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Aspectualized Futures in Indonesian and English

Indonesian has three morphemes that are commonly used to express futurity:

(1) Budi akan/mau/pasti makan ikan.
Budi AKAN/MAU/PASTI eat fish
'Budi (future) eat fish.'

In this paper, I will consider the grammaticality and felicity judgments of two Indonesian speakers from Jakarta,[1] for whom these future morphemes all have different meanings. That is, it seems that for these speakers, no two of these morphemes are merely stylistic or register variants of each other. I will argue that for these speakers, the meanings of these three morphemes all contain a future modal, and that two of the morphemes (*mau* and *pasti*) each additionally include as part of their meaning a different aspectual operator (progressive-like and generic-like respectively) affecting the temporal argument of the accessibility relation of the modal. These combinations of aspect and a future modal I will call "aspectualized futures." Throughout, I will compare the Indonesian future forms with those in English: *will* and *be going to*.

In the first section of the paper, I compare *akan* and *will* with *mau* and *be going to* with respect to contexts of offering. In the second section we will see an explanation of these facts that treats *mau* and *be going to* as aspectualized futures, with a progressive-like aspectual operator. The third section concerns a dialect in which the judgments are slightly different, and discusses how they might be accounted for. The fourth section proposes an aspectual operator for *pasti*, suggesting that *will* is ambiguous between an *akan* reading and a *pasti* reading.

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[1] I will refer to the language spoken by these speakers as "Indonesian" until section 1.3, when we will look at data from two other speakers.

1.1 *Akan* and *mau*

Suppose that the linguistics department is going to hold a colloquium, and that the students need to find someone to make the coffee for it. The colloquium organizer stands up at the student meeting and asks for a volunteer. Another student can felicitously offer to make the coffee by saying (2a), though not by saying (2b).

(2) a. Saya akan membuat kopi.
         I   AKAN make   coffee
         'I (future) make coffee.' $\sqrt{}$offer

     b. Saya mau membuat kopi.
         I   MAU make   coffee
         'I (future) make coffee.'   #offer

The sentence in (2b) is by no means ungrammatical. A student could use it to report that, contrary to the colloquium organizer's beliefs, he was already planning to make the coffee. But it could not be used to make a spontaneous offer to make the coffee.

English has a similar phenomenon[2]. Parallel to the contrast in (2a) and (2b), the sentence in (3a) can be used to make an offer, while the sentence in (3b) cannot be (Leech (1971), Brisard (2001)).

(3) a. I'll make coffee. $\sqrt{}$offer

     b. I'm going to make coffee.   #offer

Indonesian and English thus have something in common: In the (b) cases but not the (a) cases, the speaker is reporting on an already-existing plan for the speaker to make coffee. Speakers of both languages have the intuition that in the (b) examples, the "being-going-to-ness" of the coffee-making is already underway: It has already been settled that coffee-making is going to happen. It is this intuition that seems incompatible with the offering context.

At this point we have a puzzle: Why are *mau* and *be going to* bad in offers, and why are *akan* and *will* good? Let's call this puzzle "the offering puzzle." [3]

An aside: We should be careful not to fall into the trap of equating *mau* with *be going to*, or for that matter *akan* with *will*. The next two examples demonstrate why. In Indonesian, it is *mau* that is used in dispositionals, while *akan* is impossible.

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[2]For earlier discussions of this fact, see, for example, Nicolle (1997), Brisard (2001), Leech (1971). I have discussed it before in Copley (2001), Copley (2002a), Copley (2002b), and Copley (2007).

[3]I have discussed the offering puzzle elsewhere: Copley (2001, 2002a,b, 2007).

(4) a. Budi mau makan ikan.
         Budi MAU eat   fish
         'Budi is willing to eat fish.'

    b. Budi akan makan ikan.
         Budi AKAN eat   fish
         #'Budi is willing to eat fish.'

By contrast, in English *will* (which otherwise can behave like *akan*) is typically used for dispositionals, and *be going to* (which otherwise behaves like *mau*) is quite odd. The sentence in (5a) can be a perfectly good answer to the question "Does Budi eat fish?" but the sentence in (5b) is rather bad in that context.

(5) a. Budi will eat fish.

    b. #Budi is going to eat fish.

I will not have anything further to say about dispositional readings here, but they demonstrate for us that whatever *mau* and *be going to* have in common, they do have differences; and whatever *akan* and *will* have in common, they have their differences as well.[4]

    With that caveat in mind, let us consider how to solve the offering puzzle.

1.2   Solving the offering puzzle

Recall the puzzle: Why can *akan* and *will* be used to make an offer, while *mau* seemingly cannot be? I will propose that while *akan* is just a future modal, *mau* and *be going to* are aspectualized futures. Their meaning consists of a progressive-like aspectual operator on top of a future modal, and this combination conflicts with a pragmatic requirement on acts of offering.

    Suppose we consider in more depth what it is to make an offer. There are a number of conditions on the felicity of offers.[5] The first condition has to do with the contribution of the speaker. It seems reasonable that only someone who can decide whether an eventuality happens or not can felicitously make an offer for that eventuality to happen. I cannot felicitously offer for it to rain tomorrow, for instance, because I have no power over the weather. So in order for an individual s ("speaker") to be able to make a valid offer to carry out a q-eventuality (an eventuality

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[4]Moreover, we will be adding to the list of differences between *akan* and *will* in a later section, where *will* is argued to have another distinct reading corresponding to the third Indonesian future morpheme, *pasti*.

[5]The discussion here is tailored to the needs of the current project. See Searle (1975) for the classic treatment of conditions on offering.

of which a predicate q holds), s must have power over whether a q-eventuality occurs.[6] Let's call this ability (without going into a precise modal characterization of ability) *direction*.

(6) An individual s *directs* q just in case s has the ability to determine whether a q-eventuality happens.

The one to whom the offer is made, whom I will refer to as h ("hearer"), also seems to have some control over whether the q-eventuality occurs. It should happen if h wants it to happen, and, equally importantly, it should not happen if h wants it not to happen. It would certainly be rude for someone to make an assertion that entails that in some cases where you do not want them to make the coffee, they do it anyway. For an utterance to count as an act of offering, the speaker's carrying out of the offered eventuality has to be contingent on the interlocutor's preferences.

Let's suppose that when a speaker utters *will q* or *akan q* as an offer, they are actually committing themselves to the truth of a conditional *if you want q, will q*, and a presupposition that s has power over whether a q-eventuality occurs.[7] On a Kratzer-style account of conditionals (Kratzer (1986), Kratzer (1981)), s asserts[8] that in all worlds where h wants q, a q-eventuality happens. And let us further agree that in making a valid offer, s is also committed to the truth of the proposition expressed by the conditional *If you don't want q, won't q* (where *don't want = want not*). This commitment reflects our intuition that the hearer's desires have an effect on whether a q-eventuality happens; it happens only if the hearer wants it to. Note that this commitment is not required by anything about the semantics of the conditional, but rather is just a pragmatic requirement on offers.

This approach, while faithful to our intuitions about offers, makes the odd prediction (brought to my attention by an anonymous reviewer) that both (7a) and (7b) have the same felicity conditions.

(7) a. We offer to play music during the party.

b. We offer not to play music during the party.

Actually, this prediction is correct. When $q = $ *we play music during*

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[6]In fact, the requirement may be weaker. It may be merely that the speaker must believe she has power over whether a q-eventuality occurs. Here we will abstract away from this consideration.

[7]Presumably this is done by treating the utterance as the consequent of that conditional, with the antecedent elided.

[8]Later, we will make use of the idea that offers are performative, so perhaps assertion is not the right idea here. On the other hand, Searle takes the position that performative acts are also assertions, so perhaps there is no problem in using both.

the party, we predict in both cases that the speaker is committed to the same things: *q* if the hearer wants *q*, and not-*q* if the speaker wants not-*q*. This is as it should be. The problem is that something more needs to be said to distinguish (7a) and (7b), because clearly the content of the offer is not the same. One way of handling this would be to add a presupposition that the speaker expects the hearer will probably want *q*, while being aware of the possibility that they might not. We will set aside this presupposition for the purposes of the present argument.

Let us construct an informal condition on offers, meant to be a necessary and sufficient condition.[9]

(8) *Offering condition.*
   s has felicitously offered to bring about a *q*-eventuality for *h* iff *s* has the power to determine whether q happens, and is committed to the truth of (a) and (b):
   a. If B wants *q*, will *q*.
   b. If B doesn't want *q*, will not-*q*.

This characterization of offering gives us a hint about the semantics of *mau* and *be going to*. Since *mau* and *be going to* are, in the cases we are interested in, incompatible with offering, their semantics should somehow conflict with the characterization of offering given in (8).

Let us see how this idea works. For the colloquium example, the student offering to make the coffee would thus have to be committed to (9a) and (9b).

(9) a. If you want me to make the coffee, I'll make the coffee.
   b. If you don't want me to make the coffee, I won't make the coffee.

The problem with using *mau* and *be going to* in offering contexts seems to be a conflict with the requirement in (9b). If you're going to make the coffee regardless of what anyone else says, then certainly (9b) isn't true. In fact, the problem is that *mau* and *be going to* apparently convey that it is *already* true that the speaker will make the coffee. This flavor of "ongoingness," an aspectual concept, suggests that there is aspect involved in the meaning of *mau* and *be going to*.

There are a couple of other reasons to think that the essential difference between *mau* and *be going to* on the one hand and *akan* and *will* on the other is one of aspect. One reason is evident in the morphology of English *be going to*, which suggests a progressive operator higher than the future modal, as in (10) below. This structure represents what I am

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[9]For a more formal treatment of this condition, see Copley (2002b) and Copley (2007).

calling an aspectualized future.

(10)

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                      TP
                  ╱        ╲
                 T          AspP
                         ╱       ╲
                      Asp          FutP
                     be -ing    ╱      ╲
                             Fut        vP
                             go        ╱△╲
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(10) is to be contrasted with (11), which is the structure for a non-aspectualized (or bare) future modal.

(11)

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              TP
           ╱     ╲
          T       FutP
               ╱      ╲
             Fut        vP
                       ╱△╲
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English may not be alone in overtly marking a future form with aspectual morphology. Blackfoot has two future forms, *áak* and *áyaak*, where the second form is what would be expected from the composition of a durative marker *a-* and *(y)áak*. And indeed, in offering contexts *áak* behaves like *will* and *áyaak* behaves like *be going to*: (12a) is possible as an offer, but (12b) is not (Reis Silva, 2007).

(12) a. Nisto nit**áak**ihkiita
         1sg 1sg-FUT-cook
         'I will cook.'

      b. Nisto nit**áyaak**ihkiita
         1sg 1sg-FUT-cook
         'I am going to cook.'

A third reason to ascribe the offering puzzle to an aspectual difference has to do with the fact that offers are performative speech acts. It is uncontroversial that performatives are incompatible with aspect: For example, the simple present is used for an act such as a christening, while the progressive is infelicitous:

(13) a. I (hereby) christen this ship the Queen Mary.

      b. I am (#hereby) christening this ship the Queen Mary.

Therefore, we should not be surprised if aspectualized futures are like-

wise incapable of being used to express offers. This fact is thus another reason we might look to aspectual differences to explain the difference between forms that allow offers and those that do not.

Finally, there is a reason, aside from their lack of aspectual morphology, to think that *akan* and *will* lack aspectual meaning. Consider the sentences in (14) and (15), where the speaker is pointing at dark clouds that have formed on the horizon.

(14) a. Aduh, mau hujan.
          Look, MAU rain
          'Look, it (future) rain.'

       b. #Aduh, akan hujan.
          Look, AKAN rain
          'Look, it (future) rain.'

The examples in (14) show a contrast between *mau* and *akan* in a context where the prediction is being made on the basis of evidence available just at the time of utterance (that is, not drawing on evidence from any earlier time, except for general knowledge about how rain clouds develop). That context is favored by the exclamation *aduh*.

The English futures provide a similar contrast, as shown below in (15).

(15) a. Oh look, it's going to rain.

       b. #Oh look, it'll rain.

Like *mau*, *be going to* is possible in this situation, while like *akan*, *will* is not possible.[10] Why are *mau* and *be going to* good here, but *akan* and *will* bad?

One possible hypothesis we might entertain is that *akan* and *will* both need to have a restriction, and since there is no restriction in (14b) and (15b), that is why *akan* and *will* are unacceptable. Now, this hypothesis requires some further elaboration. There is clearly no *overt* restriction required for *akan* and *will*, because it is possible to find *akan* and *will* sentences that have no overt restriction, for example (2a) and (3a). However, (2a) and (3a), I have argued, have a *covert* restriction: *if the hearer wants* q. So perhaps *akan* and *will* do have a requirement for a covert restriction. In the context in (14b) and (15b), there is no event upon which the rain event is presented as contingent, which is to say that there is no restriction. Thus on the hypothesis that *akan* and *will*

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[10]The addition of *aduh* 'look' or *oh look* is crucial here, as it rules out other contexts. There are of course various other contexts in which *will* is fine; in particular, we might consider contexts where a "long experience" construal arises, as in *Don't worry, it'll rain*. This construal is discussed in greater detail below in section 1.4.

require a covert restriction, *akan* and *will* would correctly be predicted to be bad in (14b). However, this hypothesis fails when we consider promises.

Promises, like offers, are performative speech acts that commit the speaker to doing something. However, they are unlike offers in that they do not present the eventuality as being contingent on the hearer's desires. Instead they presuppose that the hearer desires the eventuality. *Akan*, like *will*, is just as felicitous with promises as it is with offers: Just as you can offer to make the coffee by saying *Saya akan membuat kopi* or *I will make the coffee*, you can promise to make the coffee by uttering these same sentences.

Therefore, it cannot be argued that the reason the sentences in (14b) and (15b) are bad because of a requirement that *akan* and *will* have a covert restriction.

A more plausible reason to rule out (14b) and 15b) is that it is a non-performative utterance predicated of the speech time, and that aspect is required in that case. The progressive sentence in (16a), for example, is fine, but the bare verb in (16b) yields infelicity.

(16) a. Zoe is dancing.
     b. #Zoe dances.

The contrasts in (14) and(15) are best explained the same way as the contrast in (16), namely by way of an aspectual distinction.

I have argued for three reasons to think that *mau* and *be going to* are aspectualized—their flavor of "ongoingness", the overt aspectual morphology of *be going to*, and their status as non-performative speech acts—and one reason to think that *akan* and *will* are non-aspectualized, namely their incompatibility with contexts relying on here-and-now evidence. I will thus suppose that *akan* and *will* have no aspect while *be going to* and *mau* are aspectualized futures, consisting of an aspectual operator scoping over a future modal, as in (10a). In order to evaluate this idea, it is necessary to decide upon meanings for both the aspectual operator and the future modal.

For the semantics of the future modal, we will use a denotation drawn from Thomason (1970), given below in (17), and paraphrased in (18).

(17) (Thomason, 1970)

For any instant t and world w, $\text{FUT}(w)(t)(q)$

$= 1$ if $\forall$ w$'$ that agree with w up to t:

$\exists t'$: $t < t'$ and $q(w')(t') = 1$;

$= 0$ if $\forall$ w$'$ that agree with w up to t:

$\neg\exists t'$: $t < t'$ and $q(w')(t') = 1$;

and is undefined otherwise.

(18) For any instant t and world w, FUT(w)(t)(q) is defined iff all the worlds that branch off at t share a truth value for q. If FUT(w)(t)(q) is defined, it is true iff on all those worlds there is some time t′ later than t at which q is true; and it is false if on all those worlds there is no time t′ later than t at which q is true.

A case in which FUT(w)(t)(q) is true is represented in the branching time diagram in (19) below:

(19)

I will set aside the question of how to model precisely *which* worlds branch off; equivalently, if we are thinking of a Kratzer-style system (Kratzer (1991), e.g.), we will be ignoring what the modal base and ordering source would be. But let us suppose that these worlds are *inertia worlds* in the sense of Dowty (1979): worlds in which events develop normally.[11] The idea that the branching worlds are inertia worlds will be useful later, in section 1.4, but for now we will only be concerned with the temporal properties of the future modal.

Since the denotation desired for *mau* and *be going to* is to be composed of a future modal and a progressive operator, it remains to choose a meaning for the progressive operator. We will adopt a very simple one, namely a version of the Bennett and Partee (1978) proposal for the meaning of the English progressive. This progressive operator takes a world, an interval, and a proposition, and returns truth if there is a superinterval of the original interval on which the proposition is true at that world.

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[11]This assumption may seem off-base, since it is perfectly possible to make a prediction and assert that the world will *not* develop normally. However, the speaker must at least assume that the world develops normally from the (possibly unusual) starting conditions that the speaker has in mind. For more discussion on this point, see Copley (2002b). See also Werner (2002), Condoravdi (2003) for more on the choice of worlds to be quantified over. Incidentally, setting aside the question of which worlds branch off was also what we did when we set aside the dispositional readings of *mau* and *will* in (4a) and (5a).

(20) $\mathbf{P}(w)(t)(q) = 1$ iff $\exists t' \supset t$: $q(w)(t')$

As Dowty points out (Dowty, 1979), this denotation runs afoul of the imperfective paradox.[12] This is not a problem for the current project, since the goal is not to construct a meaning for the progressive.[13]

(21)
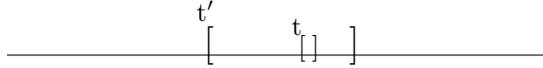
Let us assume that present tense is null, and that *akan* and *will* have the meaning of FUT. *Mau* and *be going to*, on the other hand, have the proposed structure, namely a Bennett and Partee progressive $\mathbf{P}$ scoping over FUT, as expanded below. Thomason's original operator must be altered slightly so that it takes intervals rather than instants. The change is to substitute "agree with w up to the beginning of t" for "agree with w up to t" in the denotation of FUT. Intuitively, we can speak of branching worlds that branch off during an interval, rather than at an instant.[14]

(22) $[\![mau]\!]^g / [\![be\ going\ to]\!]^g = \mathbf{P}(w)(t)(\text{Fut}(q))$
  $= 1$ iff $\exists t' \supset t$: $[\text{Fut}(w)(t')(q) = 1]$
  $= 1$ if $\exists t' \supset t$: $[\forall\ w'$ that agree with w up to the beginning of t':
  $[\exists t''$: $t' < t''$ and $q(w')(t'') = 1]]$

How can we characterize the set of worlds quantified over by this denotation of *mau* (and equally, of course, *be going to*)? $\mathbf{P}$, evaluated at t, w, and p, yields a truth value of 1 just in case p holds over a superinterval t' of t in w, where t is an internal interval of t'. *Mau* represents a case where p is $\text{Fut}(q)(w)(t')$ (for some q).

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[12]The imperfective paradox is the fact that (i) is acceptable:
(i) John was drawing a circle, but then he got up to answer the phone and he never finished.
If the denotation of the progressive *be -ing* were really as in (20), then (i) would be predicted to be bad, since there is in this case no interval t' for which *John draw a circle* is true in the actual world.

[13]If anything, the present project is very much along the lines of Dowty's analysis of the English progressive, since both his denotation for the progressive and mine for *be going to* place a modal under this strictly aspectual operator.

[14]The superscript g in the equation in (22) denotes a variable assignment along the lines given in, for example, Heim and Kratzer (1998). For reasons of clarity, the denotation in (22) does not include the cases where $\mathbf{P}(w)(t)(\text{Fut}(q)) = 0$ (those cases where on all the worlds that branch off from t' there is no interval on which *q* is true) and the cases where $\mathbf{P}(w)(t)(\text{Fut}(q))$ is undefined (those cases where some of the worlds branching off from t' have such an interval and some of the worlds do not); see for comparison the denotation of FUT in (17).

The worlds *mau* quantifies over are not just the set of worlds $\text{FUT}(q)(w)(t)$ quantifies over, i.e., those that branch off during t, but a larger set of worlds: the worlds that branch off during some interval t' that surrounds t. We would represent the worlds that *mau* quantifies over as below in (23). If $[\![mau]\!]^g(q)(w)(t)$ is true, that entails that all the worlds pictured branching off during some t' are q worlds, as shown in (23).

(23) A case in which $\mathbf{P}(\text{FUT}(q))(w)(t)$ is true
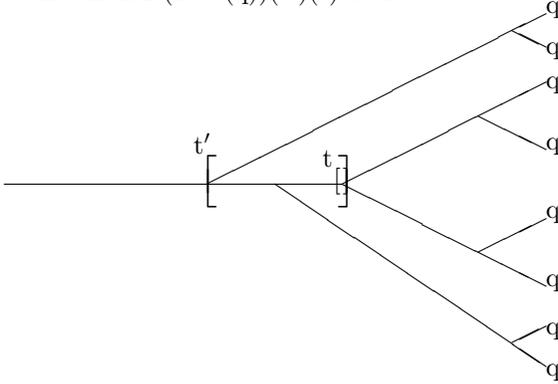
Mau therefore quantifies over not only the worlds that *akan* would quantify over given the same arguments, but also over additional worlds—those that branch off during t' but before the beginning of t—but only as long as t is not an initial sub-interval of t'. Why must t not be an initial sub-interval of t'? The reason is that there must be some part of t' before t begins, so that the world quantifier can quantify over those worlds that branch off before the beginning of t. If t and t' had the same initial point, there would be no worlds that branched off during t' but not during t. While we could explicitly stipulate the relation between t and t' to exclude such a possibility, there is no need to do so if we adopt a common[15] assumption that the actual world only exists up to the time of utterance; equivalently, that future world-time pairs are not available except by modal means. In that case, the only way t can be a proper subinterval of t' is if t' begins before t begins, because they must both end at the time of utterance. Therefore there is no need for an additional stipulation that t not be an initial interval of t'.

Now to solve the offering puzzle. Let p be the proposition expressed by *you want me to make the coffee* (in the context in question); q be the proposition expressed by *I make the coffee* (in the context in question);

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[15]See, among others, Prior (1967), Abusch (1998), and Werner (2002) for independent justification of this assumption.

and t be a time at or after the utterance time (i.e., the time when it matters whether the hearer wants q, and at which the offerer is prepared to bring about a q-eventuality). Then the incompatible propositions from the puzzle are rendered as follows.

(24)   a.   *mau q/be going to q*: All worlds w such that $p(w)(t) = 1$ are worlds in which $\mathbf{P}(w)(t)(\mathrm{FUT}(q)) = 1$

   b.   Condition on offering (=(8b)): All worlds w such that $\neg p(w)(t) = 1$ are worlds in which $\mathrm{FUT}(w)(t)(q) = 1$

Depicted below is a world in which p is true at time t, and in which *mau q* (or *be going to q*) is also true at t.

(25)   w,t such that $p(w)(t)$ and $[\![mau\ q]\!]^g(w)(t)$
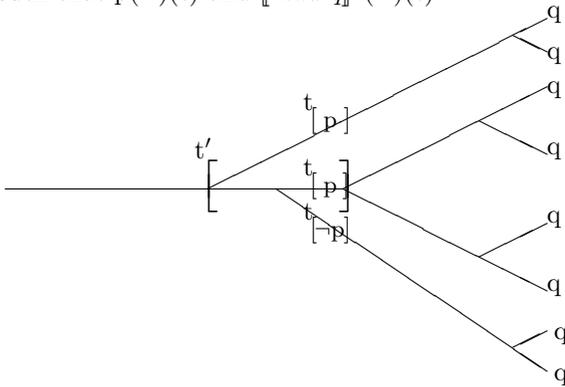
The first thing to note about (25) is that there are some not-p worlds among those that branch off during t' but before the beginning of t. This is accurate as long as p describes some sort of non-necessary occurrence. But in that case, there are not-p worlds that are q worlds (worlds in which they don't want you to make the coffee, but you do it anyway). This is the source of the conflict with the offering condition. *Mau* and *be going to* sentences have an entailment that q will happen anyway, whether or not p happens. Let's call this entailment the "anyway entailment." [16]

(26)   "Anyway entailment": Some not-p worlds are q worlds.

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[16] Actually, a stronger version of the anyway entailment is true: All not-p worlds are q-worlds. This is argued for in Copley (2007). The argument is based on the idea that only worlds branching off during the topic time are under consideration, and all of those worlds that are not-p worlds are also q worlds.

That this is the right approach to the puzzle becomes clear when we consider contexts in which not-p worlds are assumed to be non-existent. In these contexts, *be going to* sentences do not sound rude. Consider, for example, another possible billboard that you might see in Madera:

(27) We're going to make you happy in Madera.

The sentence in (27) is not exactly an offer, but neither is it entirely rude. The reason it is not so rude is that it is safe for the speaker to assume that there are no not-p worlds. That is, conceivably, provided you are already in Madera, there are no possible worlds in which you don't want to be happy in Madera. The utterance of (27) thus does not entail that any not-p worlds are q worlds. Hence no conflict with the offering condition emerges.

The puzzle we began with, i.e., that *mau* and *be going to* cannot be used to make offers, provided empirical support to the proposal that this construction involves two ingredients: progressive-like aspect and a future modal. The modal semantics of *mau* and *be going to*, we suppose, is indistinguishable from that of *will* and *akan* (modulo any difference in modal base or ordering source), but because the set of branching futures is dependent upon time, a difference in aspect means a difference in the set of worlds quantified over by the modal. In this case we saw that a *be going to q* or *mau q* statement will typically entail that a *q*-eventuality will happen regardless of what else happens, while a *will q* or *akan q* statement will not have such an entailment.

1.3 Microvariation

My interviews with Indonesian speakers yielded a certain variation in judgments. This is not surprising, as "Bahasa Indonesian" is a nationally imposed lingua franca. Many speakers speak or spoke other languages or varieties at home, and are exposed to "official" Indonesian only upon starting their formal education. So we should not necessarily expect to find the same judgments among those who describe themselves as Indonesian speakers.

As I remarked above in the introduction to the paper, sections 1.2 and 1.3 were based on the judgments of two speakers who had the same judgments (DY and WH). I did consult with speakers whose judgments were quite different from these two speakers, on both grammatical and lexical items. More interesting for our present purposes, however, is a pair of speakers (YT and NP) whose grammar seems only minimally different from the first two speakers.

Let's call the original pair of speakers "group 1" and the second pair "group 2". Unlike group 1 speakers, group 2 speakers reject the use

of (28a) as an offer. In addition, group 2 speakers accept (28b), which group 1 speakers reject entirely.

(28) a. Saya akan membuat kopi.
          I   AKAN make   coffee
          'I (future) make coffee.'   1: $\sqrt{}$offer   2: #offer
      b. Aduh,   akan hujan.
          oh-look, AKAN rain
          'Oh look, it (future) rain.'   1: #   2: $\sqrt{}$

I do not have an analysis of the Group 2 facts, but there is a little more to say about Group 2 offers.

Group 2 speakers can, of course, make offers, but they use the bare verb or *bisa* 'can' to make an offer, as in (29b) below. I did not ask group 1 speakers about the use of the bare verb to make an offer, as in (29a). They did not, however, volunteer it as a way of making an offer. They did accept sentences with *bisa* for offers.

(29) a. Saya membuat kopi.
          I   make   coffee
          'I make coffee.'   1: (not attested)   2: $\sqrt{}$offer
      b. Saya bisa membuat kopi.
          I   can make   coffee
          'I can make coffee.'   1: $\sqrt{}$offer   2: $\sqrt{}$offer

All other group 2 judgments are the same as group 1 judgments.

How can the group 2 judgments be explained? One plausible hypothesis we must examine is the idea that *akan*, like *mau*, is also aspectualized for group 2 speakers. Of course, if this were the case we would not want there to be two lexical items with exactly the same meaning. Indonesian is rife with lexical items that vary only in register, i.e., their appropriateness in formal or informal situations. But the group 2 speakers rejected the idea that *akan* and *mau* belonged to different registers. On the other hand, *akan* and *mau* have another difference, namely, the possibility for dispositional readings, as shown in (4), repeated below as (30b).

(30) a. Budi mau makan ikan.
          Budi MAU eat   fish
          'Budi is willing to eat fish.'
      b. Budi akan makan ikan.
          Budi AKAN eat   fish
          #'Budi is willing to eat fish.'

The existence of this contrast shows that *akan* and *mau* are not entirely synonymous, making it possible that *akan*, like *mau*, could be aspectualized. But this hypothesis cannot be right. The judgment in (31) is

shared by group 1 and group 2 speakers alike, and is unexpected if *akan* has aspect.[17]

(31) #Kalau kamu mau tahu, Budi akan menang.
if you want know Budi AKAN win
intended: 'If you want to know, Budi will win.'

The reason is that, in the most plausible scenario, the speaker is not proposing that Budi's winning is contingent on the hearer's desire to know. Rather, the speaker is asserting that Budi will win regardless; the antecedent is something like a condition on relevance to the hearer.[18] This context is thus an anyway-entailing context, and if *akan* were an aspectualized future for group 2 speakers, we would expect (31) to be acceptable for them. It is not, so we are forced to look elsewhere for an explanation of the group 2 judgments in (28).

It seems plausible at first blush that the availability of the simple present for offers, as in (29a), has something to do with the fact that (28a) is unacceptable as an offer for group 2 speakers. There are, however, languages in which both are available (with different meanings), such as French:

(32) a. Je fais   le   café.
I   make DET coffee
'I'll make the coffee.'   √offer

b. Je ferai   le   café.
I   make-FUT DET coffee
'I'll make the coffee.'   √offer

Since the French facts demonstrate that present-tense and future-tense offers can coexist in a language, the felicity of present-tense offers in Group 2 Indonesian is unlikely to be related to the infelicity of *akan* offers in Group 2 Indonesian. I will have to leave the question of the correct analysis of Group 2 Indonesian futures for later research.

1.4 *Pasti*

So far, I have given an account of *akan* and *mau* for certain speakers of Indonesian, and briefly discussed the problems that arise from a variant dialect. At this point, we turn to the third Indonesian future, *pasti*.

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[17]The English version of (31) is discussed below in section 4. The scope-taking alternative discussed in that section for *pasti*, *will*, *be going to*, and *mau* is of no use here, because here is no configuration that will allow an aspectless future to generate the anyway entailment.

[18]See Austin (1961) for the classic discussion of this kind of conditional, and Siegel (2004) (and references therein) for more recent discussion.

I have analyzed both *akan* and *will* as aspectless Thomason-style future modals. Given this analysis, we would expect the *will* sentences in (33) to be unacceptable: They present the eventuality as non-contingent, hence the anyway entailment holds.

(33) a. Don't worry, it'll rain.
  b. Trust me, it'll work.
  c. Oh, she'll be there.

The reason the examples in (33) are not contingent is because there is no restriction at all for *will*. The speaker of (33a), for instance, is not saying that it will rain if such-and-such a thing occurs, but rather that it will rain no matter what else happens.[19] This is why the anyway entailment holds.

A similar problem arises with relevance conditionals, as in (34) (and similar to the Indonesian example in (31) above).

(34) If you really want to know, Mary will win.

While there is indeed an *if* clause in (34), as we saw above, the truth of the consequent is not contingent on the truth of the antecedent. This can be seen from the fact that (on the most plausible reading) the speaker is asserting that Mary will win regardless of whether the hearer really wants to know that she will. The *if* clause is something like a condition on relevance.

In light of the analysis given above for *will* in offers, it is surprising that these *will* sentences apparently have the anyway entailment. If *will* is aspectless, as argued above, it should not trigger the anyway entailment. Interestingly, this problem does not arise for *akan*. To translate sentences such as those in (33) and (34), Indonesian speakers do not use *akan* but rather *pasti.*

(35) a. Pasti hujan.
    PASTI rain
    'It'll rain.'
  b. #Akan hujan.
    AKAN   rain
    'It'll rain.'

(36) a. Kalau kamu mau tahu, Budi pasti menang.
    if   you   want know Budi PASTI win
    'If you want to know, Budi will win.'

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[19]The examples in (33) have a characteristic intonation, supported in part by the extra elements *Don't worry, Trust me,* and *Oh*, without which they can sound very odd: #*It'll rain* by itself is extremely bizarre, for example.

b. #Kalau kamu mau tahu, Budi akan   menang.
   if   you   want know Budi AKAN win
   (=(31) above)

This third future morpheme can therefore occur in anyway-entailing contexts, just like *mau* does. But *pasti* behaves unlike *mau* in non-anyway-entailing contexts, where the consequent truly is contingent on the antecedent. In these contexts, *pasti* is acceptable, like *akan* and unlike *mau*. Despite the fact that *pasti* and *akan* receive similar judgments, however, the meanings of *akan* and *pasti* are apparently different, as is evident from one speaker's reports about his judgments in (37) and (38).

(37) a. Kalau kamu menjatuhkan vas ini, vasnya   akan pecah.
         if   you   drop   vase this vase-det A-fut break
         'If you drop this vase, it will break.'

      b. Kalau kamu menjatuhkan vas ini, vasnya   pasti pecah.
         if   you   drop   vase this vase-det PASTI break
         'If you drop this vase, it will break.'
         "*Akan* works just fine but *pasti* sounds better." (YT)

In offering contexts, while *akan* is ordinarily used, *pasti* can be used, e.g., to report that one's son will help, conveying that the speaker is certain the son will offer.

(38) a. Kalau kau mau, anak-ku akan membantu-mu.
         if you want child-my akan help-you
         'If you want, my child will help you.' (= (**??**) above)

      b. Kalau kau mau, anak-ku pasti membantu-mu.
         if you want child-my pasti help-you
         'If you want, my child will help you.'
         "*Pasti* will work but sounds stronger (how sure am I that my son will do it?)" (YT)

Let us consider the perceived difference in strength or certainty between *akan* and *pasti* in (38). How might we capture this difference? Presumably, *pasti* quantifies over more worlds than *akan* does. One way to achieve this result is to vary the strength of the quantification over the accessible worlds. The highest level of certainty corresponds to universal quantification, and increasingly lower levels of certainty correspond to increasingly lower levels of quantification. But even though (38a) corresponds to a lower level of certainty than does (38b), it is unthinkable that *akan* could involve less than universal quantification—it is nothing like a *might* or *may* modal.

Since weakening the quantificational force of *akan* is not an option, we must instead find another way to ensure that *pasti* quantifies over

more worlds than *akan* does. I would like to propose that *pasti* is an aspectualized future. As I argued above, an aspectualized future modal quantifies over more worlds than does the bare future modal.[20] Partial confirmation for this idea is given by the fact that *pasti* can occur in anyway-entailing contexts; I argued above that only aspectualized futures are possible in those contexts. However, if *pasti* is aspectualized, it must be explained why *pasti* can also occur in non-anyway-entailing contexts as well.

To explain this, let us return to the account of the anyway entailment developed in the previous section. The account explained why conditionals like the one in (39) entailed that q will happen regardless of whether p happens.

(39) If p, be going to/mau q.

Crucial to this account was the idea that in a conditional where *mau q* is the consequent and *p* is the antecedent, *mau q* is evaluated at the same time as *p*. In that case, clearly *mau q* must be a constituent in the phrase structure for (39) (where *mau* is the spell out of the Asp and Fut heads). This means that the structure for (39) will be like that in (40). However, there is no reason that the structure in (40b) would not be possible.[21] Both structures, for instance, are compatible with the independently developed account of conditional syntax given by Bhatt and Pancheva (2005).
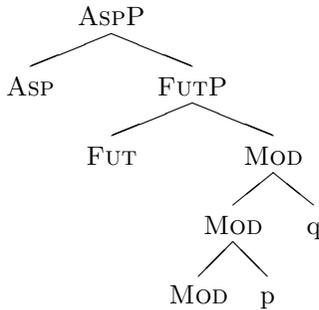
(40) a. narrow scope reading

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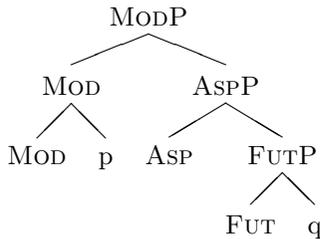
[20]It is not immediately clear that *be going to* is stronger than *will*, or that *mau* is stronger than *akan*, as this analysis might seem to predict. However, in the offering case, this is surely the case, since *will* and *akan* present the eventuality as contingent, and *be going to* and *mau* present it as non-contingent. In sentences where *will* seems stronger than *be going to*, *will* is anyway-entailing and therefore must have the *pasti* reading.

[21]In (40b) I have placed the conditional modal Mod under the future modal Fut to avoid the need for two denotations of Fut, where one denotation takes one propositional argument (needed anyway for (40a)) and one that takes two. If there were an independent reason to think that Fut has two such meanings, such an implementation would not materially affect the account developed here.

b. wide scope reading

```
                    AspP
                   /    \
                 ASP    FutP
                       /    \
                     FUT    MOD
                            /  \
                          MOD    q
                         /   \
                       MOD    p
```

If wide scope (i.e., over the entire conditional) is possible, then in those cases we would not expect to see the anyway entailment, because the aspectualized future is too high to trigger it. (Recall that the anyway entailment is triggered when the consequent of the conditional includes an aspectualized future.) The conditional part of (40b) says simply *if p, q*, so the anyway entailment is not triggered.[22] I propose that this wide scope configuration in 40b is why *pasti* is possible in the non-anyway-entailing contexts in (37b) and (38b).[23]

Further support for the scope-taking hypothesis comes from the group

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[22]This is an oversimplification. When q is stative, the anyway entailment is indeed triggered, as we can see from comparing the eventive predicate *go to my office* in (i) with the stative predicate *be in my room* in (ii), below. With the former, the consequent is contingent upon the antecedent, while with the latter, the consequent is not contingent upon the antecedent (that is, the speaker is going to be in her office regardless).

i. If you need me, I'll go to my office.
ii. If you need me, I'll be in my office.

This effect requires the future element to take wide scope, and is discussed at length in Chapter 4 of Copley (2002b). In any case, it is dependent upon the stativity of the complement of the future element, not on the aspectual element that scopes over the future element.

[23]What about the other aspectualized futures, *mau* and *be going to*? They also can take wide scope. In (i), for example, what is already true, i.e., non-contingent, is that the speaker will do something to help the hearer relax. What that something is (i.e., makng coffee for the hearer or giving the hearer a manicure) is contingent on the hearer's desires.

i. I'm going to help you relax before your dissertation defense. If you want me to make you coffee, I'm going to make you coffee. If you want me to give you a manicure, I'm going to give you a manicure.

The meanings of the conditionals in (i) therefore correspond exactly to the wide scope meaning proposed in (40b), with *be going to* taking scope over the conditional. See Copley (2007) and Copley (2002b) for further justification of this claim.

2 data[24] in (41).

(41) a. ?Kalau dia memukul dahinya,   dia **akan** mengatakan sesuatu   yang p
       if   s/he hit   forehead-det s/he akan say   something rel   in
       'If she hits her forehead, she will tell you something important.'

     b. #Kalau dia memukul dahinya, dia **pasti** mengatakan sesuatu
       yang penting kepadamu.

     c. Kalau dia memukul dahinya, dia **pasti akan** mengatakan sesu-
       atu yang penting kepadamu.

Here, the consequent is contingent on the antecedent, so this is a non-anyway-entailing context. Neither *pasti* nor *akan* is entirely appropriate, but *pasti akan*, as in (41c), is perfect. *Akan pasti*, however, is not possible. One speaker (YT) remarked, "*Akan* alone will somewhat work . . . but *pasti akan* sounds better. To me, *pasti* alone in this case sounds awkward, because it makes the two events (hitting forehead and saying something important) sound like they are simultaneous. Something like 'If he hits his forehead, he *pasti* feel pain."'' How to explain these intuitions?

Let's leave aside (41a) for the moment. Note, however, that we have no way of knowing whether *akan* is taking wide scope or narrow scope in (41a), because *akan* is not an aspectualized future, and so could not generate the anyway entailment even if it was interpreted in the consequent, taking narrow scope.

By contrast, we can distinguish the scope-taking possibilities of *pasti*, assuming that *pasti* is an aspectualized future. The use of *pasti* in (41b) is infelicitous. Narrow scope *pasti* in (41b) is correctly ruled out, because a narrow scope aspectualized future would trigger the anyway entailment, which is not supported in this causal context. But why is wide scope *pasti* ruled out?

The answer is in the speaker's comments: When confronted with (41b), he volunteered for the consequent an event that follows immediately from the event in the antecedent. The person's hitting their forehead immediately causes the pain, similarly to dropping the vase causing it to break. The forehead-hitting does not *immediately* cause them to tell you something important, even if it does *ultimately* cause it.
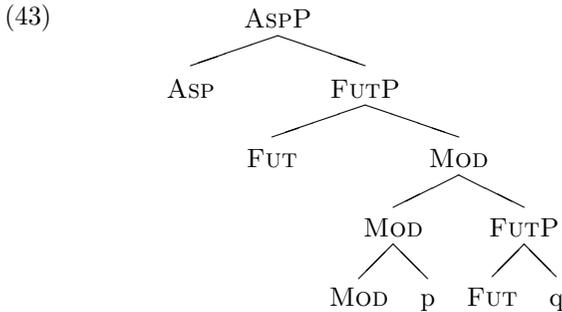
But this restriction to immediate cause is exactly what we would expect if there were no future interpreted inside the consequent. We can observe this situation in English conditionals that lack futures. While the conditionals in (42a) and (42b) lack a morphological analogue to

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[24]Examples with double futures were not attested with group 1 speakers.

pasti, the relation between cause and effect is similar, and (42b) tends to sound as though the events are simultaneous or nearly so.

(42)   a. If the vase falls, it breaks.

      b. If she hits her forehead with her hand, she tells you something important.

Thus, in the forehead-hitting case, a future is needed in the consequent. It cannot be *pasti*, because *pasti* is aspectualized and thus anyway-entailing. So *akan* must be used. The structure of (41c) would therefore be this:

(43)

```
                    AspP
                   /    \
              Asp         FutP
                        /      \
                    Fut          Mod
                               /      \
                          Mod           FutP
                         /   \          /    \
                      Mod     p      Fut      q
```

The Asp head and the higher *Fut* head combine by head movement and are spelled out as *pasti*, while the lower Fut is *akan*. Because *akan q* is in the consequent of the conditional modal, the temporal-phenomenological distance between the p-eventuality and the q-eventuality will be closer than it would be in (41b), where *pasti* takes wide scope and there is no future interpreted in the consequent.

The opposite configuration, with *akan* scoping over *pasti*, would not be possible because of the inability of *pasti* to take narrow scope in this situation. This fact at least partly goes toward ruling out the infelicitous sentence in (44).

(44)   *Kalau dia memukul dahinya, dia **akan pasti** mengatakan sesuatu yang penting
      if s/he hit forehead-det s/he akan pasti say something rel important to-you.
      'If she hits her forehead, she will tell you something important.'

But as consultants rejected all instances of *akan pasti* out of hand, that may not be the only reason.[25]

Let us recall where we are in the argument. We began by entertaining a hypothesis that *pasti*, like *mau*, is an aspectualized future. The

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[25]It is not the case that *akan* cannot take wide scope for group 2 speakers, because it is acceptable in the vase-breaking case in (37a), and by assumption could only do that if it has wide scope.

fact that *pasti* could occur in both anyway-entailing and non-anyway-entailing contexts seemed problematic. However, I argued that these two different possibilities stem from the ability to take either wide scope or narrow scope. Further corroboration for this account was provided by a case of double futures in group 2 Indonesian.

So we may conclude that *pasti* is an aspectualized future, like *mau*. But how is it different from *mau*? Speakers find it stronger than *mau*. I will assume that this fact indicates a different aspectual semantics (since it is unlikely to indicate a different force of quantification).

A relatively minimal adjustment to the aspect proposed for *mau* is appropriate. Suppose that where *mau*, like *be going to*, has an existential quantifier over times, *pasti* (and the anyway-entailing version of *will*) has universal quantification. The truth of *Pasti q* requires q to be true on all accessible worlds branching off not merely from *some* time overlapping the present, but from *all* (realis) times that overlap the present, within some contextually supplied domain interval I. This amounts to a requirement that the conditions that cause q be of relatively long standing.

This proposal makes sense of why (41a) is a little strange. Without the use of a wide scope *pasti* to indicate that the underlying causes of the conditional—the dispositions of the person under discussion—are longstanding , (41a) should convey that the underlying causes, i.e., the dispositions, are transient and hence irregular, in which case it is not clear why the speaker would try to assert a generalization at all.[26]

For the formal details, we will proceed entirely in parallel to the *be going to* analysis, the only difference being the force of quantification. The proposed aspectual component of the anyway-entailing reading of *will* is given in (45), along with a timeline diagram illustrating the set of times with in a contextually-specified interval I that p(w) must hold of for $\mathbf{G}$(w)(t)(p) to be true.[27]

(45) $\mathbf{G}$(w)(t)(p) = 1 iff $\forall t' \epsilon$ I such that $t' \supset t$: p(w)(t')

The universal quantification may look strange in what is meant to be the denotation of a generic operator, but remember that we are quantifying over inertia worlds—those worlds in which circumstances unfold as they typically do. This restriction, plus universal quantification, gives rise to a generic-like meaning, because only the typical worlds are considered. The times over which t' varies are all the subsets of I:

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[26]This point, if clarified, might explain the fact that counterfactuals in Indonesian require *pasti,* not *akan.*

[27]As with the progressive-like operator $\mathbf{P}$ above, I use the single letter $\mathbf{G}$ in an attempt to evoke the traditional terminology "generic," for mnemonic purposes only.

(46)

I
[   ]

t_n · · · t_2 t_1 $t_{[]}$
[[[[]]]]
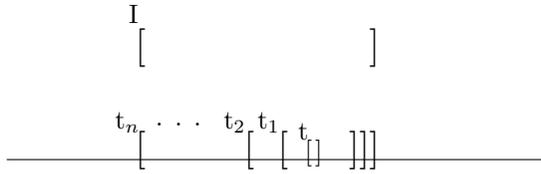
Combining **G** with FUT, our future modal, yields the following denotation for *pasti*.[28]
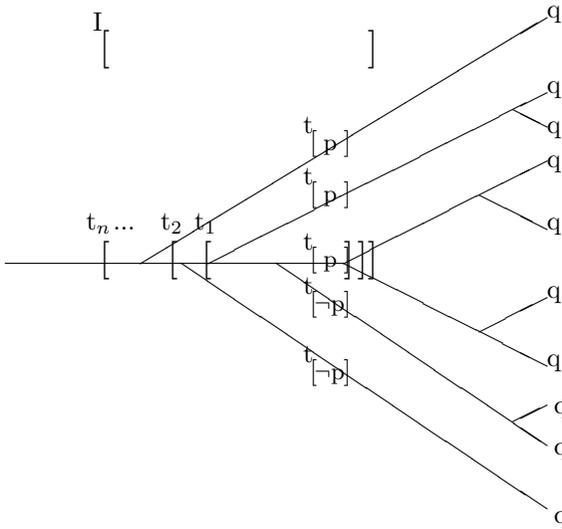
(47) $\mathbf{G}(w)(t)(\text{FUT}(q)) = 1$ iff $\forall t' \in I$ such that $t' \supset t$: $[\text{FUT}(w)(t')(q) = 1]$
$\mathbf{G}(w)(t)(\text{FUT}(q)) = 1$ if $\forall t' \in I$ such that $t' \supset t$: $[\forall w'$ agrees with w up to t':
  $[\exists t'': t' < t''$ and $q(w')(t'') = 1]]$

And (48) represents a state of affairs in which $\mathbf{G}(w)(t)(\text{FUT } q)$ is true.

(48)

I
[   ]

t_n ... t_2 t_1 $t_{[p]}$ $t_{[p]}$ $t_{[p]}$ $t_{[\neg p]}$ $t_{[\neg p]}$

q (branches, each terminal labeled q)

Note that as desired, this denotation accounts for the anyway entailment seen in narrow scope *pasti* sentences. The argument is exactly parallel to the one for *mau/be going to* sentences: If this branching world is a p

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[28]Here as in (22) above, I omit the cases where $\mathbf{G}(w)(t)(\text{FUT}(q)) = 0$ or is undefined.

world, with p holding at t, there are some worlds that branch off within I but before t such that p does not hold at t (provided that p itself is non-necessary). But these worlds are q worlds, given that *pasti q* is true of this world at t. Thus there are some not-p worlds that are q worlds, and the anyway entailment goes through.

1.5 Conclusion

There is a three-way split for some speakers of Indonesian in which *akan*, *mau*, and *pasti* have different meanings. They all share a future modal meaning, but *mau* additionally includes a higher progressive-like aspectual operator (involving existential quantification over times), and *pasti* additionally includes a higher generic-like aspectual operator (involving universal quantification over times). English *be going to* behaves like *mau*, and *will* is ambiguous between an *akan* reading and a *pasti* reading.

References