

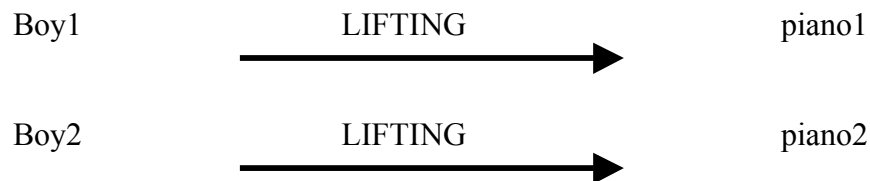
Assignment 3: Our Problem of Undergeneration

It was remarked in class that none of the LFs our theory generates for the sentence in (1) will be true in the ‘cumulative situation’ in (2). This was noted as a problem, since the sentence in (1) is easily interpreted as true in such situations.

(1) Two boys lifted two pianos.

(2) **The ‘Cumulative Situation’**

There are two individual events of lifting. In the first, Boy1 lifts Piano1. In the second, Boy2 lifts piano2.



In class, however, this claim was not rigorously demonstrated. Rather, I just pointed to the ‘pictures’ of the readings we had generated thus far, and noted that the ‘picture’ in (2) wasn’t any of those. That, of course, was a terrible argument.

In this assignment, I want you to consider each of the LFs that our theory generates, and explain for each why it will not be true in the situation under (2). I’ve simplified things for you by pre-computing the T-conditions that each LF will be assigned.

For each of the T-conditions below, explain why they do not hold in (2). You may be as informal in your explanation as you like, but be sure that what you say is clear.

(3) **The Doubly Collective Reading**

$$\exists x. [[\text{boys}]](x) = T \ \& \ | \text{ATOMS}(x) | = 2 \ \& \\ \exists y. [[\text{pianos}]](y) = T \ \& \ | \text{ATOMS}(y) | = 2 \ \& \ [[\text{lift}]](y)(x) = T$$

(4) **The Subject-Distributive, Object-Collective, Object Wide-Scope Reading**

$$\exists x. [[\text{pianos}]](x) = T \ \& \ | \text{ATOMS}(x) | = 2 \ \& \\ \exists y. [[\text{boys}]](y) = T \ \& \ | \text{ATOMS}(y) | = 2 \ \& \ y \in * [\lambda z : [[\text{lift}]](x)(z)]$$

(5) **The Subject-Distributive, Object-Collective, Object Narrow-Scope Reading**

$$\exists y. [[\text{boys}]](y) = T \ \& \ | \text{ATOMS}(y) | = 2 \ \& \\ y \in * [\lambda z : \exists x. [[\text{pianos}]](x) = T \ \& \ | \text{ATOMS}(x) | = 2 \ \& \ [[\text{lift}]](x)(z)]$$

(6) **The Subject-Collective, Object-Distributive, Subject Narrow-Scope Reading**

$$\exists x. [[\text{pianos}]](x) = \text{T} \ \& \ | \text{ATOMS}(x) | = 2 \ \& \\ x \in * [\lambda z : \exists y. [[\text{boys}]](y) = \text{T} \ \& \ | \text{ATOMS}(y) | = 2 \ \& \ [[\text{lift}]](z)(y)]$$

(7) **The Subject-Collective, Object-Distributive, Subject Wide-Scope Reading**

$$\exists y. [[\text{boys}]](y) = \text{T} \ \& \ | \text{ATOMS}(y) | = 2 \ \& \\ \exists x. [[\text{pianos}]](x) = \text{T} \ \& \ | \text{ATOMS}(x) | = 2 \ \& \ x \in * [\lambda z : [[\text{lift}]](z)(y)]$$

(8) **The Doubly-Distributive, Object Wide-Scope Reading**

$$\exists x. [[\text{pianos}]](x) = \text{T} \ \& \ | \text{ATOMS}(x) | = 2 \ \& \\ x \in * [\lambda z : \exists y. [[\text{boys}]](y) = \text{T} \ \& \ | \text{ATOMS}(y) | = 2 \ \& \ y \in * [\lambda s : [[\text{lift}]](z)(s)]$$

(9) **The Doubly-Distributive, Object Narrow-Scope Reading**

$$\exists y. [[\text{boys}]](y) = \text{T} \ \& \ | \text{ATOMS}(y) | = 2 \ \& \\ y \in * [\lambda z : \exists x. [[\text{pianos}]](x) = \text{T} \ \& \ | \text{ATOMS}(x) | = 2 \ \& \ x \in * [\lambda s : [[\text{lift}]](s)(z)]$$