

Logical equivalence

- ▶ Are these two statements logically equivalent?

Logical equivalence

- ▶ Are these two statements logically equivalent?
 - ▶ Tall people are mean

Logical equivalence

- ▶ Are these two statements logically equivalent?
 - ▶ Tall people are mean
 - ▶ Mean people are tall

Logical equivalence

- ▶ Are these two statements logically equivalent?
 - ▶ Tall people are mean
 - ▶ Mean people are tall
- ▶ Are these two statements logically equivalent?

Logical equivalence

- ▶ Are these two statements logically equivalent?
 - ▶ Tall people are mean
 - ▶ Mean people are tall
- ▶ Are these two statements logically equivalent?
 - ▶ Good food is not cheap

Logical equivalence

- ▶ Are these two statements logically equivalent?
 - ▶ Tall people are mean
 - ▶ Mean people are tall
- ▶ Are these two statements logically equivalent?
 - ▶ Good food is not cheap
 - ▶ Cheap food is not good

Logical equivalence

- ▶ Are these two statements logically equivalent?
 - ▶ Tall people are mean
 - ▶ Mean people are tall
- ▶ Are these two statements logically equivalent?
 - ▶ Good food is not cheap
 - ▶ Cheap food is not good



Logical equivalence

- ▶ Are these two statements logically equivalent?
 - ▶ Tall people are mean
 - ▶ Mean people are tall
- ▶ Are these two statements logically equivalent?
 - ▶ Good food is not cheap
 - ▶ Cheap food is not good
- ▶ * First pair is not equivalent, second pair is equivalent

Logical equivalence

- ▶ Are these two statements logically equivalent?
 - ▶ Tall people are mean
 - ▶ Mean people are tall
- ▶ Are these two statements logically equivalent?
 - ▶ Good food is not cheap
 - ▶ Cheap food is not good
- ▶ * First pair is not equivalent, second pair is equivalent

Assignment: Car Trouble

- ▶ A brother calls his sister because something is wrong with his car

Assignment: Car Trouble

- ▶ A brother calls his sister because something is wrong with his car
- ▶ She arrives, and they have this conversation:

Assignment: Car Trouble

- ▶ A brother calls his sister because something is wrong with his car
- ▶ She arrives, and they have this conversation:
 - ▶ Sister: I have a tow hitch, and a tow rope, but I obviously can't tow you.

Assignment: Car Trouble

- ▶ A brother calls his sister because something is wrong with his car
- ▶ She arrives, and they have this conversation:
 - ▶ Sister: I have a tow hitch, and a tow rope, but I obviously can't tow you.
 - ▶ Brother: That's OK, I can tow *you*!

Assignment: Car Trouble

- ▶ A brother calls his sister because something is wrong with his car
- ▶ She arrives, and they have this conversation:
 - ▶ Sister: I have a tow hitch, and a tow rope, but I obviously can't tow you.
 - ▶ Brother: That's OK, I can tow *you*!
 - ▶ Sister: I guess so. If we're careful.

Assignment: Car Trouble

- ▶ A brother calls his sister because something is wrong with his car
- ▶ She arrives, and they have this conversation:
 - ▶ Sister: I have a tow hitch, and a tow rope, but I obviously can't tow you.
 - ▶ Brother: That's OK, I can tow *you*!
 - ▶ Sister: I guess so. If we're careful.
- ▶ Each person drives their own car. Nothing is wrong with the sister's car. What is wrong with the brother's car?

Assignment: Car Trouble

- ▶ A brother calls his sister because something is wrong with his car
- ▶ She arrives, and they have this conversation:
 - ▶ Sister: I have a tow hitch, and a tow rope, but I obviously can't tow you.
 - ▶ Brother: That's OK, I can tow *you*!
 - ▶ Sister: I guess so. If we're careful.
- ▶ Each person drives their own car. Nothing is wrong with the sister's car. What is wrong with the brother's car?

Car Trouble (Extra)



Car Trouble (Extra)

- ▶ * The brother's brakes are not working

Car Trouble (Extra)

► * The brother's brakes are not working

► *

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ *

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ * Any time she stops, he will crash into her

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ * Any time she stops, he will crash into her
- ▶ If brother tows the sister

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ * Any time she stops, he will crash into her
- ▶ If brother tows the sister
 - ▶ *

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ * Any time she stops, he will crash into her
- ▶ If brother tows the sister
 - ▶ * she can stop them both from behind

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ * Any time she stops, he will crash into her
- ▶ If brother tows the sister
 - ▶ * she can stop them both from behind
- ▶ Can she tell when to brake from behind?

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ * Any time she stops, he will crash into her
- ▶ If brother tows the sister
 - ▶ * she can stop them both from behind
- ▶ Can she tell when to brake from behind?
 - ▶ *

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ * Any time she stops, he will crash into her
- ▶ If brother tows the sister
 - ▶ * she can stop them both from behind
- ▶ Can she tell when to brake from behind?
 - ▶ * When the brother hits the brakes, she will see the brake lights

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ * Any time she stops, he will crash into her
- ▶ If brother tows the sister
 - ▶ * she can stop them both from behind
- ▶ Can she tell when to brake from behind?
 - ▶ * When the brother hits the brakes, she will see the brake lights
 - ▶ *

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ * Any time she stops, he will crash into her
- ▶ If brother tows the sister
 - ▶ * she can stop them both from behind
- ▶ Can she tell when to brake from behind?
 - ▶ * When the brother hits the brakes, she will see the brake lights
 - ▶ * It works almost normally if both follow their driving instincts

Car Trouble (Extra)

- ▶ * The brother's brakes are not working
 - ▶ * But his brake lights are OK
- ▶ If sister tows the brother with a rope
 - ▶ * Any time she stops, he will crash into her
- ▶ If brother tows the sister
 - ▶ * she can stop them both from behind
- ▶ Can she tell when to brake from behind?
 - ▶ * When the brother hits the brakes, she will see the brake lights
 - ▶ * It works almost normally if both follow their driving instincts