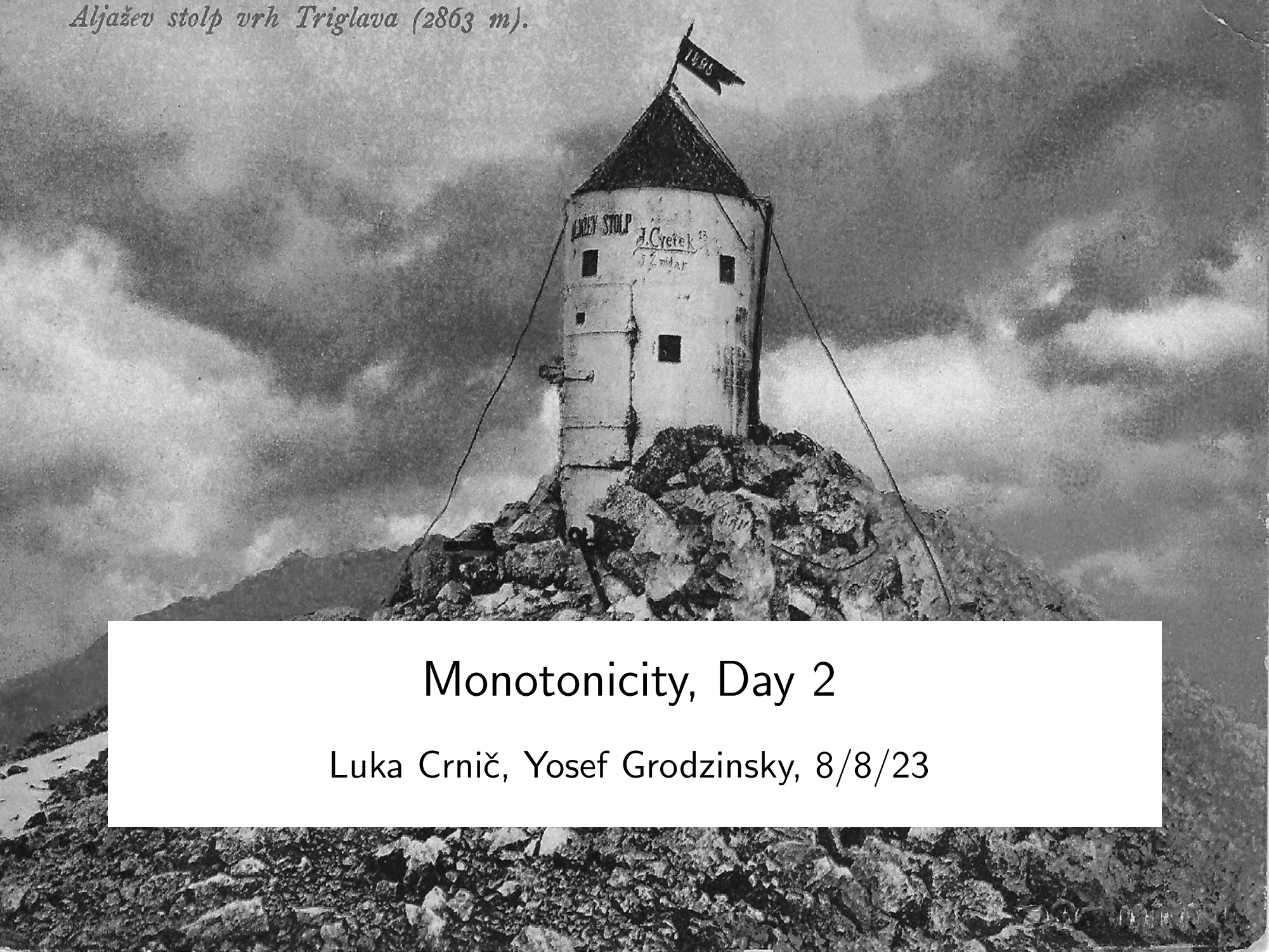

Monotonicity, Day 2

Luka Crnič, Yosef Grodzinsky, 8/8/23

reminder of the players

Op-Condition: An npi is acceptable iff it is c-commanded at LF by a constituent that denotes a DM (and not a UM) function.

Env-Condition: An npi is acceptable iff it occurs at LF in a constituent that is DM (and not UM) with respect to its position.

so far neither condition has an upper hand, they may appear indistinguishable

illustration 3: embedding

(1) Never have fewer than 2 students attended any of my classes.

operators

(2) [never [fewer than 2 students [attended any of my classes]]]

(3) a. $[\![\text{fewer than 2 students}]\!](P) = [|\{x \mid \text{student}(x) \wedge P(x)\}| < 2]$

b. $[\![\text{never}]\!](P) = [\neg\exists t\colon P(t)]$

are DM functions.

environments

(4) [never [fewer than 2 students [attended any of my classes]]]

(5) $\lambda Q.\ [\![\text{fewer than 2 st. attended any of my classes}]\!]^{[\text{any of my classes} \rightarrow Q]} =$

$\lambda Q.\ |\{x \mid Q(\lambda z.\ \text{student } x \text{ attended } z)\}| < 2$

is a DM function

illustration 4: intervention

(6) a. If the students$_i$ liked any of their$_i$ classes, we are happy
b. *If exactly 22 students$_i$ liked any of their$_i$ classes, we are happy

Adopting Op-Condition

- **lessons from (a)** (adopting Kratzer 1986: *if*-clauses restrict (covert) modals)

(7) $[\![\text{MUST}_B]\!] = [\lambda p.\lambda q.\forall w\text{: } B(w) \wedge p(w) \rightarrow q(w)]$ is a DM function.

(8) a. LF: *[if ...]$_6$ [$\boxed{\text{MUST}_{B,6}}$ [we are happy] (*pace* von Fintel 1994)
b. LF: [$\boxed{\text{MUST}_B}$ [if ...]] [we are happy]

- **lessons from (b)**

(9) [$\boxed{\text{MUST}_B}$ [if exactly 22 st$_i$ [liked any of their$_i$ classes]]] [we are happy]

all else equal, (b)-sentence is predicted to be acceptable on Op-Cond, so an additional constraint is needed: immediate scope constraint (Linebarger 1980).

illustration 4: intervention

(10) a. If the students$_i$ liked any of their$_i$ classes, we are happy

b. *If exactly 22 students$_i$ liked any of their$_i$ classes, we are happy

Adopting Env-Condition

- **lessons from (a)**

(11) a. LF: [if ...]$_6$ [$\text{MUST}_{B,6}$ [we are happy]]

b. LF: [MUST_B [if ...]] [we are happy]

are both DM wrt *any of their$_i$ classes*

- **lessons from (b)**

(12) $\lambda X.$ $[\![$if ex22st liked any of their$_i$ classes, we are happy$]\!]^{[\text{any..classes} \to X]}$ =

$[\lambda X.\ \neg([\![\text{ex22st}]\!](\lambda y.\ X(\lambda z.\ y \text{ liked } z))) \vee (\text{we are happy})]$

is not a DM function.

no additional constraint is needed here

illustration 5: plural definites and commitments

(13) a. Every student who attended any ESSLLI courses had a blast.
b. The students who attended any ESSLLI courses had a blast.

(14) $\forall x$: ($\exists y$: student x attended ESSLLI course y) $\rightarrow$ student x had a blast

operators

(15) Op-Condition is satisfied in (a), but not (obviously) in (b)!

(16) $[\![\text{every}]\!]$ is a DM function.

(17) $[\![\text{the}]\!]$ is not of a conjoinable type (Frege, Strawson).
*(cf. not every student vs. *not the students)*
possible path: dist operator c-commanding the definite description?

illustration 5: plural definites and commitments

(18) a. Every student who attended any ESSLLI courses had a blast.
b. The students who attended any ESSLLI courses had a blast.

(19) $\forall$x: ($\exists$y: student x attended ESSLLI course y) $\rightarrow$ student x had a blast

environments

(20) [λX. $\forall$x: (X(λz. student x attended z)) $\rightarrow$ student x had a blast]
is a DM function.

(cf Gajewski & Hsieh 2014 for some puzzles)

main goals in the following

the candidate descriptions and their parameters

(21) **Op-Condition:** An NPI is acceptable iff it is c-commanded at LF by a constituent that denotes a DM (and not UM) function.

(22) **Env-Condition:** An NPI is acceptable iff it occurs at LF in a constituent that is DM (and not UM) with respect to its position.

are these conditions empirically adequate? distinguishable? necessary?

- we provide support for environments over operators on the basis of
  - npis in modal sentences
  - npis in comparative sentences
- we improve on Env-Condition (and hint at an explanation for it)
- we connect our conclusions to those about continuous variable data