

Take-home messages

- ❖ **Enough** means **sufficiency**, i.e., reaching a minimum.
- ❖ **Too** means **excess**, i.e., exceeding a maximum.
- ❖ **Actuality entailment** arises when **causal dependence** is involved in the use of *enough* and *too*:
 - ❖ **Enough-construction**: providing a causally necessary, but causally insufficient condition.
 - ❖ **Too-construction**: providing a causally sufficient, but causally unnecessary condition.
- ❖ Causal dependence is typically involved in the description of episodic events, and thus in French, the availability of actuality entailment seems to correlate with the use of a perfective aspect (passé composé).

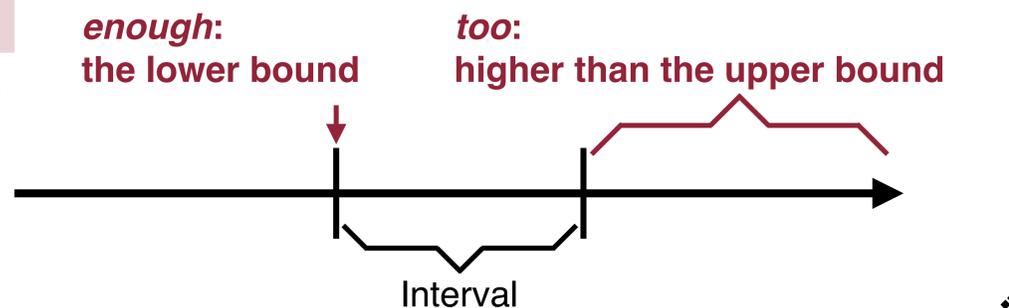
Previous accounts for *enough* and *too*: Meier 2003, Hacquard 2005, 2006

- John was clever enough to leave early yesterday (# but he didn't leave early after all).**
 - John was too slow to escape (# but he escaped anyway).**
- ❖ The **actuality entailment** of these sentences has been attributed to the lexical semantics of *enough* and *too*:
 - ❖ Meier 2003:
 - ❖ **Enough**: (1) means that the value d such that John was d -clever is greater than or equal to the minimum of all values d' such that if John was d' -clever, John **was able to** leave.
 - ❖ **Too**: (2) means that the value d such that John was d -slow is greater than the maximum of all values d' such that if John was d' -slow, he **was able to** escape.
 - ❖ Hacquard 2005, 2006:
 - ❖ **Enough**: (1) presupposes that there is a degree of cleverness **sufficient and necessary** for someone to leave early yesterday and asserts that John had this degree.
 - ❖ **Too**: (2) presupposes that there is a degree of fastness **sufficient and necessary** for someone to escape and asserts that John didn't have this degree.
 - ❖ In sum, these accounts claim that *enough* and *too* contain **hidden modals** or **hidden two-way entailment** in their word meaning.

Empirical challenges for previous accounts

- This cafe was large enough but too noisy for us to have a meeting.**
 - ❖ The prediction of previous analyses for (3):
This cafe **can and cannot** host a meeting. \rightarrow **contradictory**
However, this sentence doesn't sound contradictory. It means that the cafe was not ideal for hosting a meeting.
- Mary is tall enough even compared to older kids.**
- Mary is too short even compared to younger kids.**
 - ❖ The use of *enough* and *too* does not always require the presence of infinitives, thus sometimes there is nothing for hidden modals or two-way entailment to work on.

Proposal



$$\llbracket \text{enough} \rrbracket_{\langle \langle dt, et \rangle, \langle dt, et \rangle \rangle} \stackrel{\text{def}}{=} \lambda G_{\langle dt, et \rangle} . \lambda I_{\langle dt \rangle} . \lambda x_e . G\text{-DIMENSION}_{\langle e, dt \rangle}(x) = [I_{\text{LOWER-BOUND}}, I_{\text{LOWER-BOUND}}]$$

$$\llbracket \text{too} \rrbracket_{\langle \langle dt, et \rangle, \langle dt, et \rangle \rangle} \stackrel{\text{def}}{=} \lambda G_{\langle dt, et \rangle} . \lambda I_{\langle dt \rangle} . \lambda x_e . G\text{-DIMENSION}_{\langle e, dt \rangle}(x) \subseteq (I_{\text{UPPER-BOUND}}, +\infty)$$

- ❖ *Enough / too* takes three arguments: A gradable adjective G , A certain interval I , and an entity x .
- ❖ On the scale relevant to G , the position of x reaches the lower bound of the interval I (for *enough*), or exceeds the upper bound of the interval I (for *too*).
- ❖ The interval I can be contributed by either an infinitive (which involves hidden modals) or a comparison class.
- ❖ The lexical semantics of *enough* given above leads to the 'exactly' reading; for the 'at least' reading, the position of x is as high as the lower bound: i.e., $G\text{-DIMENSION}_{\langle e, dt \rangle}(x) \subseteq [I_{\text{LOWER-BOUND}}, +\infty)$

Accounting for actuality entailment

A set of literals Σ causally entails ϕ in a dynamics D ($\Sigma \models_D \phi$) if $\phi = 1$ is a consequence of iterative applications of τ_D to the situation $\Sigma = 1$.

- ❖ C is causally **necessary** for X iff $\neg C \models_D \neg X$.
 - ❖ C is causally **sufficient** for X iff $C \models_D X$.
- (see Schulz 2011, Baglini & Francez 2015, etc.)

- ❖ *Enough*- and *too*-constructions can express **causal dependence** between propositions, i.e., they explain **why** something happens.
 - ❖ (1) \approx John left early **because** he was clever enough.
 - ❖ (2) \approx John didn't escape **because** he was too slow.
- ❖ **Enough-construction**: a causally **necessary but insufficient** factor for something to happen.
 - ❖ He wasn't clever enough \models_D He didn't leave early.
 - ❖ John was clever enough $\not\models_D$ John left early.
 - ❖ **Prediction**: the negation of (1) also has non-cancellable actuality entailment.
 - ❖ (5) **John was not clever enough to leave early yesterday (# but he left early anyway.)**
- ❖ **Too-construction**: a causally **sufficient but unnecessary** factor for something **not** to happen.
 - ❖ John wasn't too slow $\not\models_D$ John escaped.
 - ❖ John was too slow \models_D John failed to escape.
 - ❖ **Prediction**: the negation of (2) has **no** non-cancellable actuality entailment.
 - ❖ (6) **John wasn't too slow to escape (✓ but the door was locked, so he failed to escape after all).**
- ❖ However, causal dependence or actuality entailment should not be part of the lexical semantics of *enough / too*. cf. (7) **He used fir to make a bed (# but he didn't make a bed).**

Selected references: Baglini, R., & I. Francez. 2015. The implications of managing. *Journal of Semantics*. | Hacquard, V. 2004. Aspect and Implication: *Too* and *Enough* Constructions. *Sub* 9. | Hacquard, V. 2005. Aspects of *Too* and *Enough* Constructions. *SALT* 15. | Meier, C. 2003. The Meaning of *too*, *enough* and so ... *that*. *NLS*. | Schulz, K. 2011. "If you'd wiggled A, then B would've changed": Causality and counterfactual conditionals. *Synthese*.