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# Indicative conditionals: extensional vs. intensional accounts

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## The contenders

▶ The competing accounts of indicative conditionals may be classified in two categories:
  - Accounts that treat both indicative and counterfactual conditionals as *intensional*: to determine whether a conditional is true or false we have to examine what happens in a subset of the worlds at which the antecedent is true (the conditional is true iff the consequent is true at the worlds minimally different from the real world at which the antecedent is true).
  - Accounts that treat counterfactual conditionals as intensional, but treat indicative conditionals as *extensional*:
    ▶ to determine whether a counterfactual is true or false we have to examine what happens in a subset of the worlds at which the antecedent is true (the worlds minimally different from the real world at which the antecedent is true);
    ▶ to determine whether indicative conditionals are true or false we have to examine what happens in the real world (the conditional is true iff either the antecedent is false or the consequent is true).

## Invalid argument forms

▶ As we saw, hypothetical syllogism (transitivity), strengthening of the antecedent, and contraposition seem to be invalid in English both for indicative conditionals and for counterfactual conditionals.

▶ Intensional theories of conditionals provide a uniform account of the invalidity of these argument forms: their invalidity follows from the semantics of conditionals.

▶ Theories that treat indicatives as extensional and counterfactuals as intensional attribute their apparent invalidity to different reasons:
  - for indicative conditionals, hypothetical syllogism, strengthening of the antecedent, and contraposition are valid, but fail to preserve assertability, namely they may lead from assertable premises to conclusions that are less assertable than the premises;
  - for counterfactual conditionals, the invalidity of hypothetical syllogism, strengthening of the antecedent, and contraposition follows from their semantics.

## Failure to preserve assertability

▶ For example, according to Jackson's account, argument (1) is valid, since indicative conditionals are material conditionals:

(1)      Premise: If Holmes accepted the case, the case will be solved.
     Conclusion: If Holmes accepted the case and gave it up right after, the case will be solved.

▶ However, for Jackson (1) fails to preserve assertability: while the premise is assertable, the conclusion is not.

▶ Let's see why.

## Why the failure

- Why does (1) fail to preserve assertability?

  (1)  Premise: If Holmes accepted the case, the case will be solved.
       Conclusion: If Holmes accepted the case and gave it up right after, the case will be solved.

- Here is the answer. For Jackson, (1) is equivalent to (2):

  (2)  Premise: Either Holmes did not accept the case or the case will be solved.
       Conclusion: Either it is false that Holmes accepted the case and gave it up right after or the case will be solved.

- The subjective probability of the premise of (2) is high, and it would remain high if it came to be known that Holmes accepted the case.
- However, if it came to be known that Holmes accepted the case and gave it up right after, the probability of the conclusion of (2) would not remain high, since both disjuncts would be false.
- Thus, the premise of (1) is assertable, since it is robust with respect to the antecedent. But the conclusion of (1) is not assertable, since it is not robust with respect to the antecedent.

## The collapse argument

- Other things being equal, the fact that intensional accounts fo conditionals provide a uniform reason for the fact that both indicatives and counterfactuals fail to license the same argument forms is a point in favour of intensional accounts.
- However, it is not clear that other things *are* equal.
- The fact that arguments (3)-(4) look valid in English is expected if indicative conditionals are material conditionals, but not if indicative conditionals are intensional (as Stalnaker claims):

  (3)  If the butler didn't do it, the gardener did. Therefore, either the butler or the gardener did it.

  (4)  Either the butler or the gardener did it. Therefore, if the butler didn't do it, the gardener did.

- A. Gillies dubs the argument for the view that indicative conditionals are material conditionals based on (3)-(4) *the collapse argument*.

## The prediction of the extensional account

- It can be seen easily that, if indicative conditionals are material conditionals, both (3) and (4) are valid arguments:

  (3)  If the butler didn't do it, the gardener did. Therefore, either the butler or the gardener did it.

  (4)  Either the butler or the gardener did it. Therefore, if the butler didn't do it, the gardener did.

- Indeed, $\ulcorner \sim \varphi \supset \psi \urcorner$ is true iff $\ulcorner \sim\sim \varphi \vee \psi \urcorner$ is true. But $\ulcorner \sim\sim \varphi \urcorner$ is true iff $\ulcorner \varphi \urcorner$ is true. Thus, $\ulcorner \sim \varphi \supset \psi \urcorner$ is true iff $\ulcorner \varphi \vee \psi \urcorner$ is true.

## The prediction of the intensional account

- On the other hand, if indicative conditionals have the truth conditions proposed by Stalnaker, (3) is a valid argument, but (4) is not:

  (3)  If the butler didn't do it, the gardener did. Therefore, either the butler or the gardener did it.

  (4)  Either the butler or the gardener did it. Therefore, if the butler didn't do it, the gardener did.

- Let's see why.

## Validity of *if* ⇒ *or* in the intensional account

- Argument (3) is a valid by Stalnaker's theory:

    (3)     If the butler didn't do it, the gardener did. Therefore, either the butler or the gardener did it.

- Indeed, suppose $\ulcorner \sim \varphi > \psi \urcorner$ is true at a world $w$. Clearly, the antecedent $\ulcorner \sim \varphi \urcorner$ is either true or false at $w$. If $\ulcorner \sim \varphi \urcorner$ is true at $w$, then the world minimally different from $w$ at which $\ulcorner \sim \varphi \urcorner$ is true is $w$ itself. Thus, since $\ulcorner \sim \varphi > \psi \urcorner$ is true at $w$, $\psi$ is true at $w$. Thus, $\ulcorner \varphi \vee \psi \urcorner$ is true at $w$. On the other, if the antecedent $\ulcorner \sim \varphi \urcorner$ is false at $w$, then $\varphi$ is true at $w$. Thus, $\ulcorner \varphi \vee \psi \urcorner$ is true at $w$. Thus, if $\ulcorner \sim \varphi > \psi \urcorner$ is true at a world $w$, $\ulcorner \varphi \vee \psi \urcorner$ is true at $w$.

## Invalidity of *or* ⇒ *if* in intensional theories

- Suppose both the butler and the gamekeeper were independently plotting to murder the librarian, who was the gardener's lover. In the end, the butler did it.
- In this case, the premise of (4) è is true (since the first disjunct is true):

    (4)     Either the butler or the gardener did it. Therefore, if the butler didn't do it, the gardener did.

- However, by Stalnaker's theory the conclusion is false, since the gamekeeper (and not the gardener) did it in the possible world in which the butler didn't do it that minimally differs from the real world.
- Thus, Stalnaker predicts that (4) is not a valid argument.

## The problem for intensional theories

- If indicative conditionals have the truth conditions proposed by Stalnaker (or by some variant of the minimal change approach which abandons Uniqueness), (4) is not a valid argument:

    (4)     Either the butler or the gardener did it. Therefore, if the butler didn't do it, the gardener did.

- The problem is that the inference in (4) is perfectly reasonable.
- Thus, the supporter of the intensional analysis of indicative conditionals owes us an answer to this question:

    why is the inference in (4) reasonable, if it is not a valid inference?

- Let's see how Stalnaker (1975) answers this question.

## Common ground e context set

- Stalnaker, as we have seen, observes that the participants in a conversation comunicate against a background of mutually accepted propositions.
- For example, the participants in this class accept that we are in a building of the University of Milan, that this is a class they can take for credit, etc (and they know that everybody in the class accept these propositions, etc.).
- Stalnaker, as we saw, calls the set of propositions mutually accepted by the participants in a conversation the *common ground* of the conversation.
- This set of propositions is represented by a set of possible worlds, the *context set* of the conversation, namely the set of worlds in which all the propositions mutually accepted by the participants in the conversation are true.

## Acceptance

▶ When the participants in a conversation agree on accepting an assertion, the *common ground* is updated: the content of the assertion is added to the mutually accepted propositions.

▶ For example, if I assert that it's raining now in Beijing and you accept my assertion, the proposition that it's raining now in Beijing is added to the common ground.

▶ Adding to the common ground of the conversation the proposition that it's raining now in Beijing amounts to eliminating from the context set of the conversation all the worlds in which it is false that it's raining now in Beijing.

▶ An assertion is accepted in a conversation iff the proposition it expresses is true in all the world of the context set of that conversation.

## Assertability conditions for disjunction

▶ Suppose the participants in the conversation accept that the butler murdered the librarian.

▶ In a situation of that kind, it would be odd to assert (5):

(5)     The butler did it or the gardener did it.

▶ In order for (5) to be assertable, the common ground must leave open both the possibility that the butler did it and the possibility that the gardener did it.

▶ This means that (5) is assertable only if the context set contains both worlds in which the butler did it and worlds in which the gardener did it.

▶ In general, this condition must hold:

⌜$\varphi$ or $\psi$⌝ is assertable in a conversation only if the context set contains both worlds in which ⌜$\sim\varphi \wedge \psi$⌝ is true and worlds in which ⌜$\varphi \wedge \sim\psi$⌝ is true.

## Accepting a disjunction

▶ Now, suppose that (5) is asserted and the participants in the conversation agree on accepting assertion (5):

(5)     The butler did it or the gardener did it.

▶ In this case, the proposition that the butler did it or the gardener did it is added to the common ground. What is the effect on the context set of adding this proposition?

▶ If we add proposition (5) to the common ground, we must eliminate from the context set all the worlds in which it is false that the butler did it and it is false that the gardener did it.

▶ Generally speaking, we may describe the effect of adding a disjunction to the common ground in this way:

Adding ⌜$\varphi$ or $\psi$⌝ to the common ground amounts to eliminating from the *context set* all the worlds in which it is true that ⌜$\sim\varphi \wedge \sim\psi$⌝.

## Constraint on the selection function for indicatives

▶ Finally, as we saw, Stalnaker suggests that in the case of indicative conditionals the selection function is subject to the following constraint:

3. If $w$ is a world of the context set and $\varphi$ is the antecedent of an indicative conditional, $f(\varphi, w)$ must be a world of the context set.

▶ In other words, if it is applied to the antecedent of an indicative conditional and a world of the context set, the selection function must select a world in which all the propositions accepted by the participants in the conversation are true.

## Stalnaker's answer

► Let's now go back to the problem from which we began.

► The supporter of the intensional analysis of indicative conditionals owes us an answer to this question:

> why is the inference in (4) reasonable, if it is not a valid inference?

(4)    Either the butler or the gardener did it. Therefore, if the butler didn't do it, the gardener did.

► Here's Stalnaker's answer:

- the inference in (4) is reasonable because in any conversation in which the premise is assertable and accepted, the conclusion is also accepted.

► Let's see why this is the case.

## The reasoning

► Suppose premise (5) is assertable and accepted:

(5)    Either the butler or the gardener did it.

► Since (5) is assertable, the context set contains both worlds in which the butler did it and worlds in which the gardener did it.

► Since (5) è accepted, the context set contains no worlds in which neither the butler nor the gardener did it.

► It follows that the conclusion (6) is also accepted:

(6)    if the butler didn't do it, the gardener did.

► Indeed, by the constraint on the selection function of indicative conditionals, the selection function, applied to the antecedent and any world $w$ of the context set, must single out a world of the context set in which the butler didn't do it which differs minimally from $w$.

► However, any world of the context set in which the butler didn't do it is a world in which the gardener did. Thus, (6) is true in every world of the context set, namely (6) is accepted.

## Further objections

► Now, we are going to discuss some further objections that have been raised against Stalnaker's theory of indicative conditionals and, more generally, against treating indicative conditionals as intensional.

## The rain dance

► Edgington (1995) raises the following objection to Stalnaker's theory of indicative conditionals:

> But now, any old contingent conditional can come out true in some context set. We take for granted that either we won't do our rain dance, or it will rain. In this context, "If we do our rain dance, it will rain" is true. We dance, and the drought continues. Still, our conditional was true in its original context. This provides further reason for doubt that such 'truth conditions' deserve their name.
> (Edgington 1995, p. 308)

► In other words, according to Edgington, a consequence of the constraint on the selection function for indicative conditionals is that the truth value of (7) depends on the beliefs shared by the participants in the conversation:

(7)    If we do our rain dance, it will rain.

► If they believe that the rain dance is effective, Edgington claims, Stalnaker predicts that (7) is true, even if they dance and it will not rain.

► If Edgington is correct, Stalnaker's theory makes a clearly false prediction.

## Truth and acceptance

- In defense of Stalnaker, Block (2008) observes that Edgington confuses *truth* with *acceptance*:
  - A conditional ⌜*if* $\varphi$, *then* $\psi$⌝ is true iff ⌜*if* $\varphi$, *then* $\psi$⌝ is true in the real world.
  - A conditional ⌜*if* $\varphi$, *then* $\psi$⌝ is accepted in a conversation iff the conditional is true in all the worlds of the context set.
- Stalnaker's theory predicts that, in a conversation in which it is part of the common ground that the rain dance works, conditional (7) is accepted:

  (7)    If we do our rain dance, it will rain.

- However, Stalnaker's theory predicts that conditional (7) is false.
- Let's see why.

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## Acceptance

- Suppose we assert (7) in a situation in which we all accept that the rain dance works (and we all know that we accept that, and so on).

  (7)    If we do our rain dance, it will rain.

- Thus, in the worlds of the context set in which we do our rain dance, it will rain.
- Now, let $w$ be a world of the context set. By Stalnaker's core semantics for conditionals and the constraint on the selection function of indicative conditionals, (7) is true in $w$ iff it will rain in the world of the context set in which we do our rain dance that minimally differs from $w$.
- But in the worlds of the context set in which we do our rain dance are all worlds in which it will rain. Thus, (7) is true in $w$.
- Since we can replicate the same reasoning for every world of the context set, if follows that (7) is true in every world of the context set.
- Thus (7) is accepted.

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## Truth

- In a situation in which we all accept that our rain dance works, the worlds of the context set are worlds in which our rain dance works.
- In the real world, our rain dance doesn't work. Thus, the real world does not belong to the context set.
- Stalnaker's constraint for indicative conditionals requires that *if w is a world of the context set*, the selection function applied to $w$ and the antecedent "we do our rain dance" single out a world of the context set:

  (7)    If we do our rain dance, it will rain.

- However, as we saw, the real world is not a world of the context set. Thus, the constraint for indicative conditionals does not require that the selection function, applied to the real world and the antecedent "we do our rain dance", single out a world of the context set.
- In fact, since in the real world our rain dance doesn't work, the world in which we do our rain dance which differs minimally from the real world is a world in which we do our rain dance and it will not rain.
- Thus, (7) is false.

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## A conversation between creationists

- In view of Block's reply to Edgington, a legitimate worry is that Stalnaker's constraint on indicative conditionals is too weak:

  ...the pragmatic constraint that I proposed has consequences only for the truth conditions of conditionals in possible worlds that are compatible with what is presupposed in the context (possible worlds in the context set). One might worry that this constraint is therefore much too weak, saying nothing, in most cases, about the actual truth of indicative conditionals. The worry is that it seems reasonable to believe that in almost all contexts, speakers will be making at least one false presupposition, even if an irrelevant one. Consider a discussion between two creationists about the Kennedy assassination. They falsely presuppose the truth of some creationist doctrines, let us assume. Even though these presuppositions are irrelevant to their current discussion, they imply that the actual world will be outside of the context set, so the constraint will be silent on the actual truth value of a statement like "If Oswald didn't shoot Kennedy, someone else did". But it seems clear that this statement, made in such a context, would be true, and the explanation for why it is true should be the same as in the case where all the presuppositions are true.
  (Stalnaker, 2011, p. 241-2)

## The problem of the false common ground

- In the previous passage, Stalnaker considers an objection to his account of (8):

    (8)    If Oswald didn't shoot Kennedy, someone else did.

    (9)    If Oswald had not shot Kennedy, someone else would have.

- According to Stalnaker, we accept (8) because it is common ground that someone shot Kennedy and the selection function applied to the antecedent of (8) and a world of the context set must select a world of the context set. We do not accept (9) as readily because in this case the selection function is not required to select a world of the context set.
- However, (8) not only is accepted by us, but it is also true. And it stays true in the discussion between creationists (where it is also common knowledge that someone shot Kennedy).
- However, in the discussion between creationists, the real world is not in the context set, since it is not a world in which creationism is true. Thus, the selection function applied to the antecedent of (8) and the real world does not have to select a world in the context set, thus the theory fails to predict that (8) is true in this context.

## The status of the constraint on indicatives

- One possible reply to the problem of the false common ground is that, again, it is based on a confusion between acceptance and truth.
- The fact to be explained is that the creationists discussing Kennedy's assassination accept (8):

    (8)    If Oswald didn't shoot Kennedy, someone else did.

- Since, like us, they accept that that someone shot Kennedy, the worlds in the context set will be worlds in which someone shot Kennedy. By the constraint on the selection function for indicatives, it follows that they should accept (8), as we do.
- Is (8) also true? This depends on whether the world that minimally differs from the real world in which Oswald did not shoot Kennedy is a world in which someone else shot Kennedy. Whether (8) is true or not is not something that depends on the common ground. The constraint on the selection function of indicatives only plays a role in explaining what is accepted, not what is true.
- However, this is not Stalnaker's reply. Stalnaker, as we saw, claims that in the discussion between the creationists (8) "would be true, and the explanation for why it is true should be the same as in the case where all the presuppositions are true."

## Coarse-grained alternatives

- The solution proposed by Stalnaker to the problem of the false common ground is based a way of individuating possible alternatives that is less fine-grained than possible worlds.
- In Stalnaker's original theory, possible alternatives in the context set are represented by possible worlds.
- Stalnaker now suggests that possible alternatives in the context set are represented *by cells in a partition of the set of possible worlds* (as suggested by Yalcin 2008 for independent reasons).
- In particular, according to this proposal,

    - possible alternatives in the context set are represented by cells in a partition of the set of possible worlds, where all the worlds in a cell are equivalent for the purpose of the conversation.
    - The actual situation is the cell that contains the real world. A sentence is true iff it is true in all the worlds of the cell that contains the real world.
    - (A *partition* of a set X is a grouping of its elements into non-empty disjoined subsets such that their union is identical to X).

## An illustration

- Suppose that the participants in the conversation are debating whether God exists, but they are not debating who won the Champions League.
- Suppose, moreover, that $w1$, $w2$, $w3$, $w4$ are such that
    - $w1$ is a world in which God exists and Chelsea won the Champions League,
    - $w2$ is a world in which God exists and Real Madrid won the Champions League,
    - $w3$ is a world in which God doesn't exist and Real Madrid won the Champions League,
    - $w4$ is a world in which God doesn't exist and Chelsea won the Champions League.
- Whether God exists is relevant for the purpose of the discussion. Thus, for the purpose of the discussion the worlds $w1$ e $w2$ (in which God exists) are not equivalent to the worlds $w3$ e $w4$ (in which God doesn't exist).
- Thus, $w1$ and $w2$ will not belong to the same cell to which $w3$ or $w4$ belongs.
- However, who won the Champions League is not relevant for the discussion. Thus, $w1$ and $w2$, which differ on who won the Champions but agree on what is relevant for the discussion (the existence of God), will be in the same cell. For the same reason, $w3$ and $w4$ will be in the same cell.
- If in the real world God exists, the real world will be in the cell which contains $w1$ and $w2$ and this cell will represent the actual situation. On the other hand, if in the real world God does not exist, the real world will be in the cell which contains $w3$ and $w4$, and this cell will represent the actual situation.

## Back to the discussion between creationists

▶ In the conversation between creationists, the debate is on who shot Kennedy, not on creationism.

▶ Thus, for the purpose of the conversation between creationists, a world in which Oswald shot Kennedy and creationism is true and a world in which Oswald shot Kennedy and creationism is false are equivalent and belong to the same cell of the context set.

▶ The same goes for the worlds in which Oswald did not shoot Kennedy and creationism is true and the worlds in which Oswald did not shoot Kennedy and creationism is false: they are equivalent and they belong to the same cell of the context set.

▶ Creationism is false in the real world, but now some cell in the context set also contains worlds in which creationism is false. So, the real world will belong to one of the cell of the context set.

▶ Thus, the selection function, applied to the antecedent of (8) and the actual situation, must select a situation in the context set. Since in the situations of the context set someone shot Kennedy, (8) is predicted to be true.

(8)  If Oswald didn't shoot Kennedy, someone else did.

## Jackson against treating indicatives as intensional

*It is perfect sense to say that if Oswald had not shot Kennedy, things would be different today from the way they actually are; and likewise that if I had won the Pools last year, I would today be rich, which is different from the way I actually am. It is, on the other hand, nonsense to say indicatively that if Oswald did not shoot Kennedy, things are different from the way they actually are; or that if I did win the Pools, I am different from the way I actually am.*

*. . . That is my most general argument against possible-world semantics for indicative conditionals. It is not just that Stalnaker and Davis get the wrong answers in some cases - that leaves open the possibility that different tinkerings with the similarity relations (or whatever) might succeed - but that indicative conditionals do not take us from the actual world at all. They are no sort of possible-worlds conditional.*

(Jackson, 1987, p. 74-5)

## Jackson's argument

▶ We may state the problem raised by Jackson for Stalnaker in the following way. Consider conditionals (10)-(11):

(10)  If Oswald had not shot Kennedy, things would be different today from the way they actually are.

(11)  If Oswald did not shoot Kennedy, things are different today from the way they actually are.

▶ According to Stalnaker's semantics and the standard semantics for "actually", counterfactual (10) is true iff in the world in which Oswald did not shoot Kennedy that differs minimally from the real world things are different from the way they are in the real world. (According to the standard analysis, ⌜Actually $\varphi$⌝ is true at a world $w$ iff $\varphi$ is true in the real world).

▶ However, indicative conditionals, for Stalnaker, have the same core semantics as counterfactual conditionals.

▶ Thus, according to Stalnaker, (11) should mean that in the world in which Oswald did not shoot Kennedy that differs minimally from the real world things are different from the way they are in the real world.

▶ The problem is that (11) doesn't mean that: (11) is simply nonsense.

## Jackson's diagnosis

▶ If indicative conditionals, unlike counterfactuals, are material conditionals, the contrast between (10) and (11) is expected:

(10)  if Oswald had not shot Kennedy, things would be different today from the way they actually are.

(11)  if Oswald did not shoot Kennedy, things are different today from the way they actually are.

▶ Indeed, if (11) is a material conditional, (11) is equivalent to (12):

(12)  Either Oswald shot Kennedy or things are different today from the way they actually are.

▶ The fact that (11) is nonsense is explained by the fact that (11) is equivalent to a disjunction where the second disjunct is nonsense. Indeed, the second disjunct of (12) says that things are different from the way they are.

▶ Jackson's conclusion, from (10)-(11), is that indicative conditionals are not intensional: unlike counterfactuals, they do not require that we consider possible worlds in which the antecedent is true that minimally differ from the real world.

## Williamson against treating indicatives as intensional

> Indicative and subjunctive conditionals are known to interact differently with a natural rigidifying reading of the 'actually' operator. ...Here is a variant on the original examples:
>
> (1i)   If Jim is two metres tall, Jim is actually two metres tall.
>
> (1s)   If Jim had been two metres tall, Jim would have actually been two metres tall.
>
> The indicative conditional (1i) is an obvious truism, verifiable on broadly logical grounds. By contrast, the subjunctive conditional (1s) is actually false on the relevant reading unless Jim is actually two metres tall, given that he could have been two metres tall. To put the point in terms of Lewis-Stalnaker semantics for counterfactuals, (1s) says that in the closest possible world(s) (if any) in which Jim is two metres tall, Jim is two metres tall back here in the actual world. Given that Jim could have been two metres tall, there are such worlds, so that truth-condition requires Jim to be two metres tall back here. The danger for a possible worlds account of indicative conditionals such as Stalnaker's is that it delivers the same result for them, falsely predicting that (1i) is false if Jim is not two metres tall. (Williamson, 2009, p. 135-6)

## Williamson's argument

▶ Williamson proposes a variant of Jackson's argument. Consider conditionals (13)-(14):

(13)   If Jim had been two metres tall, Jim would have actually been two metres tall.

(14)   If Jim is two metres tall, Jim is actually two metres tall.

▶ Indicative conditional (14) is trivially true. Conditional (13), on the other hand, is false if Jim is not two metres tall in the real world.

▶ These facts are expected if (13) has the semantics proposed by Stalnaker and (14) is a material conditional. Indeed:

- by Stalnaker's semantics and the standard interpretation of "actually", (13) is true iff in the world in which Jim is two metres tall which differs minimally from the real world it is true that in the real world Jim is two metres tall iff in the real world Jim is two metres tall;

- moreover, if (14) is a material conditional, it is equivalent to disjunction (15), which is trivially true:

  (15)   Either Jim is not two metres tall or Jim is actually two metres tall.

▶ On the other hand, if (14) were an intensional conditional (with the truth conditions proposed by Stalnaker), we should expect (14), like (13), to be false if Jim is not two metres tall in the real world.

## Considering a world as actual

▶ Recall our observation that, intuitively, the world of the context set are the possibilities that the participants in the conversation are not in a position to exclude, on the basis of the propositions they accept. So, the worlds of the context set are worlds that *might be the actual world*, in view of the propositions accepted in the conversation.

▶ Given that the selection function for indicative conditionals selects a world of the context set (when applied to worlds of the context set), it follows that the selection function, applied to the antecedent of an indicative conditional, selects a world that, in view of what is accepted in the conversation, *might be the actual world*.

▶ In view of these considerations, the following suggestion by Weatherson (2001) and Nolan (2003) is a natural one:

- when using a subjunctive, the speaker evaluates the consequent in the closest world in which the antecedent is true;

- when using an indicative, the speaker evaluates the consequent in the closest world in which the antecedent is true, *by considering this world as actual*.

## Answering Jackson's objection

▶ Weatherson and Nolan's suggestion accounts for the contrast between (10) and (11) observed by Jackson:

(10)   if Oswald had not shot Kennedy, things would be different today from the way they actually are.

(11)   if Oswald did not shoot Kennedy, things are different today from the way they actually are.

▶ According to the suggestion, the reason why (11), unlike (10), is anomalous is that the world referred to by "actually" is the closest world $w$ in which the antecedent is true:

(11)   if Oswald did not shoot Kennedy, things are different today from the way they actually are.

▶ Clearly, if "actually" refers to the closest world $w$ in which the antecedent is true, we should expect (11) to be anomalous since it can't be that the way things are in $w$ is different from the way things are in $w$.

## Answering Williamson's objection

► Weatherson and Nolan's suggestion also accounts for the contrast between (13) and (13) observed by Williamson:

(13)    If Jim had been two metres tall, Jim would have actually been two metres tall.

(14)    If Jim is two metres tall, Jim is actually two metres tall.

► Indeed, since "actually" in (14) (but not in (13)) refers to the closest world in which Jim is two metres tall, we expect (14) (but not (13)) to have a tautological flavour, since it is trivial to say that the way things are in $w$ is the same as the way things are in $w$.

► A way to state Weatherson and Nolan's proposal formally requires that we have a way of representing in the formal system which world is regarded as actual during the computation. We won't pursue this here.

## Summing up

► We compared intensional and extensional theories of indicative conditionals. In particular, we examined:

- Stalnaker's way out of the collapse argument;
- Edgington's objection to Stalnaker's constraint on the selection function for indicative conditionals;
- Stalnaker's way of identifying the possibilities in the context set;
- Jackson's and Williamson's objections to the intensional theories;
- Weatherson and Nolan's reply to these objections.