

# Issues in Modal Force: The View from Finnish

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# Introduction

## What I'll be talking about:

Exploring theoretical issues in modal force through the lens of Finnish. I will touch on two related bodies of research pertaining to modal force more generally: Variable-force modality and 'weak necessity'.

# Introduction

- ▶ Under a Kratzerian modal framework, modal force is conceived of as strength of quantification over possible worlds. What happens when neither necessity nor possibility seem to quite fit?

# Introduction

## Structure of the talk:

### **PART 1: Modal preliminaries;**

Kratzerian framework for modal meanings + Intro. to modal force  
(Variable-force and Weak necessity)

### **PART 2: Approaching the necessity modals: täytyä and pitää**

What start out looking like two necessity modals. . . not as prototypical as they seem at first

### **PART 3: Extending the analysis to ‘weak’ necessity**

i.e. what happens when we add conditional marking to the above modals

# Introduction

- ▶ English, German, etc. have a prototypical necessity/possibility divide (can - must, können - müssen)
- ▶ However, these verbs are polysemous in terms of being able to be used in epistemic as well as root contexts
- ▶ (In view of what I know...) Sarah must be at school.
- ▶ (In view of the law...) Sarah must be at school.

# Introduction

- ▶ Nez Perce, Gitksan and St'át'imcets (Peterson 2008; Deal 2010; Rullmann et al., 2008:12 below) all do not lexicalize modal force distinctions in one or more domain and exhibit a system which effectively mirrors the more familiar system

		Possibility	Necessity
Circumstantial	Deontic		<i>ka</i>
Epistemic	Reportative		<i>ku7</i>
	Indirect Inferential		<i>k'a</i>
	Inference from results		<i>-an'</i>

## Modal preliminaries

Rullmann et al. (2008): St'át'imcets (Lillooet Salish); *deontic ka*

- (1) lán-lhkacw            ka        áts'x-en ti  
already-2SG.SUBJ DEON see-DIR DET  
kwtámsts-sw-a  
husband-2SG.POSS-DET  
You must/can/may see your husband now.

## Modal preliminaries

### von Stechow and Iatridou (2008) *How to say 'ought' in foreign*

- ▶ Weak necessity ('ought'/'should'/'sollte') = 'strong' necessity modal + 'counterfactual' marking (Greek, Russian, Dutch, Icelandic, Hungarian and more...)
- ▶ After using the bathroom, everybody *ought* to wash their hands; employees *have to* / *must*.
- ▶ **Strengthening:** Should, in fact must.
- ▶ **Weakening:** Should, but it is not that you must.
- ▶ WN modals take into account 'additional' measures, which are irrelevant if there is only one course of action



## Modal preliminaries

- ▶ Kratzerian approach to modal meanings; modal expressions as *quantifiers over possible worlds* (Kratzer 1981, 1991, 2012)
- ▶ Modal force (possibility, necessity) a result of the logical **strength of quantification**—possibility modals correspond to existential quantification and necessity to universal
- ▶ Anatomy of a modal: Modal force (type of quantification) + modal base + ordering source

## Modal preliminaries

- ▶ Functions from possible worlds to sets of propositions
- ▶ **Modal base** ( $f$ ): the set of (just) those worlds in which the relevant laws (deontic), desires (bouletic), facts (circumstantial), or knowledge (epistemic), hold.
- ▶ **Ordering source** ( $g$ ) imposes an ordering on the MB according to the relevant goals, ideals, norms, laws in a given world
- ▶ An entry for

$$\llbracket \mathbf{must} \rrbracket^{c,f,g} = \lambda p_{s,t}. \lambda w_s. \forall w' \in \max_{g(w)}(\cap f(w)): p(w')=1$$

## Modal preliminaries

**Context:** You are about to get on a train and your friend knows you have yet to buy a ticket.

"You must buy a ticket!"

$f_1 = w \in W$  — You are on a train platform in  $w$ .

$f_2 = w \in W$  — You are without a train ticket in  $w$ .

$f_3 = w \in W$  — You are a law-abiding citizen in  $w$ .

$g_1 = w \in W$  — Entering a train without a ticket is an offense in  $w$ .

true iff in all worlds in which the facts in  $w$  hold AND which are closest to an ideal, you buy a ticket in  $w$ '

## Why Finnish?

Finnish exhibits a modal system with fine-grained flavour distinctions and lexical items which appear **not to fit neatly** into an analysis as prototypical possibility or necessity modals. Two common necessity modals, *pitää* and *täytyy* appear at first glance to be just that... but a closer look is warranted.

## Why Finnish?

- ▶ Kangasniemi (1992): Respondents rated fourteen modal verbs on a gradient scale in terms of strength, in the following order: Imperative (0.93), on tAvA (0.84), täytyy (0.79), pitää (0.76), tulee (0.63), saada (0.58), kuuluu (0.46) (with SDs around .2 with 150 participants who rated on a scale 1-10 in a few contexts like 'You go home')
- ▶ It looks like we have multiple *grades* of necessity!
- ▶ What does it mean when speakers report that a modal has higher perceived strength?

## Necessity in Finnish: *täytyä* and *pitää*

- ▶ *täytyy*(p) conveys a lack of alternatives, only possible 'outcome' given a set of premises. Epistemic: very high degree of 'confidence'
- ▶ What's more: *pitää* can often correspond to so-called 'weak' necessity, due to it being felicitous in contexts with alternatives

## Necessity in Finnish: *täytyä* and *pitää*

**Context:** The only way to get to the island is to take this boat: there is no bridge, no other boats, a helicopter cannot land there, the current is too strong to swim, etc.

- (2) Päästäksesi saarelle, sinun **täytyy/pitää** mennä  
For.you.to.get island.to 2p.GEN täytyy/pitää go  
vennellä.  
boat.by  
To get to the island, you have to go by boat.

- ▶ **täytyy** means that there is no other way (ever);
- ▶ **pitää** means that there is usually another way to reach the island but it is currently unavailable (f.ex. the bridge broke in a storm last night)

## Necessity in Finnish: *täytyä* and *pitää*

**Context:** Advertisement for [viasat.fi](https://www.viasat.fi)  
(<https://www.viasat.fi/lapset>)

- (3) Lasten pitää saada parasta  
child.PL.GEN pitää get best  
Children should (?have to) get the best.  
Kinder sollen/sollten das Beste bekommen.

Not difficult to encounter contexts where *pitää* is translated as *should*!



## Necessity in Finnish: *täytyä* and *pitää*

- ▶ The two modals *pitää* and *täytyy* pattern differently from prototypical necessity
- ▶ However, they are not quite variable-force like Stat'ic'ets
- ▶ *Pitää* encompasses strong and 'weak' necessity, *täytyy* encompasses the upper-bounds of necessity claims

**How to account for the differences between the two?**

## Necessity in Finnish: *täytyä* and *pitää*

- ▶ *Pitää* may or may not have an actuality entailment
- ▶ *Täytyä* obligatorily has one:  $\text{Mod}(p)$  entails  $p$  (a.k.a veridicality)

(4) Minun täytyi lähteä kuudelta  
1p.GEN täytyy.IPF leave at.six  
I had to leave at six (??and I didn't)

Minun piti lähteä kuudelta  
1p.GEN pitää.IPF leave at.six

I had (/was supposed) to leave at six (...and I didn't)

## Necessity in Finnish: *täytyä* and *pitää*

Clue from Kangasniemi (1987): Inference pattern

- (5) Mikon        täytyi        pukea sadevaatteet ylleen,  
Miko.GEN täytyy.IPF put.on rainwear        over,  
sillä        ulkona satoi        kaatamalla  
because outside rain.IPF pouring  
Miko had to put on rainwear, because outside it was  
pouring rain.

Gives rise to the inference that the **ONLY** means by which Miko could avoid getting wet was by putting on a raincoat

## Necessity in Finnish: *täytyä* and *pitää*

- ▶ *Täytyy* carries a presupposition that there is a **causal relation** between the prejacent and an overt or contextually salient because clause
- ▶ In the case of *pitää*, **both an actuality and counterfactual interpretation** are possible: due to combination with a deontic (or bouletic) ordering source, the actual world may not be ideal

## Necessity in Finnish: *täytyä* and *pitää*

- ▶ **Presupposition:** there is a reason  $p$  such that not  $p$  necessarily results in not  $q$
- ▶ “If it were not the case that  $p$ , it would not be the case that  $q$ ”

(Rubio-Vallejo 2017:213 captures a similar contrast in Spanish (*deber / tener que*) by this mechanism, it is also similar to von Stechow et al.’s 2006 treatment of anankastic conditionals)

## Intermediate summary

- ▶ *Pitää* and *täytyy* share the same (universal) semantics but differ in that the latter carries a causal presupposition
- ▶ This presupposition results in actuality effects (a.k.a. veridicality) and accounts for the strong lack of alternatives interpretation

**Next up:** what happens with the addition of conditional marking to *täytyy* and *pitää*? Finnish is a so-called transparent language (vF&I 2008), conditional marking has a 'weakening' effect on modal force; conditional forms are marked identically to counterfactuals

## Diagnostics for Weak Necessity

Finnish conditional mood: Counterfactuals, epistemic weakening, politeness (Hakulinen and Karlsson 1979; Wiik 1981)

- (6) Jos Tuula on rikas, hän matkustaa etelään.  
If Tuula is rich, 3p.sg. travel.3p.IND south.to  
If Tuula is rich, he'll travel south.
- (7) Jos Tuula **olisi** rikas, hän  
If Tuula be.3p.**COND** rich, 3p.sg.  
matkustais**i** etelään.  
travel.3p.**COND** south.to  
If Tuula were rich, he would travel south.

## *pitäisi* and *täytyisi*

- (8) Voisimme lähteä lomalle, mutta... meidän  
can.PL.CON leave to.vacation but... 1p.PL.GEN  
pitäisi/täytyisi säästää rahaa.  
pitää.COND/täytyy.COND save money.PRT  
We could go on vacation, but... we should / would have to  
save money.

- ▶ **täytyisi:** Saving is a precondition for going on vacation
- ▶ **pitäisi:** Saving is the 'better' alternative



## Diagnostics for Weak Necessity

**Strengthening:** You should pay the rent, in fact, you must. (vF and I 2008)

- (9) Sinun **pitäisi/tulisi** maksaa vuokra, itse asiassa  
2p.GEN pitää/tulee.COND pay rent, in fact  
sinun **täytyy/kuuluu/kannattaa** tehdä se  
2p.GEN täytyy/kuuluu/kannattaa do it

## Diagnostics for Weak Necessity

- ▶ *Pitäisi + kuuluu*: “You should (because it is in your best interests to follow the law), in fact you have to (taking into account that you have a strong personal obligation to your flat mates)” (*kuuluu* targets *personal duty*, comparable to German *es gehört sich...*)
- ▶ *kannattaisi* gives rise to an advice reading: “I would advise you to ... but you are not obliged to.”

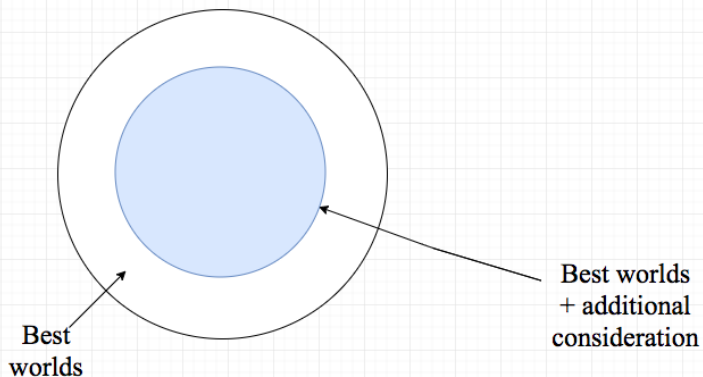
## Weak Necessity: Existing analyses

von Fintel and Iatridou's (2008) proposal:

- ▶ A secondary ordering source serves to further distinguish between the worlds which are best from OS1 and those which are the *very best* according to an additional measure (which is often implicit)
- ▶ But how to characterize 'primary' and 'secondary' priorities?

## Weak Necessity: Existing analyses

**von Fintel and Iatridou (2008)**



## Weak Necessity: Existing analyses

**Rubinstein (2012:55):** The ordering source distinction depends on collective commitment: 'secondary' ones are not presupposed to be collectively committed to.

**Context:** Alice is considering whether to take a subway or a cab to a concert. The subway is cheaper, the cab is quicker. You say:

- (10) You ought to/should/??have to/??must take the  
subway.

## Diagnostics for Weak Necessity

**Context:** Maria just got her driving license, and is excited to get on the road. As she walks to her car, her mother/friend tells her:

- (11) Sinun **pitää/täytyy/pitäisi** ajaa hitaasti.  
2p.GEN MOD drive slowly  
You MOD drive slowly!

- ▶ Deontic authority plays a role; indicatives are fine where something close to a command is licensed. Conditional is more appropriate if the speaker isn't in a position to issue orders (NB: täytyisi is rather bad as a suggestion)

## Diagnostics for Weak Necessity

**Context:** There are many ways to Helsinki, and routes 1 and 2 are equally fast, but route 2 is far prettier, so I advise my friend (who asked me for directions):

- (12) Jos haluat ajaa Helsinkiin, sinun  
If want.2p drive Helsinki.to 2p.GEN  
**kannattaisi** ottaa kakkostie.  
kannattaa.COND take road.two  
If you want to go to Helsinki, you should take road two.

- ▶ Indicative better if *bigger reason* why precisely this route is the one to take (There are roadworks, it is MUCH shorter, the alternative route doesn't go to Helsinki at all)

## Diagnostics for Weak Necessity

Counterfactual readings **very salient** with conditional marking

**Context:** I have to go to class this morning but I am too tired and decide to stay in bed instead.

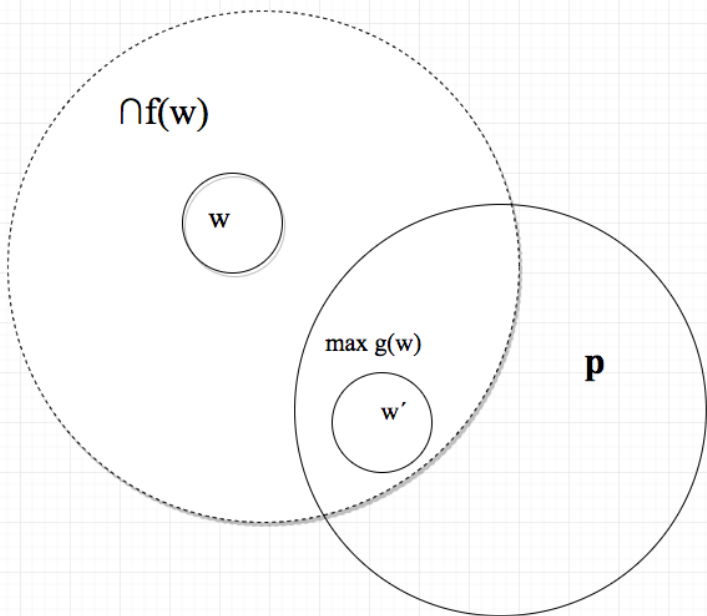
- (13) Kyllähän minun täytyisi, mutta en millään  
Indeed 1p.GEN täytyy.COND, but NEG NPI  
jaksaisi.  
be.bothered.COND  
Sure, I should, but I can't be bothered at all.



## Weak Necessity: Synthesis

- ▶ **Problem for domain restriction analysis:** Non-veridicality (Giannikadou 2009): The requirement that  $p$  be false in at least one of the best worlds (The beer should be cold, *but it isn't*; Copley 2006)
- ▶ Suggests that WN modals make reference to a “widened” modal base relative to SN modals
- ▶ One way to alter the MB: Conditional marking signals a departure from the Context Set (Stalnaker 1975; cf. Rubinstein’s proposal), widens the domain of quantification (cf. Mari (2015) Extended Modal Base)

## Weak Necessity: Synthesis



## Weak Necessity: Proposal

- ▶ Both weak necessity and counterfactual readings are the result of the modal being embedded under a **choice function** (Howell 2015; cf. Rullmann et al. 2008 and Silk 2018)
- ▶ A function  $f$  of type  $st, st$  is defined iff for any set of worlds  $W$ ,  $f(W) \subseteq W$  and  $f(W) \neq \emptyset$
- ▶ Behaves like a distributive indefinite, i.e. 'some';  $[[\text{some}_1 \text{dude}]]_g (1 \leftarrow f) = f(X : \text{dude}(X))$

## Weak Necessity: Proposal

- ▶ The choice function selects a subset of accessible, *possibly counterfactual*, worlds
- ▶ If it picks out an **exhaustive set** of worlds (relative to the MB), the interpretation is **counterfactual**
- ▶ If  $f \subseteq MB$  the reading is **weak necessity**

## Vacation ex. again

- (14) Voisimme lähteä lomalle, mutta... meidän  
can.PL.CON leave to.vacation but... 1p.PL.GEN  
pitäisi/täytyisi säästää rahaa.  
pitää.COND/täytyy.COND save money.PRT  
We could go on vacation, but... we should / would have to  
save money.

- ▶ There are certain, *closest*, possibly counterfactual worlds, which, in view of our goals in those worlds, we have to save money

## Weak Necessity: Proposal

- ▶ Silk (2018): *“in uttering should one brackets whether certain assumptions are satisfied and makes a claim about what would would be accepted to be necessary **were we to move into an epistemically possible extension of the current context that settles that they do hold.**”*

## Weak Necessity: Proposal

- ▶ *täytyisi* is licensed when the choice function is the identity function
- ▶ Circumstantial *täytyy*, with an empty OS, quantifies over all MB worlds
- ▶ The causal presupposition ensures that saving money is a necessary precondition for going on vacation, it is the only way to achieve said goal

## Weak Necessity: Proposal

- ▶ *pitäisi*, while it may converge with *täytyisi* in contexts with counterfactual prejacent, is licensed where the set picked out by the choice function is a subset of the MB
- ▶ In the vacation ex., the MB is non-homogenous; it includes worlds in which we go on vacation AND go into debt



# Conclusion and Further Directions

## Recap:

- ▶ I have presented an analysis of the Finnish necessity modals *pitää* and *täytyy* whereby the latter is a more prototypical necessity modal; it carries a causal presupposition which is responsible for its actuality effects
- ▶ Conditional forms, *pitäisi* and *täytyisi* can be accounted for under a covert modal analysis, ensuring a 'widened' modal base
- ▶ As such, conditional necessity claims do not reference the same (non-negotiable) premises as strong necessity modals; any sort of purely domain restriction approaches need revision!

## Conclusion and Further Directions

- ▶ Finnish has more lexical items which are variable-force like; *saada*, a so-called acquisitive modal
- ▶ Flavour/force interactions (cf. Truckenbrodt and Matthewson 2017)
- ▶ Implications of a 'widened' modal base + tense, analogous to considering alternative timelines
- ▶ Assessor dependence (cf. Stephenson 2007's judge parameter for epistemics)

## Take-home Message

Theoretically driven fieldwork is especially crucial in investigating variation and uncovering universals in the modal domain.

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Vacation example due to Rubio-Vallejo (2017)

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