Expectations and the Ilokano Mirative*

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1 Introduction

This paper builds a theory of the semantics of an Ilokano particle *man*, which is employed in multiple functions. The paper focuses on two particular uses, exemplified below in (i), as a mirative, expressing the speaker’s surprise at the main-clause content’s truth, and (ii) as a politeness marker in imperatives.

(i) A mirative: expressing the speaker’s surprise.¹

(1) \textit{Napudot man ita} \\
\textit{stat.hot} \textit{man} \textit{this} \\
‘It is surprisingly hot today.’

(ii) a particle expressing the speaker’s deference or politeness in making a request, translatable into English as ‘please’.

(2) \textit{Manang Biday, ilukatmo man ’ta bintana.} \\
\textit{older.sister Biday, open=2sg.NFOC} \textit{man} \textit{that window} \\
‘Older sister Biday, please open that window.’

The other uses of *man* are listed below covering the majority of its main uses, though I will not be able to discuss them in any depth in this paper. A unified analysis of

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¹Abbreviations throughout: \textit{af} actor focus, \textit{comp} complementiser, \textit{core/cr} core participant (subject or object), \textit{foc} focused, \textit{of} object focus, \textit{ncore} non-core participant (oblique), \textit{neg} negation, \textit{n foc} non-focused, \textit{pl} plural, \textit{sg} singular, \textit{stat} stative
the semantics of man is a large puzzle, to which this paper’s findings are only a small contribution. At a higher level, I believe a unified semantics for prime facie disparate types of expressions sheds valuable insight into the relatedness of such expressions, even in languages which distinguish them morphosyntactically.

(ii) in coordination with the negative particle saan, saan man is used to rebut a negative statement or answer a negative question affirmatively. Saan man may also be used to respond to a positive question in the negative, expressing some amount of frustration with the state of affairs.

   neg=2sg.foc comp Amerikan neg man Amerikan=1sg.foc
   Q: ‘Are you not an American?’ A: ‘Indeed, I am an American.’
      American=2sg.foc q neg man
      Q: ‘Are you not an American?’ A: ‘No (I wish I were).’

(iii) in conjunction with the disjunctive particle wenno, ‘or’, or any kind of wh-expression, used to express an unconditional in the sense of (Zaefferer 1990; Rawlins 2009).

(4) a. Nabaknang man wenno napanglaw, kumpayen ni patay 
   stat.rich man or stat.poor, sickle.of core death
   ‘Whether (you are) rich or poor, death will strike (you).’
   b. Nabaknang man wenno saan, kumpayen ni patay 
      stat.rich man or neg, sickle.of core death
      ‘Whether (you are) rich or not, death will strike (you).’
   c. Kasano man kaadayo ti eskuwela, mapanak latta agbasa 
      how man distance the school, go.af=1sg.foc just study
      ‘No matter how far the school is, I still go to study.’

(v) In conjunction with the enclitic =en, meaning ‘now’ or ‘already’, expresses the notion ‘again’.

(5) Umayka manen 
    come=2sg.foc man=now
    ‘You will come again.’

(vi) In conjunction with wh-interrogative pronouns, used to form free relative constructions including those which express speaker ignorance as to the identity of the reference of the free relative, and free choice type free relatives.
(vi) As a sentence connective (though syntactically occurring in an adverbial position) expressing a 'concessive' meaning, much like English 'although, even though, despite'.

(7) \textit{Adayo man ti eskuwela, mapanak latta agbasa}  
\textit{far MAN CR school, go.AF=1SG.FOC just study}  
‘Although the school is far, I still go to study.’

The structure of paper is as follows, in §2, I propose a unifying semantics for the two uses of \textit{man} in focus (miratives and imperatives). I argue it projects the speaker’s expectation that the prejacent is false. §3 concludes and suggests avenues for further exploration.

2 Adverbial \textit{man}: contrary to expectation

In this section I suggest how the morphosyntactically adverbial (immediately post-predicate) uses of \textit{man} can be semantically unified as a sentential operator which projects low prior expectation of the prejacent being true as far as the speaker is concerned. I suggest this can unify the mirative and politeness uses of \textit{man}.

2.1 Dimension of meaning for mirative \textit{man}

To begin, I look at the use of \textit{man} to mark surprise. I argue that it projects the speaker’s low expectation of the prejacent (either via presupposition or conventional implicature).

(8) \textit{[Context: it had been cold for a week and then I wake up one morning and it’s hot. I had expected it to be cold but it isn’t.]}  
\textit{Napudot man ita}  
\textit{stat.hot MAN this}  
‘Surprisingly, it is hot today.’ (surprise usage)

Both the prejacent proposition \textit{it is hot today}, and the expressive proposition, \textit{the speaker is surprised that it is hot today}, are entailments of (8). Neither can be cancelled without leading to an infelicitous contradiction.
(9) a. #Napudot man ita ngem saan a napudot ita.
stat.hot MAN this but NEG COMP hot this
‘Surprisingly, it is hot today but it’s not hot today.’
b. #Napudot man ita ngem ninamnamak
stat.hot MAN this but expect.of=1SG=3SG
‘Surprisingly, it is hot today but I expected it.’

The expressive proposition is not directly deniable with the negative particle saan!, which may be felicitously employed to deny the prejacent proposition.

(10) a. A: Napudot man ita B: Saan! Saan a napudot ita.
stat.hot MAN this no NEG COMP hot this
A: ‘Surprisingly, it is hot today.’ B: ‘No! It’s not hot today.’
stat.hot MAN this no expect.of=1SG=3SG
A: ‘Surprisingly, it is hot today.’ B: ‘No! You did expect that.’

These initial data point toward the prejacent proposition and the expressive proposition of (8) both being entailments, as opposed to conversational implicatures. However, the two propositions differ in their deniability, pointing to a conclusion that only the prejacent is asserted. More data is required, specifically the diagnostics employed by Chernilovskaya et al (2012): does the expressive proposition allow acceptance responses (like English oh, uh-huh, OK), but disallow confirmation responses (like English yeah, yes, indeed). The speaker-oriented flavour of the proposition leads me to hypothesise that the mirative use of man is Pottsian conventional implicature: a non-backgrounded, non-deniable, speaker-oriented entailment. I prefer this hypothesis to one where the surprisal proposition is a presupposition, as there is no evidence suggesting that the surprisal is required to be a common ground belief of the conversational participants.

Potts (2005, 2007) lays out an implementation of a multi-dimensional model for at-issue and conventionally implicated content. The idea is rooted in the theory of Karttunen and Peters (1979) view that at-issue content and conventional implicatures are marked or labelled as such, and are calculated separately in semantic composition. This is intended to account for the non-interaction of conventional implicatures with scope-taking operators in the at-issue proposition, such as negation, modals, quantificational expressions, etc.

I take the lexical semantics of adverbial man to be a propositional operator despite its morphosyntactic, sentence-internal position. My response to this compositional issue is that so little is known about Ilokano clause structure that very little may be said about the compositional semantics. It may well be that man is syntactically adjoined to a sentential constituent and the quirks of the pan-Austronesian preference for predicate initial ordering obscures this fact.
An utterance of man \( p \) has as its at-issue content \( p \). It therefore commits the speaker to \( p \). Separately, the utterance of man \( p \) commits the speaker to the proposition that she is surprised by \( p \). This commitment is quite separate from the commitment to \( p \). It could be the case that the speaker utters man \( p \) where \( p \) is false, but remains committed to the fact that she would be surprised if \( p \) was true.

Adopting Potts (2005) framework for CIs, I take the meaning of man \( p \) to be a tuple, consisting of an at-issue proposition, and a set of conventional implicatures. In this case there is only one conventional implication so I omit the set brackets and treat the CI member of the tuple as a simple proposition.

I understand the distinction between conventional implicatures (\( \text{cis} \)) and at-issue assertions (\( \text{ais} \)) dynamically, that is to say that they have different kinds of context change potential. Following much recent work (e.g., AnderBois et al. 2010, Farkas and Roelefson 2013) I take \( \text{cis} \) to impose an update on the context set, while \( \text{ais} \) propose an update. Assuming a context set as a Stalnakerian set of possible worlds \( c \), if I assert John eats flowers, I propose to eliminate the worlds from the context set in which John does not eat flowers. Though I do not simply do so as if I were insensitive or uncaring about the beliefs or opinions of my interlocutors. Rather, I put the proposition John eats flowers up for deniability. After my assertion, my interlocutors may challenge me, accuse me of speaking falsely, etc. Otherwise they may agree, or carry on the conversation as if they agree. I take these two options for the interlocutor, acceptance and denial, to correspond formally to the elimination of the worlds in which John eats flowers, or their complement set (the worlds in which John does not eat flowers). I spell this out with by defining an auxiliary notion \( \text{Assert} \). \( \text{Assert} \) represents the behaviour of the speaker. Formally, it is a function which takes two arguments as its input. First it takes the information state \( c \) to be updated. Next it takes a sentence (which may be an at-issue proposition, a conventional implicature, a question, comment, etc.) with which the information state will be updated. It outputs a set of updated information states.

If \( \text{Assert} \) takes a tuple consisting of an information state \( c \) and an at-issue proposal \( \text{ai} \), it will output a set of two possible updated information states – the information state updated with \( \text{ai} \) and the information state updated with the negation of \( \text{ai} \). I take both \( s \) and \( \text{ai} \) to be sets of possible worlds as usual. \( \text{ai} \) is the set of possible worlds in which \( \text{ai} \) is true.

\[
\text{Assert}(c)(\text{ai}) = \{ c \cap \text{ai}, c \cap \neg \text{ai} \}
\]

Faced with the choice of two (mutually exclusive) context sets, the hearer may choose one option (via denial, tacit or overt acceptance, or some other method), and the conversation proceeds with a new context set.
If I “assert” a conventional implicature (if such a notion is even possible in reality), I update the context set in a different way. Let’s take the utterance of Damn! to conventionally implicate that the speaker feels frustrated at the present time and to have no at-issue content (though this may turn out to be wrong, it is illustrative).

If Assert takes as its arguments, an information state c and a conventionally implicated proposition ci, it simply intersects the two sets, producing a new context set. The intuition is that the proposition expressed by Damn! (i.e., speaker is frustrated) is not put up for the interlocutor to deny or accept. This is intended to capture the idea that the hearer cannot accuse the speaker of speaking falsely (or truthfully) if they are not in fact frustrated.

(13) \[ \text{Assert}(c)(ci) = c \cap ci \]

Finally we come to the most relevant case, where a proposition contains both at-issue content and conventional implicatures. I simply characterise these instances and conjunction of the two above operations. I take a proposition with both at-issue content and a conventional implicature to be a tuple \( \langle \text{ai}, ci \rangle \) (following Potts 2005). For example, That damn John eats flowers is the tuple \( \langle \text{John eats flowers, Speaker feels strongly about John} \rangle \). If Assert takes as its argument a context set c, and a tuple \( \langle \text{ai}, ci \rangle \), it outputs the two alternate context sets (updated with ai and its negation), and both alternatives will be updated with the ci content. In our example, the assertion of that damn John eats flowers corresponds to two potential updated context sets, one where the speaker feels strongly about John and he eats flowers, and one where the speaker feels strongly about John and he doesn’t eat flowers. The interlocutor can decide which set, but the proposition about the speakers strong feelings is not up for discussion.

(14) \[ \text{Assert}(c)(\langle \text{at}, ci \rangle) = \{ c \cap ci \cap \text{ai}, c \cap ci \cap \neg \text{ai} \} \]

Given this framework of interpreting CIs, we can understand the context change potential of mirative man. If I utter the sentence man it is raining, I assert that it is raining. I conventionally implicate that I am surprised that it is raining. I describe “surprise” in a formal language with the operator \( \Box_{\text{Exp,Sp}} \) scoping over negation (to be interpreted in our soon to be described semantics as “Speaker expects that not”).

(15) \[ \llbracket \text{man } p \rrbracket = \langle p, \Box_{\text{Exp,Sp}} \neg p \rangle \]

The dynamic effect of the assertion of man p in context c is to impose the speaker’s surprisal at the proposition p on the common ground, not up for discussion with the addressee, and to propose to update the common ground with p.

(16) \[ \text{Assert}(c)(\langle p, \Box_{\text{Exp,Sp}} \neg p \rangle) = \{ c \cap \Box_{\text{Exp,Sp}} \neg p \cap p, c \cap \Box_{\text{Exp,Sp}} \neg p \cap \neg p \} \]

This analysis requires a definition of \( \Box_{\text{Exp}} \) which I lay out in the next section, and in the follow section extend to the politeness marker (please usage of man).
2.2 A modal treatment of expectation

I understand the semantics of “surprise” and “expect” as modal, corresponding to a notion of (mis)match between the actual situation and the expected situation. The following is a quote from Barbara Partee on the very existence of surprisal as motivation for incorporating possible world theory into a theory of cognition:

"Evidence for conceptualization of "other possible worlds" can be seen even at a prelinguistic level in any child or animal that can show surprise, since surprise signals mismatch between a perceived state of affairs and an expected state of affairs. The notion of alternative possible worlds should therefore be understood not as a matter of science fiction but as a fundamental part of the ability to think about past, future, and ways things might be or might have been." (Partee 1995: 326)

2.2.1 The formal set-up

A language $L$ consists of a set of atomic propositional letters $p, q, r, ...$, the connectives $\land, \lor, \rightarrow$, and $\neg$, and the modal operators $\Box$ and $\Diamond$ (for necessity and possibility, respectively). $\phi$ and $\psi$ are variables for atomic and non-atomic propositions.

1. The set of atomic propositional letters $p, q, r, ...$ are in $L$.
2. If $\phi$ and $\psi$ are in $L$, then $\neg \phi, \phi \land \psi, \phi \lor \psi$, and $\phi \rightarrow \psi$ are in $L$.
3. If $\phi$ and $\psi$ are in $L$, then $\Box \phi$ and $\Diamond \phi$ are in $L$.
4. Nothing else is in $L$.

Our model is a triple $\langle W, D, \rho, [ ] \rangle$, where $W$ is a non-empty set of possible worlds, $D$ is a non-empty set of individuals, $\rho$ is a set of accessibility relations, and $[ ]$ is a function from sentences in $L$ to sets of possible worlds in which the sentence is true.

1. $[p] \subseteq W$
2. $[\neg \phi] = W - [\phi]$
3. $[\phi \land \psi] = [\phi] \cap [\psi]$
4. $[\phi \lor \psi] = [\phi] \cup [\psi]$
5. $[\phi \rightarrow \psi] = [\neg \phi] \cup [\psi]$

We can additionally define a function $[ ]^w$ which maps sentences to true or false depending on whether it is true or false at the possible world $w$.

1. $[p]^w = 1$ or $0$
2. $[\neg \phi]^w = 1$ iff $[\phi]^w = 0$
3. $[\phi \land \psi]^w = 1$ iff $[\phi]^w = [\psi]^w = 1$
4. \( [\phi \lor \psi]_w = 0 \iff [\phi]_w = [\psi]_w = 0 \)
5. \( [\phi \rightarrow \psi]_w = 0 \iff [\neg \phi]_w = [\psi]_w = 0 \)

We can also define some central properties of sentences and sets of sentences.

1. A sentence \( \phi \) is a tautology iff \( W \subseteq [\phi] \)
2. A sentence \( \phi \) is a contradiction iff \( [\phi] \subseteq \emptyset \)
3. A set of sentences \( \Phi \) is consistent iff \( \cap \{ [\phi] \mid \phi \in \Phi \} \neq \emptyset \)
4. A sentence \( \phi \) is consistent with a set \( \Phi \) iff \( \Phi \cup \{ \phi \} \) is consistent
5. A sentence \( \phi \) is a consequence of a set \( \Phi \) iff \( \cap \{ [\phi] \mid \phi \in \Phi \} \subseteq [\phi] \)

A treatment of modal expressions requires some more complicated machinery, familiar from Kratzerian semantics for modality (Kratzer 1981, 1991). I take modal bases to be sets of worlds, supplied by an accessibility relation \( R \) (where \( R \subseteq W \times \wp(W) \), that is, a function from worlds to sets of worlds). Note that I’m giving a direct treatment of modal bases as being supplied by a \( \langle s, \langle s, t \rangle \rangle \) function \( R \), without taking Kratzer’s intermediary step of having \( R \) return a set of propositions, which are intersected. As usual, the modal bases take on various flavours (epistemic, deontic, etc.), noted by superscripts (\( R^{\text{epis}}, R^{\text{deon}}, \) etc.), where \( R^{\text{epis}}(w) \) are the epistemically accessible worlds from \( w \), or the worlds which are compatible with what the speaker believes at \( w \), and so on. We can now define \( \Box \) and \( \Diamond \) as usual, so long as any sentence including them is interpreted relative to a contextually supplied accessibility relation \( R \in p \).

1. \([\Box \phi]^R = \{ w \mid \forall v \in R(w) : v \in [\phi] \} \)
2. \([\Diamond \phi]^R = \{ w \mid \exists v \in R(w) : v \in [\phi] \} \)

Most relevant to our discussion of expectation is the doxastic accessibility relation relativised to an agent \( i \in D \), \( R^{\text{dox},i} \) which I will simply write as \( \text{Dox}_i \). This relation corresponds to \( i \)'s beliefs: \( \text{Dox}_i(w) \) is the set of worlds compatible with what \( i \) believes at \( w \). Intuitively \( \text{Dox}_i(w) \) is the set of possibilities that \( i \) is unable to rule out via observation or some via some trusted authority. We can translate an English sentence like \( i \) believes \( p \) into our description logic as \( \Box p \) interpreted relative to the doxastic accessibility relation \( \text{Dox}_i \), such that:

(17) \( [\Box p]^{\text{Dox},i,w} = 1 \iff \forall v \in \text{Dox}_i(w) : v \in [p] \) (or \( \text{Dox}_i(w) \subseteq [p] \))

The following are properties of the modal base \( \text{Dox}_i(w) \) for any \( w \) in \( W \):

(18) 1. Consistency: \( \text{Dox}_i(w) \neq \emptyset \)

   \( i \) never has contradictory beliefs at any world, if \( i \) has no doxastically accessible worlds at \( w \) (has an inconsistent modal base); then \( i \) believes all propositions
2. **Positive Introspection:** \( \forall v \in \text{Dox}_i(w) : \text{Dox}_i(v) \subseteq \text{Dox}_i(w) \)
   If \( i \) believes \( p \) at \( w \), then \( i \) believes that \( i \) believes \( p \) at \( w \)

3. **Negative Introspection:** \( \forall v \in \text{Dox}_i(w) : \text{Dox}_i(w) \subseteq \text{Dox}_i(v) \)
   If \( i \) does not believe \( p \) at \( w \), then \( i \) believes that \( i \) does not believe \( p \) at \( w \)

The doxastic modal base does not have the property of **realism**, that is, it is not necessary that \( w \in \text{Dox}_i(w) \). That is to say that \( i \) may have false beliefs at \( w \).

A treatment of mirative *man* requires some treatment of expectations: the eventual picture will be that an utterance of *man p* conversationally implicates that \( p \) is non-conforming with expectations.

For now, the analysis I give for *expect* is analogous to the analysis of *believe* in terms of being a relation between an agent and a set of worlds. Where \( i \) believes \( \phi \) at \( w \), \( \phi \) is true in all of \( i \)'s doxastically accessible worlds from \( w \). I just repeat this notion for *expect*, where \( i \) expects \( \phi \) at \( w \), \( \phi \) is true in all of \( i \)'s expectationally accessible worlds from \( w \) (characterised via the accessibility relation \( \text{Exp}_i \) for now).

\[
\begin{align*}
\text{if} \; i \; \text{believes} \; \phi & \Rightarrow [\Box_{i,\text{Dox}} \phi] = \{ w \mid \forall v : v \in \text{Dox}_i(w) \rightarrow [\phi]^v = 1 \} \\
\text{if} \; i \; \text{expects} \; \phi & \Rightarrow [\Box_{i,\text{Exp}} \phi] = \{ w \mid \forall v : v \in \text{Exp}_i(w) \rightarrow [\phi]^v = 1 \}
\end{align*}
\]

The claim is that *expect* is a universal quantifier over a set of worlds. This claim gets some inference patterns right. If *expect* is a universal quantifier, it should not distribute over disjunction, though it should distribute over conjunction.

\[
\begin{align*}
\text{a.} \quad \forall x (P(x) \lor Q(x)) & \not\Rightarrow \forall x P(x) \lor \forall x Q(x) & \quad \text{Everyone has a cat or a dog.} & \not\Rightarrow \text{Everyone has a cat or everyone has a dog.} \\
\text{b.} \quad \Box_{i,\text{Exp}} (\phi \lor \psi) & \not\Rightarrow \Box_{i,\text{Exp}} \phi \lor \Box_{i,\text{Exp}} \psi & \quad \text{I expect sandwiches or pies.} & \not\Rightarrow \text{I expect sandwiches or I expect pies.}
\end{align*}
\]

\[
\begin{align*}
\text{a.} \quad \forall x (P(x) \land Q(x)) & \Rightarrow \forall x P(x) \land \forall x Q(x) & \quad \text{Everyone has a cat and a dog.} & \Rightarrow \text{Everyone has a cat and everyone has a dog.} \\
\text{b.} \quad \Box_{i,\text{Exp}} (\phi \land \psi) & \Rightarrow \Box_{i,\text{Exp}} \phi \land \Box_{i,\text{Exp}} \psi & \quad \text{I expect sandwiches and pies.} & \Rightarrow \text{I expect sandwiches and I expect pies.}
\end{align*}
\]

The reverse of (33) does hold for universal quantification and as expected, for *expect*.

\[
\begin{align*}
\text{a.} \quad \forall x P(x) \lor \forall x Q(x) & \Rightarrow \forall x (P(x) \lor Q(x)) & \quad \text{Everyone has a cat or everyone has a dog.} & \Rightarrow \text{Everyone has a cat or a dog.}
\end{align*}
\]
b. \[ \Box_{i,\text{Exp}} \phi \lor \Box_{i,\text{Exp}} \psi \Rightarrow \Box_{i,\text{Exp}} (\phi \lor \psi) \]

I expect sandwiches or I expect pies. \( \Rightarrow \) I expect sandwiches or pies.

The next set of inferences to be validated are the relations between an agent’s beliefs and an agent’s expectations. My intuition is that if \( i \) expects that it will rain, then \( i \) believes that rain is a live possibility.

(23) \( i \) expects \( \phi \Rightarrow \neg (i \text{ believes } \neg \phi) \).

The stronger variant below does not go through. \( i \) could expect it to rain (because rain would seem like a normal turn of events) but believe that sun is also a live (but maybe remote) possibility.

(24) \( i \) expects \( \phi \neq i \text{ believes } \phi. \)

If \( i \) believes that it will rain, then certainly \( i \) expects that it will rain.

(25) \( i \text{ believes } \phi \Rightarrow i \text{ expects } \phi. \)

I take the accessibility relation \( \text{Exp}_i \) to have the following properties for all \( w \in W \) and all accessibility relations \( \text{Dox}_i \) with the properties in (18):

(26) a. Consistency: \( \text{Exp}_i(w) \neq \emptyset \)

\( i \) never has contradictory expectations at any world, if \( i \) expects \( p \) then \( i \) cannot expect \( \neg p \): again prevents validating any proposition of expectation via vacuous quantification.

b. Believe Expectations: \( \text{Exp}_i(w) \subseteq \text{Dox}_i(w) \)

All worlds compatible with \( i \)’s expectations are compatible with \( i \)’s beliefs. Phrased in terms of accessibility relations, if \( v \) is expectationally accessible from \( w \), then \( v \) is doxastically accessible from \( w \).

c. Positive Introspection via beliefs: \( \forall v \in \text{Exp}_i(w) : \text{Exp}_i(v) \subseteq \text{Dox}_i(w) \)

If \( i \) expects \( p \) at \( w \), then \( i \) believes that \( i \) expects \( p \) at \( w \)

I don’t take \( \text{Exp}_i \) to have realism (\( i \) may have false expectations), positive or negative introspection (\( i \) need not expect their expectations), or negative introspection via beliefs (if \( i \) does not expect \( p \), then it’s not necessary that \( i \) believes that \( i \) does not expect \( p \)).

The combination of (26a,b) and the universal quantification definition of \( \text{expects} \) gets inferences (23-25): For (23), if \( i \) expects \( \phi \), then the \( \phi \)-worlds are a superset of \( i \)’s expectation worlds. As the expectation worlds are always a subset of belief worlds (via Believe Expectations), \( \phi \) must be compatible with \( i \)’s beliefs. There is nothing ensuring that the \( \phi \)-worlds are a superset of the belief worlds however, and thus we get (24). (27) is a counter-model for the putative inference in (24). The inference in (25) is simply that if \( \phi \) is a superset of \( i \)’s belief-worlds, and \( i \)’s belief-worlds are a superset of \( i \)’s expectation worlds, then \( \phi \) is a superset of \( i \)’s expectation worlds by transitivity.
I have rather simply obtained the expectation worlds via an accessibility relation $\text{Exp}$, but achieving this via an ordering source would be more parsimonious with the Kratzerian view of modality. Below is a brief sketch with the Kratzerian intermediary step implemented (inspired by the formulation in Kaufman, Condoravdi, and Harizanov 2006), though the results will be the same for this data set. An analysis with an ordering source will be better suited to data which deals with graded and comparative expectations, which do not come into play with $\text{man}$.

An ordering source is a function from worlds to sets of propositions. I assume that the modal treatment of expectation requires an ordering source relativised to an agent's perspective, so I assume an ordering source $\text{Norm}$, from individuals to functions from worlds to sets of propositions $\langle\langle e, \langle s, \langle s, t \rangle, t \rangle \rangle \rangle$. $\text{Norm}(i)(w)$ is the set of the agent's $i$'s default assumptions at $w$, e.g. the sun comes up tomorrow, I am not a brain in a jar, etc. As $\text{Norm}(i)(w)$ is a set of propositions, it can impose a pre-order $\leq_w$ on worlds s.t. $w' \leq_w w''$ iff all propositions in $\text{Norm}(i)(w)$ true in $w''$ are true in $w'$.

(28) $\square_{\text{Exp},i} p^w = 1$ iff $\forall w' \in \text{Dox}(i)(w) : \exists w'' \in \text{Dox}(i)(w) : w' \leq_{\text{Norm}(i)(w)} w'' \land \forall w''' \in \text{Dox}(i)(w) : [p]^{w'''} = 1$ if $w''' \leq_{\text{Norm}(i)(w)} w''$

This rather complicated truth condition says that $i$ expects $p$ at $w$ iff within the worlds compatible with what $i$ believes, there is a set of worlds which most conform to $i$'s default assumptions. $p$ is true those most-conforming worlds. We have arrived at an analysis very much like Kratzer's analysis of epistemic must, except both contextual parameters are relativised to an agent, and the modal base is not realistic (no guarantee that the speaker's beliefs are true).
2.3 A modal analysis of adverbial *man*

As stated earlier, *man* in an adverbial position in a declarative sentence implies the speaker’s surprise that the sentence is true. As argued earlier, the implication of surprise is a conventional implicature, separate from the content of *man*’s prejacent.

(29) *Napudot man ita*

    *stat.hot*   *man*   *this*

‘It is surprisingly hot today.’

We now have the formal chops to provide a description logic for this sentence and a model-theoretic interpretation. Under our theory, the sentence *man* $\phi$ translates to a pair of an at-issue assertion $\phi$ and a conventional implicature that the speaker expects that $\phi$ is false (which we can write in our formal system as $\square_{Exp,Sp}\neg\phi$).

(30) *man* $\phi \leadsto \langle \phi_{ai}, \square_{Exp,Sp}\neg\phi_{ci} \rangle$

We can interpret both propositions in the tuple relative to our model, in particular referencing the accessibility relation $Exp$ which provides for any world $w$ the set of alternative possibilities compatible with what an agent expects at $w$. The lexical semantic contribution of *man* is speaker oriented and so fixes the agent of the accessibility relation as the speaker. The at-issue content $\phi$ is interpreted as the set of worlds where $\phi$ is true (as usual). The conventional implicature is interpreted as the set of worlds $v$ such that $\phi$ is false in all of the speaker’s expectationally accessible alternatives from $v$.

(31) $\langle \llbracket\phi\rrbracket_{ai}, \llbracket\square_{Exp,Sp}\neg\phi\rrbracket_{ci} \rangle_{Exp,Sp} = \langle \{ w \mid w \in \llbracket\phi\rrbracket_{ai} \}, \{ v \mid Exp_{Sp}(v) \subseteq \llbracket\neg\phi\rrbracket_{ci} \rangle \rangle$

As per our dynamic set-up, the assertion of (29) in a context $c$ has the effect of proposing to update $c$ with the proposition that it is hot (deniable by the conversational participants), and imposing the update $c$ with the proposition that the speaker expects that it isn’t hot (non-deniable).

The analysis predicts the following data which is in my view correct (subject to more rigorous fieldwork):

(32) 1. Mirative implication is an entailment (non-cancellable).

   2. Mirative implication is non-interactive with main clause content (conventional implicature).

   3. No requirement for mirative implication to be a pre-existing mutual public belief of conversational participants (conventional implicature).
4. Mirative implication is not suspendible in conditionals (conventional implicature).

5. *man p* entails speaker entertained the belief that *p* was false, and this survives under hearer denial of the main assertion (Consistency of *Exp* and Believe Expectations).

6. *man p* does not entail that the speaker previously believed that *p* is false, that is, it’s possible that the speaker entertained *p* as an option (Believe Expectations).

7. If the speaker believes *p*, then an utterance of *man p* is infelicitous (Believe Expectations).

The analysis predicts the following inference patterns for the conventionally implicated content: these remain to be tested (somehow).

\[\square_i,\text{Exp}\neg(\phi \lor \psi) \Rightarrow \square_i,\text{Exp}(\neg\phi \land \neg\psi) \Rightarrow \square_i,\text{Exp}\neg\phi \land \square_i,\text{Exp}\neg\psi\]

*man Bart or Lisa passed the exam* entails I was expecting Bart to fail and expecting Lisa to fail.

\[\square_i,\text{Exp}\neg(\phi \land \psi) \Rightarrow \square_i,\text{Exp}(\neg\phi \lor \neg\psi) \Rightarrow \square_i,\text{Exp}\neg\phi \lor \square_i,\text{Exp}\neg\psi\]

*man Bart and Lisa passed the exam* doesn't entail that (I was expecting Bart to fail or I was expecting Lisa to fail).

\[\square_i,\text{Exp}\neg\phi \lor \square_i,\text{Exp}\neg\psi \Rightarrow \square_i,\text{Exp}(\neg\phi \lor \neg\psi) \Rightarrow \square_i,\text{Exp}\neg(\phi \land \psi)\]

*man Bart passed or man Lisa passed* entails that I expected that Bart and Lisa would not both pass.

### 2.4 Extension to imperatives

I will extend the analysis of the use of adverbial *man* in declaratives as a mirative marker to the use of adverbial *man* in imperatives as a politeness marker as in the following repeated example.

\[\text{Manang Biday, ilukatmo } \text{man } 'ta \text{ bintana.}\]

older.sister Biday, open=2sg.nfoc MAN that window

‘Older sister Biday, please open that window.’

I follow Condoravdi and Lauer’s (2012) analysis for imperatives. The main-clause content of an imperative denotes a proposition *p* relating to the future actions of the addressee. It is embedded under an abstract imperative operator such that the imperative denotes *imp(p)*. *imp(p)* expresses a non-deniable proposition that the speaker is publicly committed to a preference that *p* is true.
I take this to be the analysis to be entirely sufficient in accounting for the semantics of a version of (35) without *man*, which is possible but a little less polite than (34). The semantics of (35) is spelled out in (36) though I leave it informal to not get off track, though I refer the reader to Condoravdi and Lauer 2011.

(35) *Manang Biday, ilukatmo 'ta bintana.*

    older.sister Biday, open=2sg.nfo? that window

    ‘Older sister Biday, open that window.’

(36) a. (35) $\sim$ \texttt{imp(open(Addr, window))}

    b. $\texttt{[imp(open(Addr, window))]}

        $= \{w \mid \text{Addr publicly prefers } \{v \mid \text{Addr opens window at } v\} \text{ at } w\}$

I take the imperative (35) to have no "at-issue" content in the sense that I have defined it previously: the speaker does not put the proposition in (36b) up for negotiation in the context set for the speaker to deny or act as if it were false. By merely uttering the imperative, the speaker is committed to the truth of the proposition that he prefers the imperative’s main-clause content to be true. We can still use our context update function \texttt{Assert}, and say that any proposition with a highest scoping \texttt{imp} operator updates the context like a conventional implicature (deleting the false worlds in one fell swoop, not allowing the addresse(s) to refuse). Updating context $c$ with (35) has the expected effect:

(37) \texttt{Assert(⟨c, (35)⟩) = c \cap \{w \mid \text{Sp publicly prefers } \{v \mid \text{Addr opens window at } v\} \text{ at } w\}}

I take the (more polite) version of the imperative with *man* to simply be a conjunction of the semantics for the imperative and the same semantics for *man*. Namely, (34) conventionally implicates (i) the speaker expects that the addressee will not open the window and (ii) the speaker publicly expresses a preference that the addressee will open the window.

(38) \texttt{Assert(⟨c, (34)⟩) = c \cap \{w \mid \text{Sp publicly prefers } \{w' \mid \text{Addr opens window at } w'\} \text{ at } w\} \cap \{w'' \mid \text{Sp expects } \{w' \mid \text{Addr opens window at } w'\} \text{ is false at } w''\}}

By uttering an imperative, the speaker risks making a social transgression by expressing preferences about the addressee’s actions. In the parlance of Brown and Levinson (1987), by expressing this preference, the speaker risks obstructing the addressee’s freedom of action and therefore risks performing a face-threatening act, which politeness strategies must mitigate. By including *man* in the utterance, the speaker expresses that she expects the addressee to not perform the action. By doing so, she behaves as if she does
not want the imperative to have the illocutionary force of imposing an obligation on the addressee (regardless of her actual goals, of course). This has the effect of mitigating the face-threatening act of the imperative and getting us man’s use as a politeness marker in an imperative.

Masoud objects to the relative scope of expect and negation in the politeness use of man. If the speaker expresses that she expects the addressee not to do something, she may risk another transgression: imposing her expectations on the speaker. It’s possible that in this usage of man, it has the effect of expressing that the speaker doesn’t expect that the addressee performs the action. This seems crucially far too weak for the surprise/mirative cases from earlier. This predicts I can use something like man it is hot in cases where I have no expectation whether it is hot or not, which seems wrong. A potential counterargument to Masoud’s original objection (ironically, also suggested by Masoud) is that by expressing both a preference that p is true, and an expectation that p is false, we put the addressee in a position to determine the path of his own actions, and which ever path (p or ¬p) accords with either the speaker’s preferences or expectations. This has the effect of mitigating the negative face-threatening act of the imperative.

### 3 Outlook

The low-hanging fruit for taking this analysis further are two usages of man which fold into the two uses analysed here. (i) the use of man with the negative response particle saan to express frustration with a negative answer to a yes/no question. The interrogater asks p or ¬p? The answer response is ¬p (with saan) while expressing frustration with man in that she expected p to be true. (ii) the use of man as a concessive sentence connective like English ‘even though’, if I say man even though I’m tired, I’m going jogging, I express that given the content of the adjunct clause, I expect the main clause to be false. This analysis has a compositional complexity in that man appears on the adjunct clause, while the speaker expresses expectation about the falsity of the main clause. This remains an open question.
References


