

Modally interpreted relative clauses in Spanish: The role of mood¹

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Abstract. Volitional action verbs like *comprar* ‘buy’ allow for mood alternation between indicative and subjunctive in an embedded relative clause in Spanish, with subjunctive mood leading to a modally flavored interpretation absent in the indicative counterpart. To analyse this interpretive contrast, Alonso-Ovalle, Menéndez-Benito and Rubinstein (2024) treat mood as introducing world quantification. In the present paper, we present problems for such treatment of mood and develop an alternative proposal in which mood is treated as a world pronoun (Romero, 2024; cf. Schlenker, 2005). The results have repercussions for the locus of world quantification in event-anchored modal frameworks.

Keywords: mood, subjunctive, relative clause, intensionality, event-anchored modality.

1. Introduction

Building on a long tradition (Farkas, 1982, 1992; Giannakidou, 1994; Quer, 1998; Schlenker, 2005; Portner, 2018; a.o.), literature on mood in Romance is converging on the idea that indicative mood (IND) is associated with a simple Modal Base (MB) while subjunctive mood (SUBJ) is associated with a MB and Ordering Source (OS) (Giorgi and Pianesi, 1997; Villalta, 2008). The basic intuition is that the division between Hintikka-style attitude verbs like *believe* (Hintikka, 1969) and Stalnaker/Heim-style attitude verbs like *want* (Stalnaker, 1984; Heim, 1992) is reflected in the Romance mood system. However, current analyses disagree on the concrete implementation of this idea. Some treat mood as introducing $w(\text{orld})$ -quantification, roughly as in (1) (Portner and Rubinstein, 2020). Others treat mood as a $w(\text{orld})$ -pronoun, roughly as in (2) (Romero, 2024; cf. Schlenker, 2005):

- (1) Mood as introducing w -quantification (roughly):
- a. $\llbracket \text{IND} \rrbracket^g$ Assertion: $\lambda p. \forall w \in \cap \text{MB} [p(w)]$
 - b. $\llbracket \text{SUBJ} \rrbracket^g$ Assertion: $\lambda p. \forall w \in \text{BEST}(\text{MB}, \text{OS}) [p(w)]$
- (2) Mood as introducing a w -pronoun (roughly):
- a. $\llbracket \text{IND}_2 \rrbracket^g$ Presupposition: $g(2) \in \text{MB}$
Assertion: $g(2)$
 - b. $\llbracket \text{SUBJ}_2 \rrbracket^g$ Presupposition: $g(2) \in \text{BEST}(\text{MB}, \text{OS})$
Assertion: $g(2)$

The choice between (1) and (2) is central to the current event-anchored approach to modals and attitude verbs (Hacquard, 2006; Kratzer, 2006; Moulton, 2009). Within this framework, the division of semantic labor between the embedding verb and the functional structure of the embedded clause is being re-negotiated, with several options arising for the locus of world quantification. For example, the component $\forall w' \in \text{Dox}_a(w)$ in (3b) may in principle come from

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the embedding verb (Hintikka, 1969), from the complementizer of the complement clause (Kratzer, 2006) or from the embedded mood (Portner and Rubinstein, 2020).

- (3) a. Ana believes that Iker came.
b. $\lambda w. \forall w' \in \cap \text{Dox}_a(w) [\text{come}_{w'}(i)]$

In the present paper, we explore some consequences of the choice between (1) and (2) for modally interpreted Relative Clauses (modRCs) in Spanish. The crucial intuitive contrast to be derived is illustrated in (4)-(5). Sentence (4) with IND is interpreted as a simple extensional Relative Clause (RC) giving rise solely to the actuality component (4a). In contrast, sentence (5) with SUBJ communicates, in addition to the actuality component (5a), an intensional component (5b) conveying the criterion used by the agent of the event in selecting the theme.²

- (4) Ana compró un libro que tenía muchas páginas.
Ana bought a book that had.IMP.F.IND many pages
'Ana bought a book that had many pages'.
a. Actuality component: 'Ana bought in w a book that (at the buying time) had many pages in w .'
- (5) Ana compró un libro que tuviese muchas páginas.
Ana bought a book that had.IMP.F.SUBJ many pages
'Ana bought a book that had many pages and the criterion for selecting that book was that it had many pages'.
a. Actuality component: 'Ana bought in w a book that (at the buying time) had many pages in w .'
b. Modal component: 'Ana intended in w that whichever book she buys has many pages (i.e., the criterion for selecting the book was that it had many pages).'

We will apply two competing analyses to examples (4)-(5), each championing one of the options (1)-(2). The first analysis, using mood to introduce w -quantification as in (1), is a recent proposal by Alonso-Ovalle, Menéndez-Benito and Rubinstein (2024). The key ingredient is to keep certain aspects of the actual world w but not others in the circumstantial modal base Circ involved in the w -quantification introduced by mood. The second analysis, treating mood as a w -pronoun, is an extension of Romero's (2024) work on complement clauses to modRCs. While keeping many insights from Alonso Ovalle et al.'s (2024) analysis, it crucially detaches w -quantification from mood and locates it on an (often) covert intensional operator ON-

² The exact modal flavor of the intensional component of modRCs depends on the temporal orientation of the event e' in the RC with respect to the matrix event e : A past or present orientation leads to a criterion-of-choice interpretation, as in (5b), and a future orientation leads to a purpose interpretation, as in (i). As the issues to be discussed equally affect the intensional component (5b)/(ib) regardless of its exact modal flavor, we will stick to (5b) for simplicity. Also, we will not be concerned with the difference in the actuality components (5a) and (ia).

- (i) Ana le compró a Pedro una radio que le distrajera en el hospital.
Ana CL bought to Pedro a radio that him entertain.IMP.SUBJ at the hospital
'Ana bought Pedro a radio in order to entertain him at hospital'.
a. Actuality component: 'Ana bought Pedro in w a radio that (later) entertains him at hospital in w .'
b. Modal component: 'Ana intended in w that whichever radio she buys for Pedro entertains Pedro at hospital.'

PURPOSE based on Farkas' (1988) RESP(onsibility) relation. We will show that the mood-as-w-quantification analysis makes (at least) two kinds of incorrect empirical predictions: It produces too permissive truth conditions for subjunctive modRCs like (5) and too restrictive truth conditions for their indicative counterparts like (4). In contrast, the mood-as-w-pronoun analysis derives the intended readings while circumventing these problems.

The rest of the paper is organized as follows. Section 2 provides theoretical background shared by the two contending analyses. Section 3 presents the mood-as-w-quantification analysis. In section 4, we point out some shortcomings for the treatment of mood as introducing w-quantification. Section 5 presents the mood-as-w-pronoun analysis. Section 6 shows how the w-pronominal treatment of mood avoids the problems of the first analysis. Section 7 concludes.

2. Theoretical background

In the event-anchored approach to modality (Hacquard, 2006; Kratzer, 2006; Moulton, 2009), (some) events invoke modal backgrounds. The modal background associated with an event e is retrieved via the content function. For example, the attitude verb *believe* in (6) introduces an event e where $\text{content}(e) = \text{Dox}_a(w)$:

- (6) a. Ana believes that Iker came.
b. $\lambda w. \exists e [\text{believe}_w(e) \wedge \text{Exp}(e, \text{ana}) \wedge \forall w' \in \cap \text{content}(e) [\text{come}_{w'}(i)]]$,
where $\text{content}(e) = \text{Dox}_a(w)$

Among non-attitude predicates, verbs like *take* or *buy* (typically) involve a volitional component whereas verbs like *slip* or *fall* (typically) do not (Farkas, 1989). Alonso-Ovalle and Menéndez-Benito (2018) note that this volitional component correlates with the acceptability of Spanish *un NP cualquiera* 'an NP CUALQUIERA' in its random choice reading, shown in (7):

- (7) Juan cogió una carta cualquiera.
Juan took a card CUALQUIERA
'Juan took a card at random.'
a. Existential component: 'There is an event e in the actual w of J. taking a card x .'
b. Modal component: 'Juan took that card x at random; that is, any other card that he could have taken would have equally satisfied his goals given the circumstances.'

To model the random choice modal component of *un NP cualquiera* in (7b), Alonso-Ovalle and Menéndez-Benito (2018) adopt the following measures. First, event indices are syntactically represented; random choice indefinites bear an event index (represented here as a superscripted e : *an NP CUALQUIERA^e*); and this event index is (optionally) co-indexed with the event index of its clausemate verb. Second, regarding the event introduced by the action verb, a distinction is made between the action event e itself and its preparatory stage dec_e in which the agent makes the decision on how to act. Third, *an NP CUALQUIERA^e* fetches the decision stage dec_e and, among the worlds compatible with the circumstances at dec_e , it selects the set of best worlds according to the agent's goals at dec_e . The result is the set $\text{BEST}(\text{Circ}_{\text{dec}_e}, \text{Goals}_{\text{dec}_e})$, defined following (8). Finally, the semantic contribution of *an NP CUALQUIERA^e* involves $\forall w$ -quantification over $\text{BEST}(\text{Circ}_{\text{dec}_e}, \text{Goals}_{\text{dec}_e})$, as defined in (9).

Bringing all these elements together, sentence (7) is assigned the LF (10a) and the truth conditions (10b), paraphrased in (10c). This satisfactorily derives the distribution and meaning of random choice indefinites.

- (8) $\text{BEST}(\text{MB}, \text{OS}) = \{ w: w \in \cap \text{MB} \wedge \neg \exists w' [w' \in \cap \text{MB} \wedge w' <_{\text{OS}} w] \}$
- (9) $\llbracket \text{an NP CUALQUIERA}^e \rrbracket =$
 $\lambda R_{\langle e, vt \rangle}. \lambda e''. \lambda w. \exists x [\llbracket \text{NP} \rrbracket(x)(w) \wedge R_w(x)(e'')] \wedge$
 $\forall y [\llbracket \text{NP} \rrbracket(y)(w) \rightarrow \exists w' \in \text{BEST}(\text{Circ}_{\text{dec}_e}, \text{Goals}_{\text{dec}_e}) \exists e' R_w(y)(e')]$
- (10) a. LF: $[\exists \lambda e [e \text{ Juan took a card CUALQUIERA}^e]]$
 b. $\lambda w. \exists e [\exists x [\text{card}_w(x) \wedge \text{take}_w(e) \wedge \text{Agent}(e, \text{juan}) \wedge \text{Theme}(e, x)] \wedge$
 $\forall y [\text{card}_w(y) \rightarrow \exists w' \in \text{BEST}(\text{Circ}_{\text{dec}_e}, \text{Goals}_{\text{dec}_e}) \exists e' \text{take}_w(j, y, e')]]$
 c. John took a card x in w and, for every (relevant) card y in w , there is a world w' compatible with the circumstances at dec_e and ranked among the best worlds according to the goals at dec_e in which there is an event e' of Juan taking card y .

Coming back to our two contending analyses for modRCs, they both follow the event-anchored approach to modality and take the analysis of *un NP cualquiera* as point of departure for their treatment of mood in modRCs. More concretely, to derive the modal component (5b), both analyses assume that mood morphology bears an event index in the syntax –here represented as superscripted MOOD^e – which, in the case of modRCs, is co-indexed with the volitional event e introduced by the action verb. Using then the content function, $\text{content}(e)$ delivers a circumstantial Modal Base (MB) and the goal-oriented Ordering Source (OS) associated with dec_e . This leads to the general lexical entries for mood in (11)-(12):

- (11) Lexical entries of mood as introducing $\forall w$ -quantification:
- a. $\llbracket \text{IND}^e \rrbracket^g$ Presupposition: $\text{content}(e) = \text{MB}$
 Assertion: $\lambda p. \forall w \in \cap \text{MB} [p(w)]$
- b. $\llbracket \text{SUBJ}^e \rrbracket^g$ Presupposition: $\text{content}(e) = \langle \text{MB}, \text{OS} \rangle$
 Assertion: $\lambda p. \forall w \in \text{BEST}(\text{MB}, \text{OS}) [p(w)]$
- (12) Lexical entries of mood as introducing a w -pronoun:
- a. $\llbracket \text{IND}_2^e \rrbracket^g$ Presupposition: $\text{content}(e) = \text{MB} \wedge g(2) \in \cap \text{MB}$
 Assertion: $g(2)$
- b. $\llbracket \text{SUBJ}_2^e \rrbracket^g$ Presupposition:³ $\text{content}(e) = \langle \text{MB}, \text{OS} \rangle \wedge g(2) \in \text{BEST}(\text{MB}, \text{OS})$
 Assertion: $g(2)$

3. Mood-as- w -quantification analysis

Following Portner and Rubinstein (2020), the first analysis assumes the general lexical entries in (11), where mood directly introduces $\forall w$ -quantification. As we will see, crucial to the

³ Following Schlenker (2005), Romero (2024) derives part of (12a) as an anti-presupposition using Heim's (1991) Maximize Presupposition. I leave this aspect aside in the present paper.

analysis is the exact content of the circumstantial MB in (11b), namely, which facts of the actual world w should be reproduced there.

Recall our subjunctive example (13). The general lexical entry for SUBJ^e in (14) introduces w -quantification in the interpretation of the relative clause inside the extensionally interpreted noun phrase $[a \text{ book} + \text{RC}]$. The compositional derivation leads to the truth conditions in (15), where the modalized property expressed by the modRC is, thus, predicated *de re* of the (counterpart of the) specific book x that Ana bought in the actual world w . Individuals are assumed to be world-bound and to have counterparts (CP) in other worlds.

- (13) Ana compró un libro que tuviese muchas páginas. (=5)
 Ana bought a book that had.IMP.F.SUBJ many pages
 ‘Ana bought a book that had many pages and the criterion for selecting that book was that it had many pages’.
- Actuality component: ‘Ana bought in w a book that (at the buying time) had many pages in w .’
 - Modal component: ‘Ana intended in w that whichever book she buys has many pages.’

- (14) $\llbracket \text{SUBJ}^e \rrbracket^g$ Presupposition: $\text{content}(e) = \langle \text{MB}, \text{OS} \rangle$ (=11b)
 Assertion: $\lambda p. \forall w \in \text{BEST}(\text{MB}, \text{OS}) [p(w)]$

- (15) $\llbracket \exists \lambda e [e \text{ Ana bought a book } [\text{RC that had.SUBJ}^e \text{ many pages}]] \rrbracket =$
 $\lambda w. \exists e \exists x [\text{bought}_w(e) \wedge \text{Agent}(e, \text{ana}) \wedge \text{Theme}(e, x) \wedge \text{book}_w(x) \wedge$
 $\forall w' \in \text{BEST}(\text{MB}, \text{Goals}_{\text{dec}_e}) \exists s \exists y \in \text{CP}(x) [\text{have-many-pp}_{w'}(y, s)]]$

Let us examine more closely the content of the boldfaced MB in (15). We start with the MB $\text{Circ}_{\text{dec}_e}$ from *un NP cualquiera^e*: The circumstances at the preparatory stage dec_e of the buying event e include relevant facts that hold at the time of dec_e , e.g., the fact that Ana is at a bookstore, that she has enough money, etc., as in (16a). Alonso-Ovalle et al. (2024) take this $\text{Circ}_{\text{dec}_e}$ and modify it in two steps for SUBJ^e in modRCs. First, they expand $\text{Circ}_{\text{dec}_e}$ into $\text{Circ}_{\text{dec}_e}^+$. $\text{Circ}_{\text{dec}_e}^+$ is the result of adding to $\text{Circ}_{\text{dec}_e}$ the fact that the actual subsequent buying event e takes place. This amounts to requiring that all the worlds in $\cap \text{Circ}_{\text{dec}_e}^+$ contain an identical counterpart of the buying event e , i.e., that in all the worlds in $\cap \text{Circ}_{\text{dec}_e}^+$ an identical counterpart of the actual agent bought an identical counterpart of the actual book, with all the past and present properties of that book (Alonso-Ovalle et al., 2024: 163-4), as in (16b). Second, the modal base $\text{Circ}_{\text{dec}_e}^+$ is expanded to secure diversity with respect to the prejacent in the RC, as defined by Condoravdi (2002) in (17). The result is the modal base $\text{Div}(\text{Circ}_{\text{dec}_e}^+)$ in (16c). Other than that, Ana’s goal at dec_e is to buy a book with many pages –any would do–, as in (16d).

- (16) a. $\text{Circ}_{\text{dec}_e} = \{\text{‘that Ana is at a bookstore’}, \text{‘that Ana has money’}, \dots\}$
 b. $\text{Circ}_{\text{dec}_e}^+ = \{\text{‘that Ana is at a bookstore’}, \text{‘that Ana has money’},$
 $\text{‘that Ana buys the specific object } x \text{ and } x \text{ has the past and present}$
 $\text{properties it actually has’}, \dots\}$
 c. $\text{Div}(\text{Circ}_{\text{dec}_e}^+) = \{\text{‘that Ana is at a bookstore’}, \text{‘that Ana has money’},$

- ‘that Ana buys the specific object x and x has the past and present properties it actually has expect possibly the prejacent property’, ...}
- d. $\text{Goals}_{\text{dec}_e} = \{\text{‘that whichever book Ana buys has many pages’}\}$

- (17) A modal base MB is diverse with respect to a prejacent p iff
 $\exists w, w' \in \cap \text{MB}(e) [p(w) \wedge \neg p(w')]$

Combining the λ -expression in (15) with the resolution $\text{Div}(\text{Circ}_{\text{dec}_e}^+)$ in (16c) of the MB, we obtain the truth conditions of the modal component of sentence (13) paraphrased in (18):

- (18) Predicted modal component, paraphrased:
 Ana’s general goal that whichever book she buys has (at the buying time) many pages, combined with the fact that Ana bought the specific book x but not with the fact that x had many pages, leads to best worlds in all of which the specific book x that Ana bought has (at the time of the buying) many pages.

To see what this analysis accomplishes, consider scenario A below, in which Ana has at dec_e a purely *de dicto* intention about buying a book with many pages. Sentence (13) is intuitively true in this scenario. The truth conditions in (15) predicate a *de re* intention by Ana about the specific book x once the fact that Ana bought x has been added to the MB. With this addition, the derived *de re* truth conditions are satisfied in scenario A and, thus, sentence (13) is correctly predicted to be true in the scenario.

- (19) Scenario A:
 Ana’s goal at dec_e was to buy a book that has many pages –any book with many pages would do. She collected all the books that had many pages in front of her, closed her eyes and picked a book at random. She happened to pick book x . She bought that book x at e .

4. Shortcomings of the mood-as-w-quantification analysis

In this section, we present two shortcomings for mood-as-w-quantification analysis just outlined. In subsection 4.1, we will show that the analysis produces too permissive truth conditions for subjunctive modRCs like (5)/(13). In subsection 4.2, we will see that the analysis outputs too restrictive truth conditions for indicative RCs like (4).

4.1. Subjunctive modRCs: Too permissive truth conditions

Recall our sentence (5)/(13) and consider scenario B in (20):

- (20) Scenario B:
 Ana’s goal at dec_e was to buy a book that has many pages or a red cover –any book would do as long as it has at least one of these two properties. She collected all the books that had at least one of these properties in front of her, closed her eyes and picked one book at random. She happened to pick a book x with many pages and a blue cover. She bought that book x at e .

Intuitively, sentence (13) is FALSE in scenario B due to the modal component (13b): Ana's intention according to the sentence was to buy a book with many pages, but Ana's actual intention in scenario B was to buy a book that had many pages or a red cover. However, the present analysis predicts sentence (13) to be TRUE in this scenario. In particular, the predicted truth conditions (21) combined with the modal base $\text{Div}(\text{Circ}_{\text{dec}_e}^+)$ and ordering source $\text{Goals}_{\text{dec}_e}$ in (22) emanating from scenario B make the sentence TRUE in this scenario:

- (21) $\llbracket \exists \lambda e [e \text{ Ana bought a book } [\text{RC that had.SUBJ}^e \text{ many pages}]] \rrbracket =$
 $\lambda w. \exists e \exists x [\text{bought}_w(e) \wedge \text{Agent}(e, \text{ana}) \wedge \text{Theme}(e, x) \wedge \text{book}_w(x) \wedge$
 $\forall w' \in \text{BEST}(\text{Div}(\text{Circ}_{\text{dec}_e}^+), \text{Goals}_{\text{dec}_e}) \exists s \exists y \in \text{CP}(x) [\text{have-many-pp}_{w'}(y, s)]]$
- (22) a. $\text{Div}(\text{Circ}^+) \text{ at } \text{dec}_e = \{ \text{'that Ana is at a bookstore'}, \text{'that Ana has money'},$
 $\text{'that Ana bought the specific book } x \text{ and } x \text{ has many pages}$
 $\text{and that } x \text{ has a blue cover'}, \dots \}$
b. $\text{Goals at } \text{dec}_e = \{ \text{'that whichever book Ana buys has many pages or a red cover'} \}$

Let us see how this incorrect prediction arises. As we saw, $\text{Circ}_{\text{dec}_e}^+$ contains a copy of the actual event e of Ana buying the specific book x with all past and present properties of x , including x having many pages and x having a blue cover. Then we diversify with respect to the RC preajacent x *has many pages*. The result is the expanded $\text{Div}(\text{Circ}_{\text{dec}_e}^+)$ in (22a), where $\cap \text{Div}(\text{Circ}_{\text{dec}_e}^+)$ contains some worlds where x has many pages and some where x has few pages. But note that, in all of worlds in the expanded $\cap \text{Div}(\text{Circ}_{\text{dec}_e}^+)$, x still has a *blue* cover, since we keep all other actual properties of x in (22a). Now, the predicted truth conditions in (21) require that Ana's general goal at dec_e that whichever book she buys has many pages or a *red* cover leads to best worlds out of the expanded $\cap \text{Div}(\text{Circ}^+)$ such that, in all of them, x has many pages. This requirement is in fact satisfied in scenario B: Since there is no world in $\cap \text{Div}(\text{Circ}_{\text{dec}_e}^+)$ in which x has a red cover, the only way to satisfy Ana's general goal in (22b) that whichever book Ana buys has many pages or a red cover is by x having many pages. Thus, in all worlds in $\text{BEST}(\text{Div}(\text{Circ}_{\text{dec}_e}^+), \text{Goals}_{\text{dec}_e})$, (the counterpart of) x has many pages. This means that the derived truth conditions are satisfied and thus sentence (19) is predicted to be TRUE in scenario B, contrary to fact.

Hence, the mood-as-w-quantification analysis overgenerates: It produces truth conditions that are too permissive.

4.2. Indicative RCs: Too restrictive truth conditions

Recall our indicative RC, repeated below as (23), and the general w-quantificational entry for IND^e in (24):

- (23) Ana compró un libro que tenía muchas páginas. (=4)
Ana bought a book that had.IND many pages
'Ana bought a book that had many pages.'

- (24) $\llbracket \text{IND}^e \rrbracket^g$ Presupposition: $\text{content}(e) = \text{MB}$ (=11a)
 Assertion: $\lambda p. \forall w \in \cap \text{MB} [p(w)]$

What could serve as the MB in (24)? Since IND^e requires that its event anchor e provides just a Modal Base, one could equate e with the actual declarative speech event, which could be argued to provide $\text{Rpg}_{\text{Speaker}}(w_0)$ or $\text{Epi}_{\text{Speaker}}(w_0)$ as Modal Base. For the sake of illustration, we will assume the latter. This leads to the truth conditions (25) for sentence (23):

- (25) Predicted truth conditions of (23) with $e = \text{speech event}$:
 $\llbracket \exists \lambda e' [e' \text{ Ana bought a book } [\text{RC that had.IND}^e \text{ many pages}]] \rrbracket =$
 $\lambda w. \exists e' \exists x [\text{bought}_w(e') \wedge \text{Agent}(e', \text{ana}) \wedge \text{Theme}(e', x) \wedge \text{book}_w(x) \wedge$
 $\forall w' \in \cap \text{Epi}_{\text{Speaker}}(w) \exists s \exists y \in \text{CP}(x) [\text{have-many-pp}_w(y, s)]]$

Now consider scenario C in (26):

- (26) Scenario C:
 There are only two relevant books: b1 and b2. Although in actuality both books have many pages, the speaker knows that b1 has many pages and merely considers it possible that b2 has many pages. Furthermore, the speaker knows that Ana bought a book that has many pages but is not sure which one. In actuality, Ana volitionally bought b2.

Sentence (23) is intuitively TRUE in scenario C. The mere fact that Ana (volitionally) bought b2 and b2 has many pages suffices to make the sentence true. However, the predicted truth conditions in (25) render the sentence FALSE in this scenario. This is why. Since the speaker knows that b1 has many pages, b1 has many pages at all worlds w' in $\cap \text{Epi}_{\text{Speaker}}(w)$; since the speaker merely considers it possible that b2 has many pages, b2 has many pages at some but not all w' in $\cap \text{Epi}_{\text{Speaker}}(w)$. This means that the only book x satisfying the condition $\forall w' \in \cap \text{Epi}_{\text{Speaker}}(w) \exists s \exists y \in \text{CP}(x) [\text{have-many-pp}_w(y, s)]$ imposed by (25) is b1. But, given that Ana bought b2 and not b1, b1 does not satisfy the condition $\text{bought}_w(e') \wedge \text{Agent}(e', \text{ana}) \wedge \text{Theme}(e', x)$ required in (25). Thus, no book can be found in scenario C that satisfies both conditions required by the truth conditions (25). Thus, the sentence is predicted to be FALSE, contrary to fact.

Hence, the mood-as- w -quantification analysis undergenerates: It produces truth conditions that are too restrictive.⁴

In sum, taking mood to introduce w -quantification leads to under- and overgeneration problems.

⁴ Alonso-Ovalle et al. (2024: 169-70) detect a similar problem for subjunctive RCs embedded under attitude verbs like *want*. See Alonso-Ovalle et al. (2024: 169-70) for potential ways to avoid the problem and Romero (2024: 599) for arguments against their suggestions.

5. Proposal: Mood-as-w-pronoun analysis

In this section, we develop a mood-as-w-pronoun analysis of sentences (4)-(5) that circumvents these problems. We present the ingredients of the analysis in subsection 5.1: Mood functions as a w-pronoun and the locus of w-quantification in modRCs is a matrix (covert or overt) operator ON-PURPOSE inspired by Farkas (1988). Following Romero (2024), subsection 5.2 illustrates how the general mood-as-w-pronoun analysis derives standard *de re* and *de dicto* readings for run-of-the-mill RCs. Subsection 5.3 goes back to our sentences (4)-(5) and shows how mood choice in this construction can be reduced to the choice between a *de re* vs. *de dicto* reading with respect to ON-PURPOSE. Finally, subsection 5.4 discusses further considerations.

5.1. Main ingredients

The main tenet of our proposal is that the locus of w-quantification in modRCs is not mood but an (overt or covert) ON-PURPOSE operator inspired in Farkas' (1988) RESP-relation. Let us see these two ingredients in more detail.

The first ingredient is the mood-as-w-pronoun lexical entries we saw in (12), repeated below:

- (27) Lexical entries of mood as introducing a w-pronoun: (=12)
- | | | |
|----|---|--|
| a. | $\llbracket \text{IND}_2^e \rrbracket^g$ | Presupposition: $\text{content}(e) = \text{MB} \wedge g(2) \in \cap \text{MB}$ |
| | | Assertion: $g(2)$ |
| b. | $\llbracket \text{SUBJ}_2^e \rrbracket^g$ | Presupposition: $\text{content}(e) = \langle \text{MB}, \text{OS} \rangle \wedge g(2) \in \text{BEST}(\text{MB}, \text{OS})$ |
| | | Assertion: $g(2)$ |

For the second ingredient, we combine ideas from Farkas (1988) and Alonso-Ovalle and Menéndez-Benito (2018) (see also Frühauf, 2024). As mentioned in section 2, Farkas (1988) noted that some action verbs involve (typically or optionally) a volitional component. For example, *buy* is typically interpreted as having an agent that intentionally brought about the buying or picking event, and *break* can optionally be so interpreted. Farkas argued for representing this volitional component in the satisfaction conditions of the sentence, which she implemented using the RESP(onsibility) relation, defined in (28). To see an example, Farkas assigns sentence (29) under its volitional interpretation the truth conditions in (30):

- (28) $\text{RESP}_w(x, e) = 1$ iff e is the result of some act performed by x in w with the intention to bring e about.

- (29) Ana bought / broke a vase (on purpose).

- (30) $\lambda w. \exists e \exists x [\text{buy}_w / \text{break}_w(e) \wedge \text{Agent}(e, \text{ana}) \wedge \text{vase}_w(x) \wedge \text{Theme}(e, x) \wedge \text{RESP}_w(\text{ana}, e)]$

Building on Farkas' idea, we spell out RESP as a (cover or overt) operator ON-PURPOSE that explicitly introduces w-quantification. The domain of this w-quantification is built in a similar way to the domain of w-quantification for *an NP CUALQUIERA^e* in Alonso-Ovalle and Menéndez-Benito (2018). Syntactically, ON-PURPOSE modifies a verbal projection XP before the event argument of XP is saturated, as in the LF (31) for sentence (29). Semantically, ON-

PURPOSE adds a modification to the unsaturated e -argument of XP: It fetches the decision stage of this e , namely dec_e , and takes the (relevant) circumstances at dec_e – $\text{Circ}_{\text{dec}_e}$ – as MB and the agent’s goals at dec_e – $\text{Goals}_{\text{dec}_e}$ – as OS in order to select and quantify over the resulting set of best worlds, as defined in (32). Note that the MB of ON-PURPOSE is the original $\text{Circ}_{\text{dec}_e}$ from *an NP CUALQUIERA*^e in Alonso-Ovalle and Menéndez-Benito (2018), not the modified $\text{Circ}_{\text{dec}_e}^+$ or the expanded $\text{Div}(\text{Circ}_{\text{dec}_e}^+)$ in Alonso-Ovalle et al. (2024). The resulting truth conditions of sentence (29) are given in (33).

$$(31) \quad [\exists e \text{ [ON-PURPOSE [}_{\text{XP}} \text{ Ana bought/broke a vase]]}]$$

$$(32) \quad \llbracket \text{ON-PURPOSE} \rrbracket^g = \lambda R_{\langle v, st \rangle}. \lambda e. \lambda w. R_w(e) \wedge \\ \forall w' [w' \in \text{BEST}(\text{Circ}_{\text{dec}_e}, \text{Goals}_{\text{dec}_e}) \rightarrow \exists e'' R_{w'}(e'')]$$

$$(33) \quad \lambda w. \exists e [\exists x [\text{buy}_w/\text{break}_w(e) \wedge \text{Agent}(e, \text{ana}) \wedge \text{vase}_w(x) \wedge \text{Theme}(e, x)] \wedge \\ \forall w' [w' \in \text{BEST}(\text{Circ}_{\text{dec}_e}, \text{Goals}_{\text{dec}_e}) \rightarrow \\ \exists e' \exists x' [\text{buy}_w/\text{break}_w(e') \wedge \text{Agent}(e', \text{ana}) \wedge \text{vase}_{w'}(x') \wedge \text{Theme}(e', x')]]]]$$

With these two ingredients in place, we propose that mood in modally interpreted RCs simply tracks *de re/de dicto* readings with respect to ON-PURPOSE, just like mood has been argued to track the *de re/de dicto* ambiguity for run-of-the-mill RCs embedded under attitude verbs (Farkas 1982, Quer 1998, a.o.). To see this, we will first illustrate in subsection 5.2 how the choice between IND and SUBJ is tied to the standard *de re* vs. *de dicto* readings of regular RCs under *want* within the mood-as-world-pronoun account, following Romero (2024). In a second step, we will apply the same reasoning to our sentences (4)–(5) in subsection 5.3.

5.2. *De re* and *de dicto* readings in run-of-the-mill RCs

Consider first sentence (34) and the standard *de re/de dicto* readings of the noun phrase [*a book that has red covers*] with respect to the intensional verb *want*. The choice of mood disambiguates the reading (Farkas, 1982; Quer, 1998): IND leads to the *de re* reading (34a) whereas SUBJ leads to the *de dicto* (opaque) reading (34b).⁵

- (34) Sofia quiere que Ana encuentre un libro [que tiene.IND/tenga.SUBJ las tapas rojas].
 Sofia wants that Ana finds.SUBJ a book [that has.IND /has.SUBJ the covers red]
 ‘Sofia wants Ana to find a book that has a red cover.’
- De re* reading with IND: ‘Sofia wants Ana to find a specific book x and x has a red cover.’
 - De dicto* reading with SUBJ: ‘Sofia wants Ana to find some book or other –any would do– that has a red cover.’

Besides the event of the (non-volitional) action verb *find*, there are two salient events. One is the attitude event e' introduced by *want*, which invokes a doxastic MB and a bouletic OS, as in (36). The other is the actual declarative speech event e , which invokes solely a reportative MB.

⁵ We leave out *de dicto* transparent readings in the present paper.

For concreteness, we define an ASSERT operator introducing the speech event, as in (36), and represent it in the LF syntax of the sentence, as in (37).⁶

- (35) $\llbracket \text{want} \rrbracket = \lambda p. \lambda x. \lambda e'. \lambda w. \text{want}_w(x, e') \wedge \forall w \in \text{BEST}(\text{Dox}_x^+(w), \text{Boul}_x(w)) [p(w)]$
- (36) $\llbracket \text{ASSERT} \rrbracket = \lambda p. \lambda x. \lambda e. \lambda w. \text{assert}_w(x, e) \wedge \forall w' \in \cap \text{Rpg}_x(w) [p(w')]$
- (37) $[e \text{ **ASSERT** } [\exists e' \text{ Sofia **wants** [Ana finds a book } [\text{RC which has. **MOOD** red cover}]]]]]$

As for the RC, the compositional derivation leads to an $\langle e, t \rangle$ -property which includes reference to the event $g(I)$ and the world $g(2)$ referred to by the so far unbound indices in *pro*₁ and *MOOD*₂ respectively, as in (38)-(39). The choice of mood inside the RC determines the shape of the presupposition carried by this $\langle e, t \rangle$ -property: If IND is chosen, the $\langle e, t \rangle$ -property presupposes that the event $g(I)$ modally evokes solely a MB, as in (38); if SUBJ is used, the $\langle e, t \rangle$ -property presupposes that the event $g(I)$ modally evokes a MB and an OS, as in (39).

- (38) $\llbracket \text{which}_5 t_5 \text{ has.IND}_2^{\text{prol}} \text{ a red cover} \rrbracket^g$
 $\lambda x: \text{content}(g(1)) = \text{MB} \text{ and } g(2) \in \cap \text{MB. } x \text{ has red cover in } g(2)$
- (39) $\llbracket \text{which}_5 t_5 \text{ has.SUBJ}_2^{\text{prol}} \text{ a red cover} \rrbracket^g =$
 $\lambda x: \text{content}(g(1)) = \langle \text{MB}, \text{OS} \rangle \text{ and } g(2) \in \text{BEST}(\text{MB}, \text{OS}). x \text{ has red cover in } g(2)$

Now we need to determine which world quantifier will bind index 2 in $MOOD_2$ in the RC and which mood will be used to express it. There are two potential world quantifiers in the sentence –ASSERT and *want*–, leading to a *de re* and a *de dicto* reading respectively. Let us see each possibility in turn.

Consider first the *de re* reading of sentence (34). Its LF is given under (40a), with the entire noun phrase [*a book which has.MOOD a red cover*] scoping over *want*.⁷ Its truth conditions are spelled out in (40b), where g(2) in (38)/(39) ends up being bound by the $\forall w$ -quantification introduced by ASSERT and thus becomes *w* in (40b):

- (40) *De re* reading of sentence (34):
- a. [e **ASSERT** [[_{NP} a book which has.MOOD red cover] $\lambda 5$ [$\exists$ e' S **wants** [A buys t_5]]]]
- b. $\lambda w_0. \text{assert}_{w_0}(e) \wedge \forall w \in \cap \text{Rpg}_x(w_0) \underline{\exists x [\text{book}_w(x) \wedge \text{has-red-cover}_w(x) \wedge}$
- $\swarrow$ IND $\searrow$ *SUBJ
- $\exists e' [\text{want}_w(\text{sofia}, e') \wedge \forall w' \in \text{BEST}(\text{Dox}_{\text{sofia}}^+(w), \text{Bou}_{\text{sofia}}(w)) [\text{Ana buys}_{w'} x]]$

Crucially, to allow for this binding of $g(2)$, the RC needs to be defined throughout the domain of its binder, that is, throughout the domain $\cap \text{Rpg}_x(w_0)$ resulting from $\text{content}(e_{\text{assert}})$. Thus, the anchor $g(1)$ equals e_{assert} and, since $\text{content}(e_{\text{assert}})$ consists solely of a MB, the indicative

⁶ We use speech act operators for concreteness (as e.g. in Krifka, 2001), but see Portner (2018) for alternatives. This implementation choice does not affect the main arguments in the present paper.

⁷ Again for concreteness, we implement our analysis of mood using an LF movement approach to *de re/de dicto* ambiguities. Our analysis of mood can be recast in other approaches (e.g., Percus and Sauerland, 2003).

RC (38) is defined while the subjunctive RC (39) leads to a presupposition failure. Hence, IND mood must be used.

Consider now the *de dicto* reading of sentence (34). Its LF is given under (41a), with the entire noun phrase [*a book which has.MOOD a red cover*] scoping now under *want*. In its truth conditions (41b), $g(2)$ in (38)/(39) ends up being bound by the $\forall w'$ -quantification introduced by *want*, thus becoming w' in (41b):

(41) *De dicto* reading of sentence (34):

- a. $[e \text{ ASSERT } [\exists e' \text{ S wants } [[_{NP} \text{ a book which has.MOOD red cover}] \lambda 5 [A \text{ buys } t_5]]]]$
b. $\lambda w_0. \text{assert}_{w_0}(e) \wedge \forall w \in \cap \text{Rpg}_x(w_0) \exists e' [\text{want}_w(\text{sofia}, e') \wedge$
 $\forall w' \in \text{BEST}(\text{Dox}_{\text{sof}}^+(w), \text{Bou}_{\text{sof}}(w)) \exists x [\text{book}_{w'}(x) \wedge \text{has-red-cov}_{w'}(x) \wedge A \text{ buys}_{w'} x]]$
- $\swarrow \quad \searrow$
 $*\text{IND} \quad \quad \checkmark \text{SUBJ}$

Crucially, to allow for this binding, the RC needs to be defined throughout the domain of its binder, that is, throughout the domain $\text{BEST}(\text{Dox}_{\text{sof}}^+(w), \text{Bou}_{\text{sof}}(w))$ resulting from $\text{content}(e'_{\text{want}})$. Thus, the anchor $g(1)$ equals e'_{want} and, since $\text{content}(e'_{\text{want}})$ consists of a Modal Base and Ordering Source, the subjunctive RC (39) is defined whereas the indicative RC (38) leads to a presupposition failure. Hence, SUBJ mood must be used.

In sum, following Romero (2024), we have seen how the general mood-as-w-pronoun approach correctly derives the observed correlation between mood choice and interpretation in run-of-the-mill RCs embedded under e.g. *want*: IND can only be used to express the *de re* reading and SUBJ the *de dicto* reading with respect to *want*.

5.3. Back to our sentences: *De re* and *de dicto* readings with respect to ON-PURPOSE

Let us go back to our sentences (4)-(5). The interpretive contrast between the IND and SUBJ versions is recapitulated in (42):

- (42) Ana compró un libro que tenía / tuviese muchas páginas.
Ana bought a book that had.IMPF.IND / had.IMPF.SUBJ many pages
a. With IND: ‘Ana bought a book that had many pages.’
b. With SUBJ: ‘Ana bought a book that had many pages and the criterion for selecting that book was that it had many pages.’

This structure makes salient two events. One is the volitional action event e' introduced by *bought*, whose decision stage $\text{dec}_{e'}$ involves modality. As we saw in (32), repeated below, the operator ON-PURPOSE takes the relevant circumstances at $\text{dec}_{e'}$ (i.e., $\text{Circ}_{\text{dec}_{e'}}$) as MB and the agent’s goals at $\text{dec}_{e'}$ (i.e., $\text{Goals}_{\text{dec}_{e'}}$) as OS and quantifies over the corresponding best worlds. The other salient event is the actual declarative speech event e . As before, for concreteness, we introduce this speech event via the ASSERT operator. This leads to the LF syntax (44) for the surface structure (42):

$$(43) \llbracket \text{ON-PURPOSE} \rrbracket^g = \lambda R_{\langle v, t \rangle}. \lambda e. \lambda w. R_w(e) \wedge \quad (=32)$$

$$\forall w'[w' \in \text{BEST}(\text{Circ}_{\text{dece}}, \text{Goals}_{\text{dece}}) \rightarrow \exists e'' R_{w'}(e'')]$$

$$(44) [e \text{ ASSERT } [\exists e' \text{ ON-PURPOSE } [A \text{ bought a book } [_{\text{RC}} \text{ which had.MOOD many pages}]]]]$$

Parallel to case of run-of-the-mill RCs, the compositional derivation of our RCs in (42) leads to $\langle e, t \rangle$ -properties which include reference to the event $g(1)$ and the world $g(2)$ referred to by the so far unbound indices in pro_1 and $MOOD_2$ respectively. The choice of mood in the RC determines the exact shape of the presupposition carried by the $\langle e, t \rangle$ -property: If IND is chosen, the $\langle e, t \rangle$ -property presupposes that the event $g(1)$ modally evokes solely a MB, as in (45); if SUBJ is used, the $\langle e, t \rangle$ -property presupposes that the event $g(1)$ modally evokes a MB and an OS, as in (46).

$$(45) \llbracket \text{which}_5 t_5 \text{ had.IND}_2^{pro_1} \text{ many pages} \rrbracket^g \quad (=38)$$

$$\lambda x: \text{content}(g(1)) = \text{MB and } g(2) \in \cap \text{MB. } x \text{ has many pp in } g(2)$$

$$(46) \llbracket \text{which}_5 t_5 \text{ has.SUBJ}_2^{pro_1} \text{ many pages} \rrbracket^g = \quad (=39)$$

$$\lambda x: \text{content}(g(1)) = \langle \text{MB, OS} \rangle \text{ and } g(2) \in \text{BEST}(\text{MB, OS}). x \text{ has many pp in } g(2)$$

Again in parallel to the case of run-of-the-mill RCs, now we need to determine which world quantifier will bind index 2 in $MOOD_2$ in the RC and which mood will be used to express it. There are two potential world quantifiers in the sentence: ASSERT and ON-PURPOSE. When the noun phrase *[a book that has.MOOD₂ many papes]* is understood as *de re* with respect to ON-PURPOSE, the world quantifier binding index 2 will be ASSERT. When the noun phrase *[a book that has.MOOD₂ many papes]* is interpreted *de dicto* (opaque) with respect to ON-PURPOSE, the world quantifier binding index 2 will be ON-PURPOSE. Let us examine which mood must be chosen in each of these two binding possibilities.

First, let us look at the *de re* reading. The entire noun phrase *[a book that has.MOOD many papes]* scopes over ON-PURPOSE at LF, as in (47a), and $g(2)$ needs to be bound by the $\forall w$ introduced by ASSERT, as in (47b). To allow for this binding, the RC needs to be defined throughout the domain of its binder, that is, throughout $\text{Dom}(\text{content}(e_{\text{assert}}))$. Thus, the anchor $g(1)$ must refer to e_{assert} and, since $\text{content}(e_{\text{assert}})$ consists solely of a Modal Base, the indicative RC (45) is defined while the subjunctive RC (46) leads to a presupposition failure. Hence, IND mood must be used.

(47) *De re* reading with respect to ON-PURPOSE of sentence (42):

$$\begin{aligned} \text{a. } & [e \text{ ASSERT } [\llbracket \text{NP a book which has.MOOD mpp} \rrbracket \lambda 5 [\exists e' \text{ ON-PURPOSE } [A \text{ buys } t_5]]]] \\ \text{b. } & \lambda w_0. \text{assert}_{w_0}(e) \wedge \forall w \in \cap \text{Rpg}_x(w_0): \\ & \quad \exists x [\text{book}_w(x) \wedge \text{has-many-pp}_w(x)] \wedge \exists e' [\text{buy}_w(e') \wedge \text{Agent}(e', \text{ana}) \wedge \text{Theme}(e', x) \wedge \\ & \quad \quad \quad \swarrow \quad \searrow \\ & \quad \quad \checkmark \text{IND} \quad * \text{SUBJ} \\ & \quad \forall w' \in \text{BEST}(\text{Circ}_{\text{dece}}, \text{Goals}_{\text{dece}}) \exists e'' [\text{buy}_{w'}(e'') \wedge \text{Agent}(e'', \text{ana}) \wedge \text{Theme}(e'', x)]] \end{aligned}$$

The resulting truth conditions state that that there is a specific book x that Ana bought, that this x had many pages and that Ana –for whichever reason– intended to buy that specific book x . In other words, the sentence remains uncommittal as to whether it was part of Ana’s intention

to buy a book with many pages or not. This correctly matches the intuitive reading of the indicative version (4)/(42a).

Second, let us consider the *de dicto* (opaque) reading. The noun phrase [*a book that has.MOOD many pages*] scopes under ON-PURPOSE at LF, as in (48a), and g(2) needs to be bound by the $\forall w$ introduced by ON-PURPOSE, as in (48b). To allow for this binding, the RC needs to be defined throughout the domain of its binder, that is, throughout $\text{Dom}(\text{content}(e'_{\text{bought}}))$. The modal content of this event e' is then retrieved from its decision stage $\text{dec}_{e'}$. Since $\text{dec}_{e'}$ invokes a MB and an OS, the subjunctive RC (46) is defined whereas the indicative RC (45) leads to a presupposition failure. Hence, SUBJ mood must be used.

(48) *De dicto* reading with respect to ON-PURPOSE of sentence (42):

- a. [e ASSERT $\exists e'$ ON-PURPOSE [[NP a book which has.MOOD mpp] $\lambda 5$ [A buys t_5]]]]
- b. $\lambda w_0. \text{assert}_{w_0}(e) \wedge \forall w \in \cap \text{Rpg}_x(w_0)$:
 $\exists e' [\text{buy}_w(e') \wedge \text{Agent}(e', a) \wedge \exists x [\text{book}_w(x) \wedge \text{has-many-pp}_w(x) \wedge \text{Theme}(e', x)] \wedge$
 $\forall w' \in \text{BEST}(\text{Circ}_{\text{dec}_{e'}}, \text{Goals}_{\text{dec}_{e'}})$
 $\exists e'' [\text{buy}_{w'}(e'') \wedge \text{Agent}(e'', a) \wedge \underline{\exists x' [\text{book}_{w'}(x') \wedge \text{has-many-pp}_{w'}(x') \wedge \text{Theme}(e'', x')]]]$

*IND ✓SUBJ

The resulting truth conditions state that Ana bought a book that had many pages and that it was her intention to buy a book –any would do– that had many pages. This correctly captures the intuitive interpretation of the subjunctive version (5)/(13)/(42b).

In sum, under the mood-as-world-pronoun approach, mood choice in RCs with a matrix volitional action verb like *buy* is derived in parallel to mood choice in RCs with a matrix attitude verb like *want*. In both cases, a layer of world quantification over a domain $\text{BEST}(\text{MB}, \text{OS})$ is introduced, by *want* in run-of-the-mill RCs and by ON-PURPOSE with our modRCs. When the noun phrase hosting the RC is interpreted within this layer of world quantification, SUBJ must be used and the output truth conditions secure that the property expressed in the RC constitutes part of the desires/intention of the matrix subject. In contrast, when the noun phrase hosting the RC is interpreted outside this layer of world quantification, IND must be used and the resulting truth conditions do not include the property expressed in the RC as part of the matrix subject's desires/intention. In both cases, we arrive at the correct truth conditions for each mood choice, and we do so by using parallel mechanisms.

5.4. More on volitional and non-volitional interpretations of actions verbs

What happens when the action verb is non-volitionally interpreted? As noted by Quer (1998) and Alonso-Ovalle et al. (2024), verbs that do not allow a volitional interpretation make subjunctive modRCs deviant, as illustrated in (49) for *descubrir* 'discover'. Additionally, verbs like *buy* that typically favor a volitional interpretation can also be understood non-volitionally, especially when the modifier *sin darse cuenta* 'without realizing' is added. In this case, subjunctive modRCs are again marginal, as shown in (50).

- (49) Ana descubrió un libro que estaba / ??estuviese escrito en Latín.
 Ana discovered a book that was.IND / ??was.SUBJ written in Latin
 ‘Ana discovered a book that was written in Latin.’
- (50) Ana compró sin darse cuenta un libro que tenía / ??tuviese muchas páginas.
 Ana bought without noticing a book that had.IND / ??had.SUBJ many pages
 ‘Ana bought without noticing a book that had.SUBJ many pages.’

Under the proposal developed here, the options made available by the grammar for modRCs are as follows.

When the relative clause appears in the subjunctive and receives a criterion-of-choice interpretation, we can be sure that there is an (overt or covert) ON-PURPOSE operator and that the NP containing the RC is interpreted *de dicto* with respect to ON-PURPOSE, as we saw in (48). When no ON-PURPOSE operator is present, as in (49)-(50), subjunctive modRCs are not acceptable.

When the relative clause appears in the indicative, there might be or there might not be an ON-PURPOSE operator in the clause. The presence or absence of such operator can be enforced by adding adverbials like *intencionadamente* ‘intentionally’ and *sin darse cuenta* ‘without noticing’ explicitly, or it can be left open to the context. At any rate, if there is an ON-PURPOSE operator in the clause, the NP containing the RC is interpreted *de re* with respect to this operator, as we saw in (47). If there is no ON-PURPOSE operator in the clause, there is no additional layer of goal-oriented world quantification and the NP containing the RC is simply interpreted at the relevant evaluation world. This last possibility leads to the LF and truth conditions (51) for sentence (50):

- (51) Non-volitional interpretation of (50):
- a. LF: [e ASSERT [$\exists e'$ [_{NP} a book which has.IND many pp] $\lambda 5$ [A buys t_5]]]
 - b. λw_0 . assert_{w₀}(e) $\wedge \forall w \in \cap \text{Rpg}_x(w_0)$:
 $\exists e' \exists x[\text{buy}_w(e') \wedge \text{Agent}(e', \text{ana}) \wedge \text{Theme}(e', x) \wedge \text{book}_w(x) \wedge \text{has-many-pp}_w(x)]$

6. Problems circumvented

Two problems were outlined in section 4 for the mood-as-w-quantification analysis. By not placing the locus of quantification inside the RC, the mood-as-w-pronoun proposal makes the compositional semantics of the RC simpler, maintains the MB Circ_{dec_e}—and the OS Goals_{dec_e}—originally proposed for *un NP cualquiera* and avoids the two problems above. Let us see how.

The first problem concerned sentence (52) with a subjunctive modRC in scenario B, repeated below. As we saw, sentence (52) is intuitively FALSE in this scenario. The proposed mood-as-w-pronoun analysis assigns (52) the truth conditions in (54):

- (52) Ana compró un libro que tuviese muchas páginas. (=13)
 Ana bought a book that had.IMP.F.SUBJ many pages

‘Ana bought a book that had many pages and the criterion for selecting that book was that it had many pages.’

- (53) Scenario B: (=20)
 Ana’s goal at dec_e was to buy a book that has many pages or a red cover –any book would do as long as it has at least one of these two properties. She collected all the books that had at least one of these properties in front of her, closed her eyes and picked one book at random. She happened to pick a book x with many pages and a blue cover. She bought that book x at e .

- (54) $\lambda w_0. \text{assert}_{w_0}(e) \wedge \forall w \in \cap \text{Rpg}_x(w_0):$ (=48b)
 $\exists e' [\text{buy}_w(e') \wedge \text{Agent}(e',a) \wedge \exists x [\text{book}_w(x) \wedge \text{has-many-pp}_w(x) \wedge \text{Theme}(e',x)] \wedge$
 $\forall w' \in \text{BEST}(\text{Circ}_{dec_{e'}}, \text{Goals}_{dec_{e'}})$
 $\exists e'' [\text{buys}_w(e'') \wedge \text{Agent}(e'',a) \wedge \exists x' [\text{book}_w(x') \wedge \text{has-many-pp}_w(x') \wedge \text{Theme}(e'',x')]]]$

These truth conditions correctly render sentence (52) FALSE in the scenario B. To see this, consider Ana’s intentions at $dec_{e'}$ according to scenario B: Ana did not care whether the book she ends up buying has many pages or a red cover, which means that $\text{BEST}(\text{Circ}_{dec_{e'}}, \text{Goals}_{dec_{e'}})$ contains some worlds where the book she ends up buying has many pages and not a red cover, some worlds where the book bought has many pages and a red cover and, crucially, some worlds where the bought book has few pages and a red cover. Now, the new truth conditions (54) demand that, in all w' in $\text{BEST}(\text{Circ}_{dec_{e'}}, \text{Goals}_{dec_{e'}})$, Ana ends up buying a book that has many pages. This requirement is not satisfied in the described in the scenario, since, as we just saw, $\text{BEST}(\text{Circ}_{dec_{e'}}, \text{Goals}_{dec_{e'}})$ contains some worlds where the book Ana buys has few pages (and a red cover). Therefore, the sentence is correctly predicted to be FALSE in scenario B.

The second problem concerned sentence (55) with a indicative RC in scenario C, repeated below. As noted, sentence (55) is intuitively TRUE in this scenario. The proposed mood-as-w-pronoun analysis assigns (55) the truth conditions in (57):

- (55) Ana compró un libro que tenía muchas páginas. (=12)
 Ana bought a book that had.IND many pages
 ‘Ana bought a book that had many pages.’

- (56) Scenario C: (=26)
 There are only two relevant books: b1 and b2. Although in actuality both books have many pages, the speaker knows that b1 has many pages and (merely) considers it possible that b2 has many pages. Furthermore, the speaker knows that Ana bought a book that has many pages but is not sure which one. In actuality, Ana volitionally bought b2.

- (57) $\lambda w_0. \text{assert}_{w_0}(e) \wedge \forall w \in \cap \text{Rpg}_x(w_0):$ (=47b)
 $\exists x [\text{book}_w(x) \wedge \text{has-many-pp}_w(x) \wedge \exists e' [\text{buy}_w(e') \wedge \text{Agent}(e',ana) \wedge \text{Theme}(e',x) \wedge$
 $\forall w' \in \text{BEST}(\text{Circ}_{dec_{e'}}, \text{Goals}_{dec_{e'}}) \exists e'' [\text{buy}_w(e'') \wedge \text{Agent}(e'',ana) \wedge \text{Theme}(e'',x)]]]$

These truth conditions correctly render the sentence true in scenario C. To see this, consider these two facts in the scenario: Book b2 has many pages in the actual world and Ana volitionally bought b2 in the actual world. These two facts alone suffice to satisfy the truth

conditions in (57). Thus, sentence (55) is correctly predicted to be true in scenario C under the proposed mood-as-w-pronoun analysis.

7. Conclusions

We have reviewed Alonso-Ovalle et al.'s (2024) analysis of modally interpreted relative clauses in Spanish, which treats mood in the relative clause as introducing world quantification. We have pointed out two shortcomings. On the one hand, the derived truth conditions for subjunctive modRCs are too permissive: They predict the judgment TRUE for certain scenario-sentence combinations for which the judgment is actually FALSE. On the other, the predicted truth conditions for the indicative counterparts are too restrictive: They predict the judgment FALSE for certain scenario-sentence combinations for which the judgment is actually TRUE.

While keeping many of the insights in Alonso-Ovalle et al.'s (2024), we have developed an alternative proposal in which, crucially, mood is treated as a pronoun over possible worlds with some presuppositional restrictions, as in (58), and volitional interpretations of action verbs are accompanied by an (overt or covert) ON-PURPOSE operator, defined in (59):

(58) Lexical entries of mood as introducing a w-pronoun: (=12)

- | | | |
|----|---|--|
| a. | $\llbracket \text{IND}_2^e \rrbracket^g$ | Presupposition: $\text{content}(e) = \text{MB} \wedge g(2) \in \text{MB}$ |
| | | Assertion: $g(2)$ |
| b. | $\llbracket \text{SUBJ}_2^e \rrbracket^g$ | Presupposition: $\text{content}(e) = \langle \text{MB}, \text{OS} \rangle \wedge g(2) \in \text{BEST}(\text{MB}, \text{OS})$ |
| | | Assertion: $g(2)$ |

(59) $\llbracket \text{ON-PURPOSE} \rrbracket^g = \lambda R_{\langle v, t \rangle}. \lambda e. \lambda w. R_w(e) \wedge \forall w' [w' \in \text{BEST}(\text{Circ}_{\text{dec}_e}, \text{Goals}_{\text{dec}_e}) \rightarrow \exists e'' R_{w'}(e'')]$ (=32)

In the proposed analysis, mood choice in modRCs is determined in a completely parallel way to mood choice in run-of-the-mill RCs under attitude verbs like *want*: When the noun phrase containing the RC is interpreted *de re* with respect to *want* or ON-PURPOSE, indicative mood must be used; when the noun phrase containing the RC is interpreted *de dicto* with respect to *want* or ON-PURPOSE, subjunctive mood must be deployed. The so derived truth conditions correctly match the intuited interpretive contrast between the indicative and subjunctive counterparts. Additionally, the proposed analysis has been shown to avoid the two problems presented for the mood-as-w-quantification analysis.

Once mood in modRCs has been shown to act as a w-pronoun rather than as introducing w-quantification, a uniform analysis of mood across the grammar mandates that mood in complement clauses also be treated as a w-pronoun, as in Romero (2024), and not as a source of w-quantification, as in Portner and Rubinstein (2020). This has important consequences for current debates within the event-anchored framework of attitude verbs and clausal complementation.

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