee. dát doahpagat: *skávvi* (go lea liehmu ja sievlla, ja veaigái muohtagiera garragoahtá, muhto ovdalگو šaddá moarri), *sievlla* (go muohta lea čađa njuoskan, ja ii šat guotte) ja *cuoŋu*. Sabet ja reahkasiivui (IV) gullet dát sánit: *dobádat* (dakkár siivu ahte njuoska vahca darvána sabetvuoduide), *girrat* (go dálvet lea bor-

gan ja de buolaštan, ja go ii sabet jođe).

Boazodoalus lea hui dehálaš eret luottaidd, namalassii vuohttit. Doahpagat mat gul-let vuohttimii (V) lea ee. *áinnádat* (dan maði ođđa vahca ahte fas vuohtta ja ere ođđa luottaidd boares luottain), *fieski* (luottat ja guđohagat), *ruvggastat* (luodda gokko eallu dahje čora lea ruvgalan). Go olmmoš oaidnima (VI) čilge, de lea dávjá áimmu birra sáhka, movt sáhtta oaidnit. Oaidnima oktavuodas sáhtta dáid sániid atnit; *geamádat* (válttis oaidnit erohusaid muohtamáilmmis), *murku* (dálvemierká), *guoldu* (biegga bossu muohttaga nu ahte ii oainne). (Eira 1994.)

Boazodoalus sáhtta muhtun doahpágiid gohčodit «vuodđodoaban» dan ádde-jumis ahte lea sáhka doahpágiin mat sisdoalu ja karakteristihka dáfus árvoštallet bohcco ceavzima dahje eallima, nu go *oppas* ja *čiegar*. Boazobargi karakteriserema vuolggasadi lea *oppas*, mii čilge dálveáiggi guovllu mii ii leat duohtaduvvon (Nielsen 1979 (1932–62) III: 178). Jus ii leat *oppas*, de lea unnit dahje eanet *čiegar*, dálveáiggi guovlu mii lea duohtaduvvon, gokko bohccot leat guhton (Nielsen 1979 (1932–62) I: 382). Doahpagat *oppas* – *čiegar* leat antonymat, adjektiivvalaš vuostevuodat, main leat vuostálas mearkkašumit. Dáin lea siskkáldas oktiiheivetkeahtes árvu guovtti suorgásaš (dárogiillii *dikotomi*) relašuvnnain, omd. juoga mii lea garas ii sáhte leat dimis, ja juoga mii lea báhkas, mitala ahte dat ii sáhte leat galmmas (Croft – Cruse 2005: 172). *Obbasis* lea sisdoalu árvvu dáfus dipmá muohta ja *čiehkari* fas garra muohta. Ollu muohtadoahpágiin, muhto eai buohkain, leat antonyma iešvuodat, nu go omd. *oppas* – *čiegar*, *cuoŋu* – *sievlla*, *čearga* – *luotkko* muohta.

Antonymat maid sáhtta graderet, leat sátnebárat main leat vuostálas sisdoalut ja mat leat goabbat geahčen seamma skálá. Skáláin sáhtta čájehit iešvuodaid nu go omd. man garas, dimis, guhkki, čienjal juoga lea. Skálá álgá iešvuodas mas lea nulla árvu ja de joatkašuvvá mearritkeahtes áiggi nuppe guvlui. Oassi áiggis sáhtta nuppi iešvuodas leat alit árvu ja nuppis fas vuolit árvu. Doahpagat sáhttet sisdoalu árvvu mielde sirdašuvvat skálás goabbatguvlui. (Croft – Cruse 2005: 170.) Croft ja Cruse gohčodeaba latnjalas skálán skálá mas lea okta olles skálá ja nubbi bealle skálá, mat leat latnjalassii. Dakko gokko doahpágiid árvu lea guovttelágán lea latnjalasvuohta. (Croft – Cruse 2005: 171.)

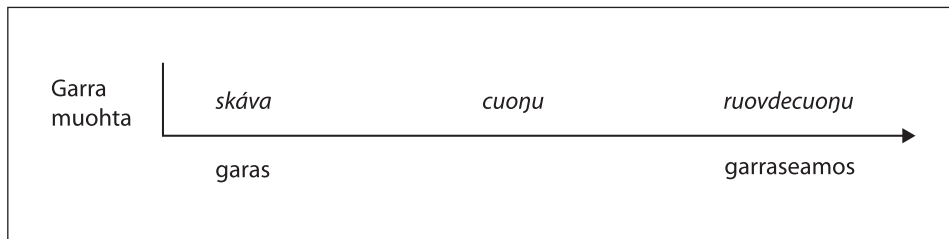


Govus 2: Čiegar – oppas skálášemáhhtta/mentála govva.

Boazobargit árvvoštallet *guohtun*-doahpaga sisdoalu dan mielde leago muohta garas vai dimis. Go muohta lea dimis, de dan dadjet luotkko muohtan (Eira 1994: 140). Garas – dimis antonymaid opposišuvnna sáhttá čájehit paralleallaskáláin, mas leat guokte skálá mat geažosgaska leat parallealla (gč. govvosa 2). Dása sáhttá de lasi hit eanet variábeliid, omd. goabbat geahčái skálái sáhttá guohtuma karakteristihkaid bidjat, nuppe geahčái *buorre* (buorre guohtun) ja nuppe geahčái fas *heajos* (heajos guohtun). Dán skálá (gč. govvosa 2) sáhttá atnit vuodđun čájehit *guohtun*-doahpaga árvvuid, namalassii ahte dat sáhttá leat juogo buorre (ruoná ivdni skálás) dahje heajos (rukse ivdni skálás) guohtun. Árvvut mat ovdanbuktet dieđuid guohtundilis, namalassii «buorre» ja «heajos» biddjojit paralleallaskálái, mas leat guokte skálá, mas nubbi čájeha gokko lea buorre guohtun ja nubbi fas gokko lea heajos. Bajimussii skálái leat bidjan *oppas*- ja *čiegar*-doahpaga variábeliid, namalassii ahte seamma báikkis sáhttá leat *čiegar* dahje *oppas*. Dát oktiičaskon skálát šaddet de mentála govvan movt boazobargi jurddaša guohtuma birra ja dasa gullevaš doahpaga ja muohtašládjaárvvuid birra. Ovdal go duohtaduvvo muohta báikkis, de sáhttá dadjat ahte dakko lea *oppas*. Govva čájeha ahte mađi eanet *čiegar* dihto guovllus lea, dađi unnit *oppas* lea seamma sajis ja nuppe guvlui. Govvosis sáhttá maiddái oaidnit ahte mađi eanet *čiegar* lea ovttá báikkis, dađi heajut guohtun lea ja nuppe guvlui. Rájit gaskal *heajos* ja *buorre* leat oalle geađdasat, iige daid sáhte objektiivalaččat mihtidit. Lea goitge nu ahte son gii atná dáid sániid ja son geasa dán muitala, sudno gaska lea intuitiivvalaš ipmárdus ja luohhtámuš maid dát mákset.

Namuhuvvon tearpmain lea buohkain dahkamuš bohcco dárbbuin, namalassii guohtuma hárrái (AI) (gč. govvosa 1). Mánnga doahpaga leat maiddái eará dimenšuvnnat. Sihke *oppas* ja *cuoŋu* leat maid siivodoahpaga ja *cuoŋu* mearrida

maid vuohttima. *Ruovdecuoŋun* eai dovdo eará go gazzasajit ja daid ferte maid časkkahallat dihto sajiin ja dihtolágán čuovggas. Dát čájeha ahte muhtun muohta-doahpágiin leat rievddadeaddji iešvuodát ja maid de sáhhtá graderet, sáhhtá omd. garra muohttaga máŋga dási graderet. Sihke *skáva* ja *cuoŋu* gullet garra muohttaga kategorijjai, muhto *skáva* muohta ii leat dan dihte nu garas go *cuoŋu* muohta (gč. govvosa 3).



Govus 3: Muohtadoahpagat graderejuvvon garasvuoda mielde.

### 3.2.3. Muohtadoahpágiid definišuvdnavuogit

Orro leamen nu ahte sámegeiela muohtadoahpágiid definišuvnnat leat dábálaččat sisdoalodefinišuvnnat, goit nu go olbmot čilgejit. Doahpágiid definišuvnnat čilgejit doahpágiid dovdomearkkaid dahje sisdoalu maiguin lea vejolaš ráddjet doahpaga eará doahpágiin. Hárve leat doahpágiin viidodatdefinišuvnnat, mas refereanttat leat maŋŋálaga. Go muohtadoahpágiid definišuvnna suokkardallamis geavahit vuodđun eavttuid mat duddjojít bohcco ceavzima ja ahtanuššama ja boazobargi árvvoštallama dan hárrái, de vuohttit definišuvnnain dákkár minstara:

- (1) Mii ja movt dagaha dakkár muohttaga (proseassa)
- (2) Boađus (makkár muohta šaddá)
- (3) Váikkuhus (movt ja masa dat váikkuha)
- (4) Stratigráfijja (makkár gearddit leat muohttagis ja gokko dat leat)
- (5) Áigi (goas doaba geavahuvvo)
- (6) Guoddá/ii guotte (mihtideapmi, man garas muohta lea)
- (7) Bohcco meanut, leago manni – orru

Govus 4: Muohtadoahpágiid definišuvdnaminstar.

Eanas definišuvnnain dutkanmateriálas dávjjimusat namuhuvvojit golbma vuosttaš iešvuoda; proseassa, boadus ja váikkuhus. Dás čájehit ovdamearkan *čearga*-doahpaga definišuvdna movt boazobargi lea čilgen. Logut ruođuid siste čujuhit muohtadoahpagaidda definišuvdnaminstara loguide:

Na garra dat muohta, bieggá ... bieggá fieraha (1) dan muohttaga čađat ... ovttohii ja dat maŋemus ... šaddá nu čavga (2) nu ahte dat šaddá dakkár maid ii beasa čađa boazu ja ii ge olmmoš ge. (3) Dat máksá čearga. Bieggá dat lea mii ráhkada čeargga ... biegganuo ... garra biekkat ja bivval. Jus bivvalat leat ja garra biekkat, de láve čeargat hui jođánit. (Informánta 1)

Na čeargá dat gal diedusge go bieggá bossu dan muohttaga ja garra biekkat leat. Dat dat dahket mat čerget. Čearggahit dan muohttaga, fieraha dan muohttaga nu ahte dat lihkesta muohta (1) ja de garrá. (2) Seamma ládje go boazu guohtu, ráhpu muohttaga ja go dat galbmo, dat maid šaddá garas dat ... (Informánta 2)

Muhtun doahpagaidda leat vel eanet fáktorat mielde, nu go omd *seanáš*-doahpagaidda. Informánta 2 čilge ná:

Dat lea vuollin (4) doppe lea dat muohta šaddan dego bulvarat (2) ... dat lea hui geahpas lihkahallat (3) go dal boazu goaivu (3) dan eret ja dat ii leat gitta ii veaháge eatnamis ... dege dego sálttit (2) ... lávejit lohkat dat lea nu buorre guohtun dego sáltti ... Seanáš ii leat skábman, álggos go borgá dat ii leat dalle (5), muhto de go buollašat (1) leat veahá leamašan muhtin áiggi, de dat álgá doppe vuollelis (4) dat muohta šaddat dakkárin, maid de gohčodit seanázin.

Muhtun doahpagaidda sáhttet sisdoalu dáfus leat mánga karakteristihka oktanaga, earáin fas leat unnit. Ovdamearkan lea *čearga*-doaba, mas leat mánga karakteristihka mat gullet sihke muohtafysihkkii ja boazobargi bohcco ceavzima ja ahtanuššama árvvoštallamii: movt guoddá, man garas lea, makkár kvalitehta lea, movt dan sáhtta iskat ja biekká váikkuhus. Doahpagaidda iešvuodat sáhttet leat movt ja maid muohta guoddá, omd *ceavvi* (nu garas muohta ahte dat measta guoddá olbmuid ja omiid, *cuoŋu* (muohta mii guoddá olbmo dahje bohcco), *čearga* (nu garas ahte guo-

ddá) ja *činus* (garra muohta, muhto ii nu daškat ahte guoddá). Muhtun doahpagat čilgejit eanet guohtuma váikkuhusa go earát, *čearga-*, *cuoŋu-*, *činus-*, *bodneskártá-* doahpagiin leat iešvuodát mat karakteriserejit heajos guohtuma. Doahpagiid oktasaš iešvuohta lea ahte dákkár muohtašlájaid konsisteansa lea nu garas ahte boazu ii nagot beassat čađa. Garasvuohta árvvoštallojuvvo guoddimiin, guoddá go vai ii go guotte. Dáid doahpagiid erohusat lea ahte dat geavahuvvojit ieš guđet áiggis; *čearga* (dálvet), *cuoŋu* (gidđat), *činus* (gidđat), *bodneskártá* (čakčat).

### 3.2.4 Muohtadoahpagiid kognitiiva sisdoallu

Fágasuorggi tearpmaid iskamis livččii dávjá miellagiddevaš diehtit movt olmmoš govahallá fágasuorggi doahpagiid jurdagiiguin ja movt bidjá jurdagiidda nama-husaid. Go áigu iskat dakkár tearpmaid maid ii dušše dábálaš árbevirolaš terminologijja doabaanalysain sáhte čilget, de orrot kognitiiva lingvistihka govvašemáhtta ja mentála modeallat fállame anolaš vugiid. Kognitiiva gielladieđa ja kultuvrralaš gielladieđa leat mentála govvagielaide (eng. *mental imagery*) ja mentála modeallaid vuodđoteorijjat mat geahččalit čilget movt sii, geat hupmet, geavahit hupmangiela ja movt sii, geat guldalit, ipmirdit govvagielaide. Govvagielat sáhttet leat kognitiiva modeallat, symbolat, govvašemáhtat ja prototyhpat (Palmer 1996: 47). Mentála modeallat ovdanbuktet muittu govaid das movt áššit doibmet ja leat lakton oktii ja čájehit movt kognitiiva proseassat ráhkadit minstariid das maid olmmoš jurddaša ja ipmirda. Palmer lohká ahte mentála modeallain lea guovddáš doaimma doahpagiid ovdda-steamis ja áššiid čilgemis movt olmmoš ipmirda máilmmi. (Palmer 1996: 55–56.) Jus galgá ipmirdit sáni maid nubbi viggá nubbái mitalit, de lea dárbu dovdat šemáhta masa sátni gullá dan earenoamáš geavaheami konteavsttas (Palmer 1996: 66). Dáin diehtagiin sáhtá sáni bidjat šemáhtaide vai ovdanbuktá konteavstta. Šemáhtta ii leat dušše listu mas leat iešvuodát, muhto das lea maiddái integrerejuvvon struktuvra (Palmer 1996: 97). Palmer (1996: 65) oaivvilda ahte sániin, mat gullet eatnamiidda, gorudii, fuolkevuhtii ja muhtun eará fáttáide, leat vel siskildas šemáhtat, mas sánit ja idiomáhtalaš frástat leat oktii lakton systemáhtalaččat.

Muohtasániid suokkardallama oktavuodas lea miellagiddevaš suokkardallat sáni šemáhta, sáni iešvuođa, geavaheami, doaimma ja váikkuhusaid mielde. Go systematisere doahpagiid sisdoalu iešvuođaid ja ráhkada daiguin doabavuogádagaid árbevirolaš terminologalaš metodaiguin, de sáhtá oažžut ovttá gova. Jus lassin dása ráhkada doahpagiidda govvašemáhtaid ja mentála modeallaid, de sáhtá oažžut

eanet dieđuid mielde sániid birra. Muohtaterminologiiija čilgemis sáhtta árbevirolaš terminologiiija bargu ovttas kognitiiva- ja kultuvrralaš lingvistihkain váikkuhit dasa ahte čiekŋalit áddejupmi olahuvvo. Ná sáhtta olahit dieđuid ii dušše muohttaga konsisteanssa birra, muhto maiddá muohttaga rievdanproseassaid birra, mii dáh-páhuvvá muohttagiin ja mii boahá dáh-páhuvvat dainna dihto boahhte áiggis ja movt dat boahá váikkuhit olles muohtadillái ja earenoamážit bohccui. Dát áššit leat dávjá válljemiid vuodđun maid boazobargi dahká guodohettiin. (Magga 2009.)

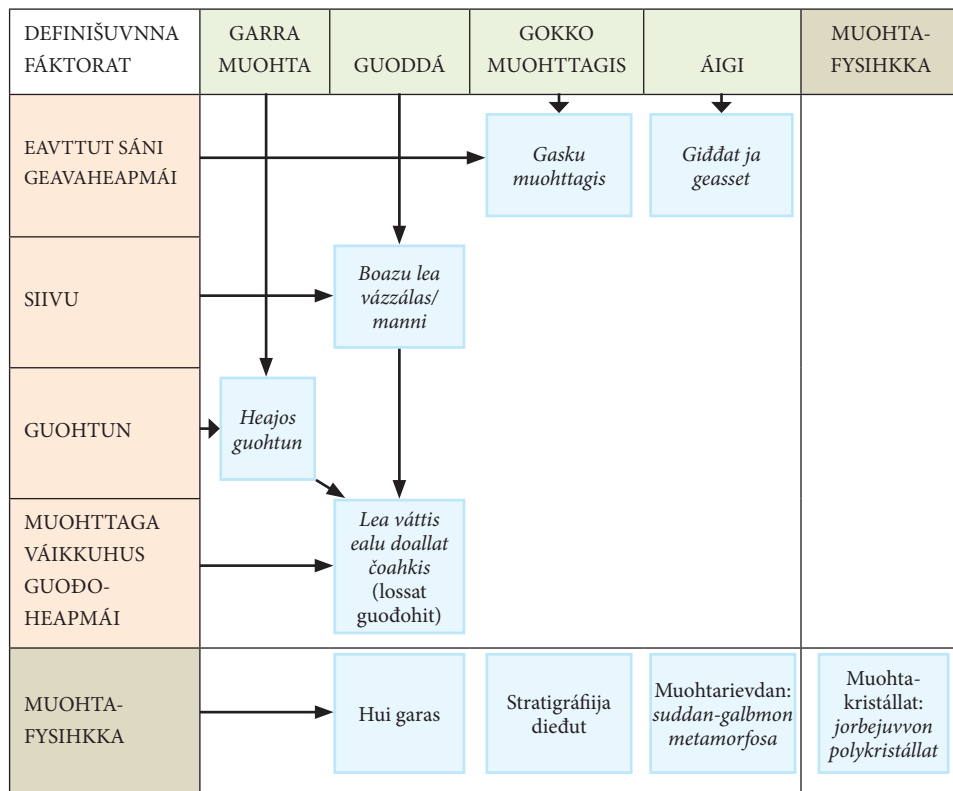
Mii geahččalit čájehit movt mentála modeallain sáhtta čájehit *ceavvi*-doahpaga sisdoalu. Ovdal go modellii bidjat dieđuid, de fertet diehtit movt boazosápmelaš jurddaša doahpaga sisdoalu birra. Boazobargis lea dárbu čilget ja mitalit nu dárkilit go vejolaš muohtadiliid birra nu ahte dáhkida ahte dasa geasa mitala fáhte makkár dilli lea, oainnekeahhta guovllu man birra lea sáhka. Boazobargi jurdagis leat ceavve-muohttaga birra dákkár jurdagat ja čilgehusat:

Ceavvi dat dakkár muohta, mii lea hui siskat, dakkár dan ii mana čađa. Dat dego guoddá olbmo dege bohcco go vázzá. Dat lea dakkár go finna vahca lea ja dat lea veahá dakkár dego njuoska muohta, muhto de dat biekká čađa dat šaddá dakkár, dat čavge dan nie. Dasa ii báljo bastte mihkke, muhto dan eai daja cuoŋun danne go dat ii leat roavis. Oainnát dat maid mii gohčodit cuoŋun, dat lea hui rušas bajil dat muohta ja, measta dego dakkár ahte dat šealgá, muhto dot lea earalágán. Dát lea oaidnit dego dálvemuohta, dakkár vahca, muhto dat lea nu čavga dego.. ahte dasa ii báljo bastte mihkke. Geasset dadjet dan go, go jassa lea báhcan. Geasset dohko dakkár báikkiide gos guhká lea jassa, ja jus de arvá ollu de dat muohta šaddá. Dat, dat lea dat ceavvi. Dat šaddá dakkár dan mielde oažžu vázzit, dasa ii čalgga vaikko dakkár muohta orro dego dábálaš vahca oaidnit, dat ii leat njalkas muhto ii dasa vuojo gal. Das ii leat báljo luodda, na jur, na jur veahá dovdo. Ja ceavi eai dálvet báljo namut, eai hoaga, muhto gidđat. Garra muohtan boazu lea hui manni. (Informánta 2)

*Ceavvi*-doahpaga definišuvnna vuodđun atnit boazobargi čilgehusa das makkár fáktorat duddjojit su ipmárdusa ja dása lasihit vel muohtafysihkka ja nu sáhttit oaidnit makkár iešvuođat ceavis leat, geavatraš boazodoalu dáfus dimenšuvnna ja geavaheami ektui. Mentála modeallas (gč. govvosa 5) leat dieđut sihke ravddain doarrás ja ceaggut ja maiddá gova siste. Dieđut bajit ravddas doares guvlui čujuhit muohttaga definišuvnna fáktoriidda (garra muohta, guoddá go dat, gokko muohtašládja



lea muohttagis, goas hupmat dán muohttaga birra), mat fas vulos guvlui čujuhit muohtašlájá váikkuhusaide geavatlaš boazodollui. Fáktorat mat leat gurut ravidas ceaggut, čujuhit geavatlaš boazodoalu dimenšuvnnaide, nu go guohtun ja siivu. Dasa lassin leat dás dieđut movt muohtašlájat váikkuhit guođoheapmái ja das leat vel muohtafysihka bealit. Njuolat juogo doarrás dahje ceaggut čujuhit makkár bohtosat váikkuhusain leat. Dát bohtosat leat biddjon alit ruvttuid sisa. Dás ii čájehuvvo makkár mearrádusaid boazobargi dahká guođohettiin muohtadili dihte.



Govus 5: Ceavvi-doahpaga mentála modealla.

Ceavvi muohta lea sullii gasku muohttagis, dat lea garra muohta ja dat guoddá sihke olbmo ja bohcco. Dát muohtašlájá váikkuha 1) siivui, dán muohttagis šaddá boazu hui manni, dasa lassin váikkuha dát garra muohta ahte 2) šaddá heajos guohtun. Dát fas váikkuhit dasa ahte dákkár muohtadilis lea 3) lossat guođohit go lea hui váttis doallat ealu čoahkis ja nu lea bahá mastat dahje láhppit bohccuid. Dán muoht-

taga birra hupmet dávjimusat gidđat. Olgeš bajárvddas vulos guvlui ja vuolárvddas doarrás leat muohtafysihka dieđut. Nu go oaidnit, de boazobargi jurdagis orrot leamen ollu muohtafysihka fáktorat čilgehusas. Sáhtta buohtastahttit boazobargi čilgehusaid muohtafysihkain, ja nu sáhtta oaidnit ahte sihke muohttaga garasvuolta, muohtarievdan ja stratigráfija gávdnojit boazobargi definišuvnnas. Informántaid čilgehusaid mielde háreve hubmojuvvo muohtakristállaid birra boazobarggu oktavuodas.

Go boazobargi hupmá ceavi birra, de atná dieđusge eaktun ahte sus geasa muitala, lea sullásaš modealla oaiivvis. Go fuomáša ahte dál eaba gulahala, ahte nuppis ii leat seamma doabavuogádat ja doabamodealla go alddis, de šaddá dárbu doabaanalysa geavahit.

#### 4. Muohtaterminologijja geavtlaš anus

Doahpagaidd geavaheapmi lea dávjá ráddjejuvvon áiggi ja velá báikki ektui nu ahte ii sáhte doahpagaidd sahtedohko geavahit, omd. leat doahpagat jagi áiggi ja eatnamiid ja geavaheami mielde. Gulahallama eaktun lea ahte doahpagat adnojuvvojit áiggi, eatnamiid ja dili mielde ja dasa lassin sáhttet leat konvenšuvnnat anu hárrái maid ii sáhte (goit vuos) relateret earái go vieruide.

Olbmuin lea giella gaskaoapmi mainna govvidit iežaset birrasa ja mainna čilgejit ja muitalit nubái maid oaiivvildit. Gulahallama váldoasit leat máhttit hupmat ja ipmirdit, mii karakteriserejuvvo geavtlaš čehppodahkan, giellamáhttun (Chomsky 1986: 9). Go ságastallat, de juogadit iežamet máilmmi govvidemiid earáiguin (Antia 1999). Govvidemiid vuoddu lea doaba. Doahpagat leat mentála dahje logalaš duohtavuoda ovddasteamit. Dan oktavuodas doahpagat leat abstrákta ja leat dušše mentála dásis, muhto ráhkadit vuogi olbmo jurdagii movt klassifiseret ja ipmirdit jierpmi persepsuvnna (ibid.). Terminologijja lea gulahallama eaktu, danne go fágaoalbmui leat gielalaš kodemat dehálaččat das maid oaidná ja vásiha, ja nu dárbbáša namahusaid jus galgá sáhttit gulahallat nuppiin (Nuopponen 1994: 15). Temmerman (2000: 220) oaiivvilda ahte árbevirolaš terminologijja diehtagis ii leat dát gulahallanbealli váldon vuhtii. Son oaiivvilda ahte terminologijja dutkan ferte ohcat vugiid mat suokkardallet buot aspeavttaid main lea mávssolaš rolla fágagiela ipmirdanproseasas (Temmerman 2000: 221).

Guođohanbarggus leat boazosáгат hui guovddážat. Boazosáгат leat boazobargiid gulahallan ja ságastallan gaskaneaset omd. dalle go boazobargit vuoruid lonuhit

dahje go bohtet siiddas. Mikkel Nils Sara (1990: 92) čállá ahte boazoságain lea mávssolaš doaibma danne go dat oahpahit siidadoalu birra ja dáhkidit siidadoalu bargguid bissuma buoremussan siidii.

Boazobargi bargu lea čilget guohtuma ja guodoheami birra ja gulahallat nuppii-guin dan birra. Jus eai gulahala, de dat sáhttá duddjot negatiivvalaš váikkuhusaid, ja nu sáhttet boasttu mearrádusat dahkkot dan geažil go nubbi ii ipmir nuppi čilgehusa. Gulahallanboatkka maid sáhttá dáhpáhuvvat go boazobargi viggá čilget iežas fágasuorggi fágasáni nubbái geas ii leat seamma fágagiella, go ovdamearkka dihte ságestallet *guohtun*-doahpaga birra, mii boazobargi doabavuogádaga mielde addá dieđu man álkit boazu beassá muohttaga čađa, nappo muohtadili birra. Earát geat eai hálddaš dan seamma fágagiella definerejit *guohtun*-doahpaga biebmun, maid boazu borrá. Dalle ii doaimma kommunikašuvdna. Jus galgá leat vejolaš gulahallat muhtun fágasuorggis, de dárbbášuvvo rievttis ja dárkilis fágagiella mii duddjo njuovžilis gulahallama (Laurén et al. 1997: 123). Iešguđetge bargguin ja fágasurggiin olbmot geavahit earenoamáš sániid ja dajaldagaid mat eai leat árgabeaivválaš gielas oassin.

Muohtasániid stuora hivvodat addá buriid vejolašvuodaid earuhit muohtaprofiilaid nubbi nuppis, nu ahte sáhttá omd. karakteriseret guohtuma, siivvu ja vuohttit luottaidd muohttagis. CICERO dálkkádatdutkanama guovddáža<sup>4</sup> raporttas (gč. Aaheim 2009) geahččalit čilget muohtadoahpaga *ceavvi* iešvuodaid, seammás go dán bidjet boazodoallofága kontekstii. Sii čállet:

Vinden vil ha en tendens til å pakke snøen mer rundt trær og busker og danne mer kompakte snøtyper, f.eks. *ceavvi* (nordsamisk; hardpakka eller kompakt snø, fokksnø, se Jernsletten, 1994), og gjøre reinbeitet stadig mindre tilgjengelig i løpet av vinteren ... (Aaheim 2009: 143).<sup>5</sup>

*Ceavvi*-doaba ii heive geavahuvvot dien konteavsttas mas dán raporttas lea adnon, danne go 1) dát doaba ii adno dálvet nu go navdet, muhto giđđat, ja danne go 2) ii leat bieggá mii ráhkada *ceavi*, muhto dat lea suddama – galbmima buvttá, ja danne

4 *Senter for klimaforskning*, iešheanaláš dutkanásahus mii lea čadnon Oslo universitehtii ([www.cicero.uio.no](http://www.cicero.uio.no)).

5 «Bieggá dat sáhttá muohttaga deakčut muoraid ja sogiid birra ja ráhkadit garra muohtaslájaid, omd. *ceavvi* (davvisámegiella; garra muohta, joavggahatmuohta, geahča Jernsletten, 1994), ja váikkuha dasa ahte guohtun gáržu dálvvi mielde ...» (Aaheim 2009: 143). Sámegillii jorgalan Inger Marie Gaup Eira.

go 3) beaivváš ligge muoraid ja sogiid ja dáid liekkas suddada muohttaga mii lea daid birra. Dát máksá ahte háreve lea muohta muoraid birra garas, muhto baicca suddan. Dasto vel ahte 4) *ceavvi*-doahpaga vuodđogeavaheapmi ii gula guohtundilálašvuoda oktavuhtii, muhto baicca goastamii ja vánddardeapmái. Go ii dovdda doahpaga iešvuodaid, makkár dimenšuvdnii gullá ja movt dan geavaheapmi lea, de dát váikkuha boasttu ipmárdussii. Boasttu ipmárdus botke gulahallama, ja nu ii doaimma šat kommunikašuvdna.

## 5. Loahpahus

Dán artihkkalis leat geahččalan čilget dihto muohtatearpmaid ja muohtadoahpágiid sisdoalu ja earenoamážit daid geavahusa boazodoalu vuodđoeavttuid ja gulahal-landárbbuid ektui. Leat geahččalan čájehit man hástaleaddji árbevirolaš doahpágiid čilgen lea jura dainna go daid iešvuolta lea ahte doaba dábálaččat fáttmasta sihke vuodđodefinišuvnna, mii sáhtá hui dávjá leat intuitiivvalaš iige eksplisihhta, ja dasto lassin geavatlaš beliid ja gulahallanbeliid. Dan dihtii lea dárbu geahčastit viidábut go duššefal dábalaš terminologalaš defineren- ja čilgenvugiid. Orru leamen oalle čielggas ahte lunddolaš árbevirolaš giela doahpágiid lea sakka vád- dásit čilget go dihtomielalaččat ráhkaduvvon fágadoahpágiid ja tearpmaid. Dákko dáidit lihkaeamen jura olbmo áddennávccaid rádjeguorain. Go vuos lea čilgen árbevirolaš áddenvuođu ja definerenvuođu, de sáhtá lahkonišgoahtit luonddufágalaš čilgehusaide ja geahččalit buohtastahttit árbevirolaš terminologii ja luonddufágalaš dutkamiid geahččanvugiiguin ja čilgenvugiiguin. Mii dakkár buohtastahttimis livččii boadusin, lea vuos menddo árrat navdit. Muhto min nana jáhkku lea ahte dán vuogat čilgehus sáhtá čiekŋudahttit min ádejumii sihke árbevirolaš jurddašeamii birra ja dasto movt giella doaimmá sihke olbmo bargguid gaskoapmin ja speajalin.

## Gáldut

### Materiála ja informánttat

Empiralaš materiála háhkan lea dáhpáhuvan semi-struktuvrralaš jearahallamiiguin. Jearahallamat leat čađahuvvon 2007:s 2009 rádjái. Daidda ráhkaduvvui jearahal- lanneavva mii huksejvvui muohtaáššiid fáttáid mielde ovttas eará jearaldagaiguin mat ledje dehálaččat vástidit čuolmmaid mat gullet áššái. Jearahallamat leat bádde-

juvvon ja sánis sátnái transkriberejuvvon čállingiela mielde. Maŋnil lea materiála giedahallon kvalitatiiva dulkomiid vuodul. Dát jearahallamat leat oassin *Ceavvi*-prošeavttas, mii gullá Ealát-prošeavtta 3. bargopáhkki.

Prošeavttas leat jearahallan boazosápmelaš olbmuid geat leat boarráseappot go 60 jagi. Informánttat leat vuorrasit olbmot geat leat eallinagi bargan bohccuiguin ja geain mii jáhkkit lea áimmuin árbevirolaš máhttu muohttaga ja bohcco birra.

Informánta 1: Boazosápmelaš dievdu 65 jagi, Guovdageainnu boazosuohkana guovdojohtolat.

Informánta 2: Boazosápmelaš dievdu 77 jagi, Guovdageainnu boazosuohkana oarjjabeale johtolat.

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## North Sami snow concepts and snow terminology

This article is an introductory analysis of North Sami snow concepts and snow terminology, their use and definitions. The focus is on concepts used to communicate grazing conditions for reindeer on snow-covered ground. On the basis of terminological theory, and in particular on the basis of six basic elements of practical reindeer herding, the content and use of the most central snow concepts is discussed. The concepts seem to be linked to each other depending on which elements of reindeer herding they are used to describe and communicate. While scientific concepts and their definitions seek to be both clear and independent from their use in different contexts, the terminology of languages embedded in nature tend to carry much content derived from practical use. The article is a demonstration of the challenges everybody will face when attempting to define the conceptual content, because their content comprises both a central meaning, which is often intuitive, and connected to practical use, but also to communicative functions. In this respect, they differ in an important way from terms which have been developed to express scientifically defined concepts. A natural next step will be to compare these concepts with snow concepts developed for scientific use.

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# North Sámi Snow Concepts and Snow Terminology - Meaning and Usage

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## 1. Introduction

The Sámi language has a rich terminology for describing the natural world, especially snow and reindeer (Magga 2006: 26). Sámi reindeer-herding is often used as an example of a specialist field possessing a precise technical vocabulary (Helander 1997: 22) and snow terminology is an example of a tendency towards specialization in the Sámi language (Nielsen 1947: 45; Jernsletten 1994: 235). When it comes to explaining what snow is like, the Sámi language offers many terms that describe each different type of snow in relation to a host of different factors. As part of a project set up to study pasture conditions, over 300 snow-related terms have so far been registered in the North Sámi language.

The Sámi have lived in harmony with nature and on what nature has provided and they have, until now, managed to preserve the greater part of a thousand year old hunting tradition, as well as the traditional knowledge of weather and climate and of nature and animals. Hunting, fishing and reindeer-herding have been the basic means of subsistence, without which survival would not have been possible. It is in and through these ways of life that the Sámi language has developed and it is, of course, due to this that the language is rich in vocabulary related to natural phenomena. In these traditional Sámi occupations, the language still survives as the specialized means of communication (Helander 1997: 22). The historical background to the Sámi language's terminology is two-fold, i.e. more recent constructed terms and terms which have their origin in the language of the traditional Sámi subsistence occupations. This specialized language reflects reindeer herding specialized knowledge, which provides the basis for evaluating how reindeer-herding as a system manages the interaction between reindeer, land and people.

Israel Ruong was one of the first to explain the role of snow in reindeer-herding, which he did from an ecological perspective (Ruong 1964). Even earlier, at the beginning of the 1900s, Konrad Nielsen, in his grammar dictionary, describes in detail, with the help of his

many interviewees, the North Sámi language's snow terminology (Nielsen 1979 (1932-1962)). In 1976-1977, E. Østby, I. Mysterud, N. Jernsletten and N. I. Eira put together an overview of the Sámi language's snow terminology in which they presented a work functional sequence analysis and illustrations of the cycle of the seasons. Jernsletten and Eira made a compilation of words from Konrad Nielsen's 1926 North Sámi dictionary and interviewed Sámi Interviewees as to their meaning. The interviews were conducted in Sámi but were later translated into Norwegian (Østby et al. 1976.) In 1981, Svonni Leavas at the University of Umeå wrote about the Sámi language's weather- and snow terminology (Svonni 1981). In 1994, Juho-Niillas published an ecological overview of North Sámi snow- and ice conditions; the basis of this article was research that Juho-Niillas had taken part in in 1976-1977 (Jernsletten 1994). In 1994 Nils Isak Eira also published a book on Sámi reindeer-herding in which one of the chapters deals with snow in relation to reindeer-herding (Eira 1994). Ole Henrik Magga wrote an article in English on Sámi terminology, in which snow terminology was also mentioned (Magga 2006). In 2007, a book was published explaining Julev Sámi snow terms in Swedish (Ryd 2007). In 2009, The Sámi Trade and Development Centre (SEG) published a booklet for children, containing snow vocabulary together with definitions (Porsanger et al. 2009).

In this article, we shall look at some North Sámi snow concepts – as well as terms, semantics and usage, their basic definition and place in the language. We shall pay particular attention to terms used to describe and convey the reindeer's ability to graze in a snowy environment. The aim of the article is to describe and discuss traditional snow terminology and its usage. In investigating snow terms, recently constructed words shall, of course, not be considered, but rather words that have been in daily use and that have, with time, acquired a specialized meaning (Jernsletten 1994: 235). Interviews (recordings and transcriptions) conducted as part of the *ceavvi* (compact snow)-project, are what form the basis of this article. The Interviewees were all over 60 years old when interviewed.

## **2. Basic Premises of Reindeer-Herding and the Role of Snow**

The basic premises of reindeer-herding are reindeer, land and people. The reindeer must have enough food, water and shelter, and must be able to move freely in order to, among other things, escape from insects and run loose. The human contribution is to take care of both the individual animal and the herd as a whole in such a way that the needs of the reindeer are met. This means making sure that the reindeer are in the right place at the right time according to

how the natural surroundings are as a whole, both with regard to time and place. The technical term *guođohit* (to herd), comes from the causative form of the word *guohtun* (grazing) which is *guođuhit* (to let or put to graze). The original meaning shows what an important part food and water needs play in the reindeer-herder's understanding of his animals' condition, though the term herding (*guođoheapmi*) also includes the protection and safety of the reindeer. Reindeer grazing-land in the north is covered by snow for eight or nine months of the year. Weather and snow conditions are almost wholly decisive for the reindeers' survival. This is shown by the practical use of the word *guohtun* (grazing). *Guohtun* is, of course, both what the reindeer does (it grazes) as well as that which it grazes (feeds on). The word is, nevertheless, mostly used in the sense of access to grazing in snow. "People usually use the term *guohtun* when estimating how easily the reindeer is able to dig through the snow to the ground below where the food is to be found. This definition is only used about the snow – what it's like – and is not used to describe the feed; for this reason it's only used in winter." (Interviewee 2). This proves how strictly snow governs the ability to or opportunity for *guohtun* – and *guođuhan* (leading to, letting graze) – *guođohan* (herding). It is for this reason that snow conditions are one of the most frequent and important topics of conversation among reindeer-herders in their everyday work. When herding reindeer in a snow-covered environment, attention has to be paid first and foremost to factors affecting the survival and well-being of the reindeer and, secondly, to those affecting people's working conditions. They are set out as follows:

A	Reindeers' needs
I	Access to grazing
II	Access to shelter
IIIa	Snow conditions, mobility
B	People's tasks and requirements
IIIb	Snow conditions, mobility
IV	Snow conditions, mobility on skis, skis run easily
V	Track snow
VI	Visibility

Figure 1: Snow categorization according to factors affecting reindeer and people respectively.

First we might list the factors with respect to the reindeer's needs: (I) *guohtun*, i.e. to get through the snow to the ground underneath and gain access to food in the form of lichen and plants as well as access to water from snow (principally from *vahca* (new or loose snow)); (II) shelter; and (IIIa) snow conditions: conditions that allow mobility, so that it is possible to

move around in an energy-efficient manner and in such a way as to minimize the risk of physical damage. Then we can categorize factors with respect to human tasks and needs: (IIIb) snow conditions: conditions allowing mobility, so that it is possible to move around in an energy-efficient manner, and in such a way as to minimize the risk of physical damage; (IV) snow conditions: conditions allowing sleigh-runners, skis to glide smoothly; (V) track snow: conditions where tracks in the snow can be seen and interpreted, with regard to age and chronology; and (VI) visibility: type or quality of light that enables a person to see animals, people and tracks, as well as the natural surroundings. These six basic premises seem, more than any other, to determine the success, or otherwise, of reindeer-herding in snow.

The land and what sort of equipment is utilized, also has a great bearing on the outcome. Throughout the year there are many changes in weather and the land and all work must adapt accordingly. Another cycle is the cycle of night and day, of which each passing hour affects the behavior of the reindeer and the state of the natural surroundings.

When working with reindeer it is important to know how to live with and manage them and also to know the words and technical terms used in reindeer-herding, as a single word can say and describe so much. So when somebody says that there is *cuoŋu* (“strong-crusted snow”) now, then the other person immediately knows that the snow is now so hard that it provides an excellent surface to move and travel on, but at the same time he or she also knows that in such conditions the reindeer move quickly over great distances, which, in turn means that the herd must be tightly managed to avoid it running off or breaking up and scattering. These terms contain references to the interaction between reindeer, man and land, e.g. how the herd is able to move and how it remains (in a certain place) in each different type of winter terrain. (Hard snow is good.) The members of a herding group (*siida*) must always communicate with each other and try to agree on solutions to common problems, for the benefit of the group (Eira 1994: 23).

## **3. Snow Terminology**

### **3.1. A Brief Explanation of Terminology**

Terminology – A term is defined as the vocabulary of a special subject field (Sager 1990), but also as a linguistic element at the lexical level, which functions in such a way as to make possible communication with specialized terms (Lauren et al. 1997: 14).

Terminology has cognitive, linguistic and social aspects (Rey 1995: 116). If we define terminology according to its linguistic premises, we may say that terminology is that particular vocabulary that belongs to a certain special subject field (Lauren et al. 1997: 47). Terminology as a branch of science can be traced back to the earliest semanticists, so that terminology may be said to have both a linguistic and a semantic basis (Sager 1990: 1-2). Terminology, like linguistics, semantics and semiotics, is concerned with the study of signs (Rey 1995: 25).

When working with terms within the framework of a terminology, it is necessary to construct conceptual systems that can be of use in structuring a specialized field and its knowledge. By conceptual system is meant the mutual relationship between the terms of a special subject field.

In the theory of traditional terminology, the term has a central function, and according to Wüster (1985: 1) the term is the basis of all terminological work. The term is something with which a person expresses his/her thoughts and is what a person uses as a basis when needing to put names to thoughts. The term may be characterized as an understanding, a thought and a phenomenon, that is an image of how a person perceives the part of the real or imagined world that he/she wishes to describe. A concept/term can describe both concrete and abstract phenomena (Lauren et al. 1997: 76.) Sager (1990: 22) defines concepts as constructs of human cognition processes. A concept entity might therefore be termed a mental representation or mental image, which influences/affects how people are able to know and understand the world. Concepts or mental images are related to other concepts and clusters of concepts and cannot stand alone (Antia 1999). At some point there must be contact with and relationship to, other concepts, as the definition/description of a concept indicates (points to the area of knowledge to which it belongs (ibid.).

When presenting a concept, it is necessary to give it a tag, or linguistic exterior, a term, which is normally used as the designation/name of concepts with either a precisely defined, or agreed, or established meaning/content. Term-concept is often used about specialized-linguistic concept designations. In themselves there is, linguistically speaking, no basic difference between terms and normal words (Magga 2004: 1.)

The fundamental opposition between concepts and terms often appears as a dichotomy between thought and language (Rey 1995: 24). Concepts are constructed from society's knowledge, and the basis of this construction originates with experts who have a common mental image of the same phenomenon, or who are in agreement as to the concept's properties and characteristics (Antia 1999). The general starting-point for and aim of

terminology is communication. When communicating on, or discussing the content of a particular specialist subject, it is a requirement that those in communication are familiar with the concepts relevant to that subject.

The more we study languages, the clearer it becomes how much environment, circumstance and need influence the creation of concepts (Magga 2004). Rey (1995: 35) writes that Sapir and Whorf, who formulated the hypothesis connected with linguistic realism, thought that environments and circumstances influenced the creation and formulation of terms. Their hypothesis is that the premises and basis of thought is language, and that people see the world in different ways, according to the language they speak. A person classifies the world according to the categories that his/her own language possesses, thus it can be said that language forms, but also defines, a person's thoughts and way of thinking (ibid).

The basis of the term definition is the Latin *definitio*, which means, to limit or describe something more closely, in order to avoid confusion and ambiguity (Store Norske leksikon 2010). With a definition, the content of a concept is described precisely and individually (Lauren et al. 1997: 107). Temmerman (2000: 227) writes that a definition is the answer of the unit X's understanding of the question "what is X?", while Suonuuti (2008: 15) says that it is the concept's/term's oral or written presentation that defines one concept/term from another adjacent concept.

A definition has many functions. It must describe or specify the concept/term, in such a way as to distinguish it from other concepts/terms. It must also define the concept/term relative to other concepts/terms and establish norms for the concept's/term's use, particularly with regard to the creation of new terms. In the study of terminology, the two following modes of definition are the ones mostly used. Firstly, there is the intension of a concept, which describes those characteristics and content of a concept that distinguish it from other concepts. When creating new terms, the definition is usually made on the basis of a general higher concept, thus higher concepts are created and tested to see what differences there are between them and other similar concepts. Secondly, there is the extension of a concept, which lists those referents that the concept covers, and presents an extension of the subsidiary concept/concept (Suonuuti 2008: 146; Lauren et al. 1997: 145.) If the concept lacks a definition, or if the definition is ambiguous, it may cause misunderstandings when communicating, particularly when the terms are used in a certain context. According to the study of terminology, definitions should only contain necessary information, so that the concept/term may be placed in the correct conceptual/terminological system. Illustrations may be used to complement the definitions (Suonuuti 2008: 32).

Concepts come into being through experiences and through language itself, and it is the need for communication that governs the creation and use of concepts/terms. For this reason, there is a difference in principle between a scientific definition and practical understanding, with respect to which of the two is more “correct” or “true”. Both have experience and the need for communication/communication needs as their basis. In present-day society, however, it is the scientific definition that has steadily been gaining ground and many people may believe it to be in some way “better”. It would appear, though, that there is no profound difference between the concepts/terms that have come into being through experience and those that have come into being through language itself – namely that other concepts/terms are used as the basis for concept/term definition.

## **3.2. North Sámi Snow Terminology**

### **3.2.1. What Snow Is**

In traditional Sámi usage, snow is not something that people have explained with words; it is, rather, a basic concept, which is understood intuitively. Most of the words are thus from the natural language. Only when the topic is the various different types of snow may a specific definition be formulated with words, as an addition to that which is understood from general usage. When explaining traditional concepts, one might expect variations from person to person as to a concept’s extent with regard to content, i.e. that lines are not so sharply defined.

According to physicists, snow is made up of three basic elements: water, ice and air (Jaedicke 2009). It is a hexagonal ice crystal which turns into a snow crystal in a cloud (Meteorological Institute, 2010). Air and temperature have most influence on what form the crystal takes. The form of the crystal changes as it falls toward earth (LaChapelle 1992 (1969): 3) and becomes, e.g., a star when the temperature is between -12 and -16 degrees Celsius and air-humidity is high. Snow has a complex structure, which is constantly changing (Armstrong – Brun 2008: 13; Brattlien 2008: 59). When it snows in different kinds of weather, then this affects the surface of the snow and layers are formed in the snow (Brattlien 2008: 27). We can define snow in three ways: falling snow, snow on the ground, and surface-generated ice features (Halfpenny – Ozanne 1989: 38). Transformation in snow is known as metamorphosis (Brattlien 2008: 59; Lied – Kristensen 2003: 50).

According to those who study the physics of snow, there are at least four different processes that change snow: destructive or crystal reduction, sintering, constructive or crystal

expansion, and melting-freezing-metamorphosis. These processes can occur simultaneously, but at different times (Jaedicke 2009.) The first three occur in dry, cold snow and the fourth in wet snow (Brattlien 2008: 60). These processes are the basis for the terms used in the study of snow physics.

The terminology basis characterized by Sámi concepts of snow seems, however, to be different from and more extensive than the terminology used by the snow physicists, as Sámi snow-terms may contain numerous characteristics. These may be, for example, that snow is hard, soft, that there is little or much snow, that snow is wet or dry. The distinguishing features of these terms/concepts are also, for example, time, tracks, snow-change, snow-quality, snow/rain, temperature, stratigraphy (layers of snow in the snow), that facilitate the separation of terms into different categories, as well as with respect to dimensions. In reindeer herding conceptual system, it seems only natural to categorize terms as dimensions, so that tracking, visibility, snow-conditions (with respect to movement/travel) and grazing are factors on the dimension level. We can also classify both within a dimension and between dimensions – the one relative to the others, according to measurement, degree, process, phenomena, level etc. These represent all the various different levels of characterization, showing how each particular term may be viewed and defined. The conceptual system of snow physics contains many characteristics according to which snow may be described, such as for example, snow-change, compactness/hardness, stratigraphy, etc.

### **3.2.2. Some Central Snow-Environment Concepts**

The basic premises of grazing, snow-conditions, tracking and visibility seem to determine the success of reindeer-herding in a snow-filled environment. The concepts that belong here are, as regards meaning, very important with respect to each particular premise. For example, the following terms/concepts are related to grazing and moisture/humidity (AI) (see Figure 1): *oppas* – deep, untrodden snow – (where there is neither winter way (*šalka*) nor (*čiegar*); *čiegar* (grazing areas that have frozen and hardened, not *oppas*); *seañáš* (grainy snow lying beneath thin crusts of snow –*geardni*); *čearga* (snow that has been so compacted by the wind that it is no longer possible to break/dig through it; that bears the weight of person or animal); and *vahca* (fresh snow, newly fallen snow). Concepts related to both snow-conditions and mobility (IIIa) as well as to grazing (AI) are, among others: *cuoju* (where the sun has warmed and night frost subsequently hardened the snow so that it bears the weight of the reindeer but does not allow grazing) and *ceavvi* (snow so hard that it bears weight).



With regard to human tasks and requirements, the category snow-conditions has at least two types of meaning/content, i.e., snow-conditions (IIIb), which refers to mobility that is energy-efficient and that entails reduced risk of injury, etc., and to this category belong, among others, the following terms/concepts: *skávvi* (when it is warm and there is *sievlla*, and towards evening the surface of the snow starts to harden, but before becoming *moarri*); *sievlla* (when snow is wet through and no longer bears weight); and *cuoŋu*. The following words pertain to snow-conditions for skis and sleigh (IV): *dobadat* (conditions in which wet fresh snow sticks to the underside of the skis); *girrat* (when there has been a blizzard in winter followed by a hard frost and skis do not run).

In reindeer-herding it is very important to be able to distinguish between tracks, i.e. the ability to track. Terms that pertain to tracking (V) are, among others: *áinnadat* (enough of a covering of new snow that it is possible to distinguish tracks, as well as to separate old tracks from fresh tracks); *fieski* (tracks and grazing spots); and *ruvggastat* (track where the herd, or part of the herd, has dashed off in a thin line). When a person explains visibility (VI), then more often than not it is the light/overhead conditions that they are referring to, i.e. what seeing conditions are like. When talking about visibility, we may use the following words; *geamádat* (difficult to distinguish things in a snowy/snow-covered environment); *murku* (winter-mist); *guoldu* (wind blows the snow so that it is not possible to see) (Eira 1994).

In reindeer-herding we might refer to some terms as “basic terms” in the sense that they are terms which, with regard to meaning and characteristics, evaluate the survival or life of the reindeer, as with, for instance, *oppas* and *čiegar*. The starting-point for the herder’s characterization is *oppas*, which describes an area in winter that is untrodden (Nielsen 1979 (1932-62) III: 178). If it is not *oppas*, then it is *čiegar* to a greater or lesser degree; an area in winter that is trodden/trampled, where reindeer have grazed (Nielsen 1979 (1932-62) I: 382). The terms *oppas* – *čiegar* are antonyms, adjectival opposites, which have opposite meanings. They have a mutually exclusive value, and are a dichotomy, e.g. something that is hard cannot be soft, and hot clearly cannot be cold (Croft – Cruse 2005: 172). *Oppas* has, as regards content value, soft snow while *čiegar* has correspondingly hard snow. Many snow-terms, though not all, have antonymic characteristics, as, for example, *oppas* – *čiegar*, *cuoŋu* – *sievlla*, *čearga* – *luotkko muohta*.

Antonyms that can be graded are word-pairs that have opposite meanings and that are at each end of the same scale. Scales can be used to show characteristics such as e.g. how hard, soft, long/high, deep something is. The scale starts with the characteristic which has value zero and continues for an unlimited time in the opposite direction. For part of the time,

one characteristic may have a higher value while another has a lower value. Concepts/terms can move along the scale in both directions, according to their content value (Croft – Cruse 2005: 170.) Overlapping system is the term used by Croft and Cruse to describe a system consisting of a full scale and a half scale, with partial overlap between the two scales. There were a concept/term has two types of value is the point at which the scales overlap (2005: 171.)

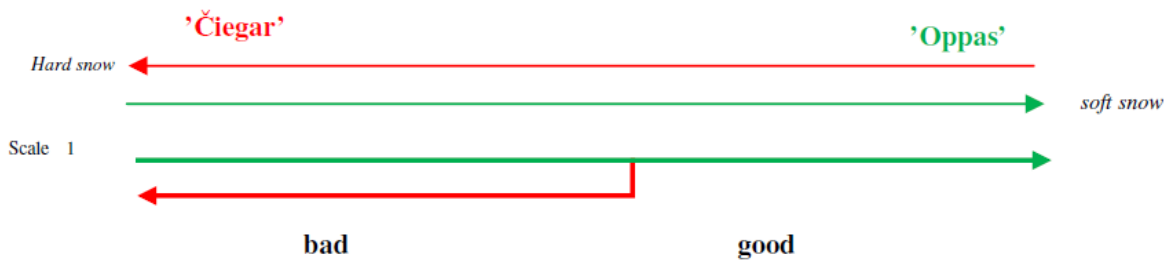


Figure 2: Mental image of *čiegar – oppas*

Reindeer-herders evaluate the content of the term *guohtun* according to whether the snow is hard or soft. When the snow is soft, it is called *luotkko muohta* (Eira 1994: 140). The hard – soft opposition is shown on a parallel scale, consisting of two scales that are parallel throughout their length (see Figure 2). To this may be added further variables, e.g. at each end of the scale are grazing (*guohtun*) characteristics, at one end good (good grazing) and at the other end bad (bad/poor grazing). This scale (see Figure 2) may be used as a basis for showing values of the term *guohtun*, i.e. that it can be either good grazing (green on the scale) or bad grazing (red on the scale). Values that present information on grazing conditions, i.e. “good” and “bad”, are placed on the parallel scale, which consists of two scales, with one showing where the grazing is good and the other where it is correspondingly bad/poor. At the top of the scale they have put the variables for the terms *oppas-* and *čiegar-* i.e. that there can be *čiegar* or *oppas* in the same place. These compound/complex scales become, then, a mental image of how the reindeer-herder thinks about grazing (*guohtun*) and its related terms, as well as about snow-type values/ factors. Before the snow in a place has been touched/trodden/trampled, it is said to be *oppas*. The image shows that the more *čiegar* there is in a particular area, the less *oppas* there is, and vice versa. It can also be seen from the figure that the more *čiegar* there is in one place, the worse the grazing (*guohtun*) is, and vice versa. The line between bad and good is rather blurred, and cannot be measured objectively. It is, nevertheless, the case that the person who uses these words and the person to whom they are spoken, have a mutual, intuitive understanding of, and trust in, their meaning.

The above mentioned terms all have to do with the needs of the reindeer, i.e. with respect to grazing (A) (see figure 1). Many terms also have other dimensions. Both *oppas* and *cuoŋu* are also snow-condition terms and *cuoŋu* is also a determining factor in tracking (*vuohttin*). In extremely strong-crusted snow (*ruovdecuoŋu*) the only thing that is discernible are hoof-marks, and to discern these requires repeated traverses in certain spots and in a certain type of light. This shows that some snow-terms have changeable characteristics and can therefore be graded, e.g. hard snow may be graded on various levels. Both *skáva* and *cuoŋu* belong to the category hard snow, though *skáva* snow is not as hard as *cuoŋu* snow (see Figure 3).

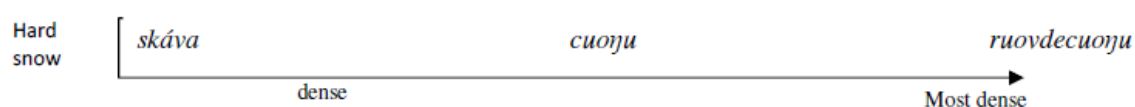


Figure 3: Snow concepts graded according to hardness

### 3.2.3. Methods for Defining Snow-Terms

It seems that Sámi snow-term definitions are usually of the “intention of concept” type, at least as regards people’s descriptions. The definitions describe the characteristics or content of the term by which it is possible to distinguish it from other terms. It is rare that terms are defined by extension of concept, with a list of referents. When, as part of research into term-definition, we use as our basis premises that determine the survival and well-being of the reindeer, together with the reindeer-herder’s evaluation with respect to this, then we begin to see a pattern:

- (1) What causes this snow, and how (process)
- (2) Result (what the snow is like)
- (3) Effect (how and what does it affect)
- (4) Stratigraphy (what are the layers in the snow like and where are they)
- (5) Time (when is the term used)
- (6) Bears weight or not (measurement, how hard the snow is)
- (7) Reindeer’s behaviour (is it on the move – stopping/staying)

In most of the research material’s definitions, the most frequently mentioned characteristics are the first three; process, result and effect. Here we show the definition of the term *čearga* as an example of how the reindeer-herder has described things. The number in brackets indicates the pattern number above to which the snow-term definition belongs:

Yes, hard snow, the wind ...the wind causes the snow to roll (1) constantly . . . all the time . . . and in the end . . . it becomes so compacted (2) so that neither reindeer nor person can break through (3) that is *čearga*. It's the wind that creates *čearga* . . . the wind like . . . strong winds and mild weather. If there's mild weather and strong winds, then *čearga* can form very quickly. (Interviewee 1)

Well, yes of course *čearga* forms when the wind blows the snow and there are strong winds. That's what causes the *čearga*. They blow the snow into *čearga*, cause the snow to roll so that the snow moves (1) and then it hardens. (2) In the same way the reindeer grazes, it scrapes away at the snow and when that freezes it also becomes hard. . . (Interviewee 2)

Some terms contain even more factors, e.g. the term *seañáš*. Informant 2 describes it thus:

It's down at the bottom (4) where the snow has become like powder (2) . . . it's very light and easy to move (3) when the reindeer comes to dig it out of the way and it's not stuck to the ground, not in the slightest. . . or like salt (2). . . they always say it's as good grazing, as salt. . . You don't get *seañáš* in the early part of winter, just after the first snows arrive, you don't get it then (5), but when there have been hard frosts (1) over a period of time, then it starts lower down (4) the snow becomes that which we call *seañáš*.

Some terms may possess, with respect to content, multiple characteristics at one and the same time, while others possess correspondingly few. An example is the term *čearga*, which possesses many characteristics belonging both to the physics of snow and to the reindeer-herders' evaluation of reindeer survival and well-being: whether it bears weight, how hard it is, what type of quality it has, how it can be checked/tested, and the effect of wind on it. The characteristics of a term may be the snow's weight-bearing properties and what it can bear the weight of, e.g. *ceavvi* (snow so hard that it almost bears the weight of people and domestic animals); *cuoŋu* (snow that bears the weight of a person or a reindeer); *čearga* (snow so hard that it is weight-bearing); and *čínus* (hard snow, but not so compacted that it bears weight). Some terms describe effects on grazing more than others; the terms *čearga*-, *cuoŋu*-, *čínus*-, *bodneskártta* possess characteristics that relate to bad grazing. The characteristic common to these terms is that the consistency of these kinds of snow is so hard that the reindeer is not able to break through it. The degree of hardness is evaluated according

to its weight-bearing properties, does it bear weight or not. The difference between these terms is that they are used at different times of the year: *čearga* (in winter), *cuoju* (in spring), *čimus* (in spring), and *bodneskárta* (in autumn).

#### **3.2.4. The Cognitive Content of Snow Concepts**

When analyzing the concepts used in a particular specialist subject field, it would be fascinating to know how someone imagines specialized subject concepts in their mind and how they incorporate designations into thought. When wishing to analyze concepts that cannot be defined by merely employing traditional terminological concept-analysis, then cognitive linguistic image-schemas and mental models offer a useful methodology. Cognitive linguistic and cultural linguistics are basic theories used in connection with mental imagery and mental models in order to attempt to describe how those who speak use the spoken language and how those who hear, understand mental imagery. Mental imagery is e.g. cognitive models, symbols, image-schemas, prototypes (Palmer 1996: 47). Mental models present memory-images of how things function and how they are integrated, and they show how cognitive processes create patterns in a person's thinking and understanding. Palmer states that mental models play a central role in representing objects, states of affairs, sequences of events and the way the world is (Palmer 1996:55-56). If we are to understand a word that one person tries to tell another, then it is necessary to know the schema to which the word belongs, in the particular context in which it is used (Palmer 1996: 66). Using this technique, the word can be put into schemas so that it presents the context. The schema is not merely a list of characteristics, but also contains an integrated structure (Palmer 1996: 97). Palmer (1996: 65) believes that words related to the land, the body, the family and certain other subjects, have additional inner schemas, into which words and idiomatic phrases are systematically integrated.

When investigating snow-related vocabulary, it is interesting to examine a word with regard to schema, its characteristics, use, function and effects. If we systemize the meaning and characteristics of concepts and with them create conceptual systems using traditional terminological methods, what we get is an image/a picture. If, in addition, we construct/create image-schemas and mental models for these concepts, then we can extract more information about the words. When describing snow-terminology, the use of traditional terminological methods together with cognitive and cultural linguistics can contribute to a more profound understanding. In this way we are able to access information not just about the consistency of snow, but also about the transformational processes of snow, what happens to the snow, and

what will happen to it at a given point in the future and how this will affect general snow-conditions and particularly the reindeer. These elements often form the basis for choices made by the reindeer-herder when herding (Magga 2009).

We shall attempt to demonstrate how, using the mental model, the content of the concept *ceavvi* may be revealed. Before putting information into the model, we have to know how a reindeer-herding Sámi thinks about the concept's meaning. It is necessary for the reindeer-herder to define/describe and convey snow-conditions as precisely as possible, so that he can be sure that the person to whom he communicates the information fully appreciates what conditions are like without having to see for himself the area in question. In the mind of the reindeer-herder, the concept *ceavve-muohta* evokes the following thoughts and descriptions:

*Ceavvi* is the type of snow that is very tough and you don't go through it. It bears both man and reindeer when they walk on it. It's sort of like fine *vahca* and it's a bit like wet snow, but then, through winds, it gets to be like it is, it makes it firm. Almost nothing cuts into it, but they don't call it *cuoŋu* because it isn't rough. You see, that which we call *cuoŋu* is snow that has a very uneven surface and it's almost like it's glossy and shiny, but that other is different. It's like winter-snow to look at, like fresh snow, but it's so firm and compact-like. . . that almost nothing makes a dent in it. In summer they call it that (*ceavvi*) when there is still *jassa* on the ground. There in those sorts of places in summer, where *jassa* remains for a long time, then if it rains a lot, the snow that comes from that. That's what *ceavvi* is. It gets so that you can walk on it, you won't go through it even though it is just like *vahca* (fresh snow) to look at, it isn't slippery but you certainly won't sink into it. You can see almost no tracks in it, well just about; you can just about make them out. And they almost never mention *ceavvi* in the winter; they don't talk about it, only in spring. When there's hard snow the reindeer are very active. (Interviewee 2)

We use the reindeer-herder's description as the basis for defining the concept *ceavvi* with regard to the factors that govern our understanding of it. To this we then add snow physics and are thus able to see what characteristics *ceavvi* possesses with respect to everyday reindeer-herding, as regards both dimension and use. The mental model (see Figure 5) contains information both around the edges horizontally and vertically as well as inside the image. The horizontal information at the upper edge indicates the snow's defining factors (hard snow, is it weight-bearing, where the particular type of snow is located among the range of snow-types, when do we talk about this snow); while the vertical (pointing downward)

information, on the other hand, indicates the effects of the particular type of snow on everyday reindeer-herding. At the left edge, the factors pointing upward indicate practical reindeer-herding dimensions, such as grazing and snow-conditions. In addition to this, there is information about how the various types of snow affect herding, as well as aspects related to the physics of snow. The arrows, whether horizontal or vertical, indicate the results of these effects. These results have been put into blue squares. The figure does not show what decisions have been made by the herder on watch due to prevailing snow-conditions.

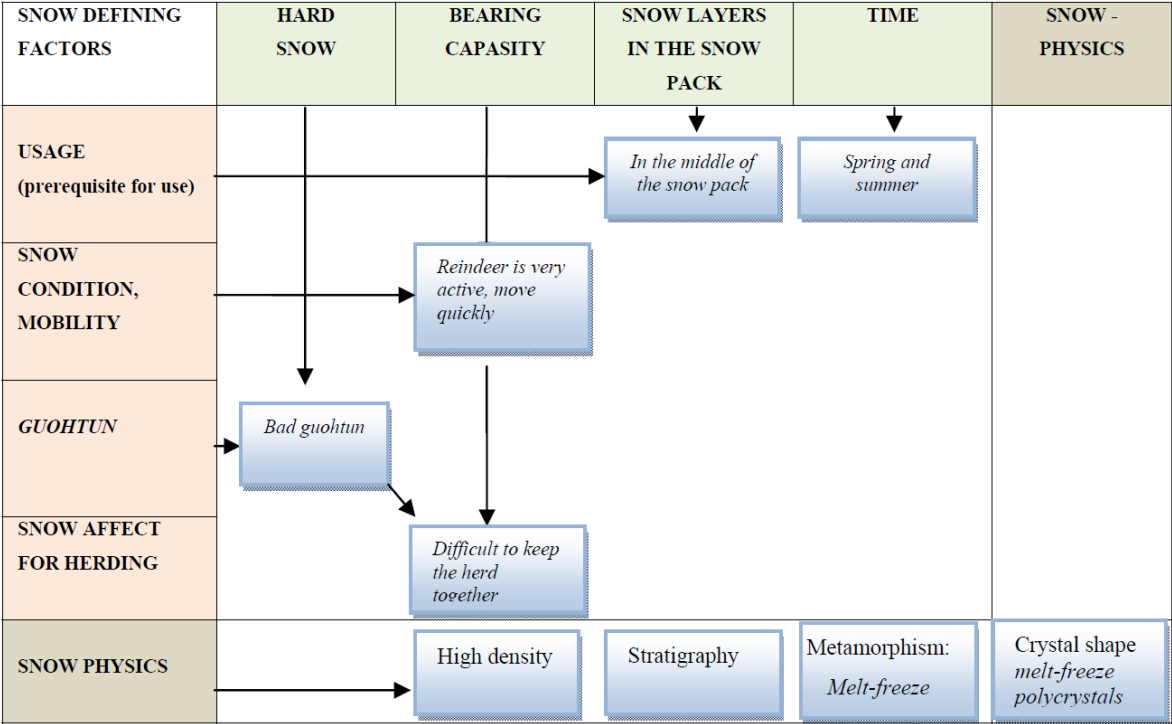


Figure 5: A mental model of Ceavvi-concept.

The snow-type known as *ceavvi* is located roughly in the middle of the snow-scale; it is hard snow and it bears the weight of both a person and a reindeer. This type of snow affects 1) snow-conditions (for movement/travel), as in this snow the reindeer are very active (tend to move quickly over considerable distances); and, furthermore, this hard snow affects 2) grazing in a negative way. All these factors contribute to a situation in which, in these snow-conditions, it is 3) hard work, due to the difficulty involved in keeping the herd together, always with the attendant risk of losing animals or of having the herd or part of the herd become intermingled with a neighboring herd. This type of snow crops up in conversation most frequently in spring.

On the upper right-hand edge, pointing downwards and at the lower edge horizontally is information on the physics of the snow. As we can see, in the reindeer-herder’s mind

there seem to be a lot of snow-physics factors in the description. If we compare the descriptions given by the reindeer-herder with the snow-physics, we see that both the hardness of the snow, snow-change/transformation and stratigraphy are to be found in the herder's definition. According to the descriptions given by the interviewees, snow-crystals are rarely mentioned when working with reindeer.

When the herder talks about *ceavvi*, he of course assumes that the person to whom he is speaking has a similar model in his head. When he discovers, however, that they do not understand each other, that the other person does not have the same conceptual systems or concept-model as him, then the use of concept analysis becomes necessary.

## 4. Snow-Terminology in Practice

The use of concepts is often limited with regard to time and place, so concepts cannot be used at random, e.g. concepts relate to their use according to season and terrain. A condition of communication is that concepts are used appropriately with respect to time, terrain and situation, and, in addition, there may be conventions with regard to usage that cannot (at least for the time being) relate to anything other than custom.

People use language as a means with which to describe their environment and with which to explain and tell others what they are thinking. The principal element of communication is the ability to speak and understand, which is characterized as a practical skill, language-knowledge (Chomsky 1986: 9). When we converse, we share descriptions of our own world with others (Antia 1999). The basis of these descriptions is the concept; concepts are mental or logical representations of reality. In this context, concepts are abstract and purely on a mental level, but the human mind constructs a system by which the perception of the intellect can be classified and understood (*ibid.*). Terminology is a pre-condition for communication because, for the expert, linguistic codes are important in what he sees and experiences, thus designations are necessary if he is to be able to communicate with other experts (Nuopponen 1994: 15). Temmerman (2000: 220) believes that this aspect of communication has been neglected in the study of traditional terminology. He believes that the study of terminology must seek ways of examining all aspects that play a meaningful role in the process of understanding special subject language (Temmerman 2000: 221).

Reindeer-talk is a central part of herding work. Reindeer-talk is the way herders communicate and converse between themselves. e.g. when herders change shifts or when they return from the herding group. Mikkil Nils Sara (1990: 92) writes that reindeer-talk has a



useful function, in that it teaches about group-herding and ensures the optimal maintenance of herding skills for the group as a whole. The task of the reindeer-herder is to describe and explain grazing and herding conditions and communicate them to others. If they do not understand one another, then it may have negative consequences and the wrong decisions may be made due to one person not understanding the explanation of another. A breakdown in communication may also occur when a herder attempts to explain his own specialist subject concept to another, who does not have the same specialist language, as, for example, when they talk about the concept grazing, which, according to the conceptual system of the reindeer-herder, provides information about how easily the reindeer can dig through the snow, i.e. about snow-conditions. Others, who do not master this same specialist language, define the concept grazing as food that the reindeer eats. In such cases, communication does not function. If communication is to be possible in a specialist subject field, then a detailed and precise specialist language is necessary to provide a fluent means of communication (Lauren et al. 1997: 123).

In different occupations and specialist subject fields, people use particular/special words and phrases that are not part of everyday language. The extensive snow vocabulary makes it possible to distinguish one snow-profile from another, allowing, for example, the characterization of grazing, snow-conditions (for movement) and tracking in snow. In the Cicero Climate Research Centre's report (see Aaheim 2009) they attempt to define the characteristics of the concept *ceavvi*, while at the same time putting it in a reindeer-herding context. They write:

The wind will tend to pack the snow more around trees and bushes to form more compact types of snow, e.g. *ceavvi* (North Sámi: hard-packed or compact snow, drift-snow; see Jernsletten 1994), making reindeer-grazing increasingly less accessible during the course of winter. . . (Aaheim 2009: 143).

The concept *ceavvi* is not appropriate in the context in which it is used in this report, since 1) this concept is not used in winter, as they assert, but rather in spring; and since 2) it is not the wind that creates *ceavvi*, but rather a product of melting – freezing; and since 3) the sun warms the trees and bushes and this warmth melts the snow around them. This means that the snow around trees is rarely hard but, rather, melted. Furthermore, there is the fact that 4) the basic use of the concept *ceavvi* does not belong in a context of grazing, but rather in a context of mobility/travel over snow. When someone is not familiar with the concept's

characteristics, or does not know the kind of dimension to which the concept belongs nor how the concept is used, it leads to misunderstanding. Misunderstanding creates a breakdown in communication, leaving the latter non-functional.

## **5. Conclusion**

In this article we have attempted to explain the meaning of certain snow concepts and particularly their usage with respect to the need for communication and to the basic premises of reindeer-herding. We have attempted to show how challenging the definition of traditional concepts is, precisely because that which characterizes them is that a concept usually embraces both a basic definition, which is often intuitive rather than explicit, as well as additional practical and communicative aspects. For this reason it is necessary to look further than the usual terminological methods for purely describing – and defining. It seems clear that the concepts of a natural traditional language are far more difficult to define than consciously constructed specialized concepts and terms. Here we are probably approaching the outer limits of human understanding. Having first described the basis of traditional understanding and definition, we can then turn to scientific definitions and attempt to compare traditional terminology to the approach and definition-methods of scientific research. What the result of such a comparison would be, it is too early to say. Our firm conviction is, however, that this type of definition could provide a deeper understanding of both traditional thought and, consequently, of how language functions both as a means and a mirror to human endeavour.

## **References**

### **Material and interviewees**

The collection of empirical material has been obtained through semi-structured interviews. The interviews were conducted between 2007 and 2009. The interviews were supplemented by interview guidelines that were drawn up according to snow-related subject matter together with other pertinent questions requiring answers. The interviews were recorded and orthographic word-for-word transcriptions were made. The material was subsequently processed qualitatively. These interviews form part of the Ceavvi Project which, in turn, forms part of the EALAT-project 3 work-pack.

As part of the project we have interviewed reindeer-herders over the age of 60. The interviewees are elderly people who have spent their whole life working with reindeer and

who we believe have acquired and retained an extensive traditional knowledge of snow and reindeer.

Interviewee 1: 65 year-old male reindeer-herder, municipality of Guovdageaidnu, central migration-route

Interviewee 2: 77 year-old male reindeer-herder, municipality of Guovdageaidnu, western migration route.

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