Descriptive *As If*s

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Abstract: This is the first part of a larger project that aims to develop a cross-categorical semantic account of a broad range of *as if* constructions in English. In this paper, we focus on descriptive uses of *as if* with regular truth-conditional content. The core proposal is that *as if*-phrases contribute hypothetical (*if*-like) and comparative (*as*-like) properties of situations, which are instantiated by an event, state, or larger situation when it resembles in some relevant respect its counterparts in selected stereotypical worlds described by the clause embedded under *as if*. We motivate and develop this situation-semantic analysis in detail for examples like *Pedro danced as if he was possessed by demons* where the modifying *as if*-adjunct is used to inferentially convey the manner of a reported activity. We extend this analysis to *as if*-complements of perception verbs in reports like *The soup tastes as if it contains fish sauce*, offering an alternative to conceptually problematic approaches that assimilate such perceptual resemblance reports to propositional

attitude ascriptions. We also examine the predicative function of *as if* in examples like *The state of the house is as if a tornado passed through it* where the *as if*-phrase denotes a hypothetical comparative property of the nominal subject.

1 A Brief Tour of *As If*s

This paper is the first part of a broader project that aims to develop a cross-categorical semantic account of *as if* constructions in English. While there has been previous theoretical and empirical work on the distribution and historical development of *as if* (Bender & Flickinger 1999; Huddleston & Pullum 2002; López-Couso & Méndez-Naya 2012a,b; Brook 2014; Brinton 2014), the syntax and semantics of perceptual verbs that take *as if*-complements (Postal 1974; Potsdam & Runner 2001; Asudeh 2002, 2004; Landau 2011; Asudeh & Toivonen 2007, 2012; see also Martin 2010; Breckenridge 2007, 2018; Glüer 2017 on *looks* reports), "sarcastic" uses of *as if* (Camp & Hawthorne 2008; Camp 2012), and the semantics of analogous "hypothetical comparative" constructions in other languages (most notably Bücking 2017 on German *wie wenn* ('how if')), there has not to our knowledge been an extensive semantic study with *as if* playing a starring role.

Part of the challenge with such a study is that *as if* is extremely productive, appearing in a range of syntactic environments, and each of its different uses raises its own interpretive puzzles. Four core uses are illustrated in (1)-(4):[1],[2]

(1) *Manner use:* Pedro danced as if he was possessed by demons.
  ⤳ Pedro danced {wildly/crazily/erratically}.

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[1]We do not take this classification to be exhaustive. For instance, in §3.6 we discuss 'causal uses' of *as if* that do not slot neatly into any of these four categories.

[2]While almost all of the *as if*-phrases considered in this paper involve embedded finite TPs, *as if* can combine with a range of other constituents (thanks to Simon Charlow (p.c.) for these examples):

(i)   Pedro danced as if possessed by demons. (passive VP)

(ii) Pedro danced as if to mock me. (infinitival VP)

(iii) Pedro danced as if under the influence of psilocybin. (PP)

(iv) Pedro danced as if ready to slip out of his skin. (AdjP)

Perhaps these are all elliptical for sentential clausal variants, but this requires careful argument. In any case, we suspect that much of what we say about the semantics of *as if* applies to examples like (i)-(iv) as well.

(2) *Perceptual resemblance report* (PRR): The food tastes as if there were an angel peeing on my tongue. (Dutch compliment to the chef)
⤳ The food tastes delicious.

(3) *Nominal predicative use:* The state of the house is as if a tornado passed through it.
⤳ The house is a mess.

(4) *Sarcastic use:* (Opening inbox) As if I have time to answer all these emails!
⤳ I don't have time to answer all these emails.

In this paper, we focus on descriptive uses of *as if* in examples like (1)-(3) where the *as if*-phrase contributes to the truth-conditional content of the sentence in which it occurs, providing a versatile and often colorful device for indirectly conveying that some part of reality is a certain way (be it Pedro's dancing, the state of the house, or whatnot). We leave sarcastic uses like (4), which we take to have a different expressive function, for the second part of our project.

Of the descriptive uses, (1) exemplifies the basic historical function of *as if* as a modifying adjunct—see López-Couso & Méndez-Naya (2012b) for a number of Early Middle English adverbial uses from the Helsinki Corpus.[3] When adjoined to a dynamic verb V, an *as if*-phrase can convey something about the manner of V-ing. We call examples like (1) above and (5) below 'manner uses':

(5) Granny Bea waved a hand as if she could care less. (COCA)[4]

The main puzzle raised by such examples is accounting for how the manner interpretation arises through modification with the *as if*-adjunct. In our lead example (1), for instance, how does modifying *danced* with *as if he was possessed by demons* help generate the inference that Pedro danced wildly? Moreover, why does this kind of adverbial modification fail to be informative in related examples like (6), where the *as if*-adjunct doesn't allow a hearer to recover any descriptive content about the manner of Pedro's dancing?

(6) ??Pedro danced as if the Earth was flat.

While the modifying *as if*-adjuncts considered in this paper mainly generate manner readings, we also discuss examples that convey

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[3]TEI XML Edition, available online at `http://helsinkicorpus.arts.gla.ac.uk/`.

[4]Corpus of Contemporary American English (Davies, 2008-): available online at `http://corpus.byu.edu/coca/`

non-manner (or at least non-obviously-manner) features of the matrix eventuality.

In addition to their occurrences as adjunct adverbials, *as if*-phrases can also function as non-optional complements selected by the matrix verb—López-Couso & Méndez-Naya (2012b) find a number of *as though* complement phrases in Late Middle English, but the earliest examples of the "subsidiary" complement use of *as if* in the Helsinki Corpus are in Early Modern English. An important class of examples are "perceptual resemblance reports" (PRRs) like (2) in which *as if*-phrases combine with the "perceptual source verbs" *seem*, *appear*, *look*, *sound*, *feel*, *smell* and *taste* (terminology from Asudeh 2004 and Asudeh & Toivonen 2007, 2012; see also Landau 2011). Here are some additional examples:

(7)   It {seems/sounds} as if Florence has been taking singing lessons.

(8)   John {looks/smells} as if he hasn't {slept/showered} for days.

(9)   My skin feels as if there are ants crawling all over it.

On one hand, *as if*-complements in PRRs seem to resemble in both their distribution and function adjectives in simple perception reports like (10) and (11), which have been taken to express *ways* of looking, smelling, feeling, and so forth (Breckenridge 2007, 2018; Glüer 2017):

(10)   It tastes {delicious/disgusting/salty/bitter/spicy}.

(11)   My skin feels {soft/cold/numb/itchy/tingly}.

On the other hand, PRRs involving *seem*, *appear*, *look*, and *feel* also appear to have more epistemic interpretations:[5]

(12)   It {seems/appears/looks} as if there are infinitely many twin primes.

(13)   It feels as if very few original ideas have sprung from the post-World War II climate. (COCA)

These latter examples suggest that at least some PRRs should be interpreted like propositional attitude reports, where the *as if*-complements express propositional content associated with the reported states (Landau 2011, for one, suggests that most if not all PRRs should be treated this way). But then why do we need what on the surface appears to be a conditional and comparative construction like *as if* to assign propositional content, as opposed to, say, a regular *that*-clause? And yet if we do not pursue a propositional attitude-like

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[5]Throughout this paper, we interpret "perceptual resemblance report" broadly enough to include such epistemic uses.

treatment of (at least some) PRRs, then how can we account for both their straightforwardly perceptual and more epistemic varieties?

In copular constructions with non-expletive subjects such as (3) and the examples below, *as if*-phrases can also function as predicates of a nominal subject:

(14)   The look in Crockett's eyes is as if a small voltage passed through him. (COCA)

(15)   In Western terms, the China of today is as if the Europe of the Roman Empire and of Charlemagne had lasted until this day and were now trying to function as a single nation-state. (COCA)

We call such examples 'nominal predicative uses'. The main puzzle raised by these constructions is explaining what exactly the *as if*-phrase predicates of the subject and how this predicative function relates to the other descriptive uses of *as if.*

Though we do not analyze these occurrences in this paper, it is worth mentioning that *as if*-phrases can also stand on their own as independent root clauses. In "exclamatory uses" (terminology from Huddleston & Pullum 2002; Camp & Hawthorne 2008 and Camp 2012 call this "sarcastic *as if*"), a speaker incredulously rejects the proposition expressed by the finite clause embedded under *as if*:[6]

(16)   A: Want to play a game of tennis?
        B: As if I'd play with you!
            ↝ I wouldn't play with you.

Brinton (2014) reports that the earliest examples of such independent uses with explicit prejacents are from Early Modern English, and she offers mid-17th century examples from Hobbe's *Leviathan* (1651). At the limits of truncation are the modern '*Clueless* uses', a subcategory of exclamatory *as if* named after the 1995 romcom with this famous Valley Girl exclamation of disgust:[7]

(17)   (Gross guy makes an advance)
        Cher: Ugh, as if!

In this example, Cher contemptuously rejects the contextually salient proposition that she will kiss her would-be seducer (he should know

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[6]We defend our use of the moniker "exclamatory *as if*" in the second part of our project, arguing that these utterances are bona fide exclamations.

[7]While *Clueless* uses are widely thought to originate in 1980s Valley Girl talk, Brinton reports that this use was already present in early 20th-century American colloquial speech, citing an example (via OED) from Frank Norris's (1903) *The Pit: A Story of Chicago.*

better!). But how exactly does her particle-like *Clueless as if* allow for this? Does the denying function of exclamatory uses stem from their conventionalized lexicosemantics or more general pragmatic principles? And how does the negative affect associated with these independent uses arise? We leave these questions for follow-up work, where we also examine other distinctive semantic and syntactic features of root *as if*-clauses that are not shared by their non-root adjunct and complement brethren (such as licensing of negative polarity items (NPIs)).

After reviewing more of the syntax and semantics of *as if* in §2, we develop our analysis of manner uses in §3. Roughly, we propose that (1), for example, reports that Pedro's past dancing resembles in some contextually relevant respect, viz. manner—this is the *as* part—its counterpart events in (counterfactual) scenarios in which he was in fact possessed by demons, which is the *if* part. Formally, this is implemented within a general event-situation semantic framework (building on Davidson 1967; Barwise 1989; Kratzer 1989, 2002, 2020; Parsons 1990; Landman 2000; Beck & von Stechow 2015, among others), where *as if*-phrases express *hypothetical comparative* properties of situations. More specifically, we take an *as if*-phrase to express a property which is instantiated by an event, state, or larger situation if it resembles in some relevant respect each of its counterparts in selected stereotypical worlds described by the clause embedded under *as if* (and in which a counterpart of the situation argument exists). This analysis is similar to Bücking's (2017) recent account of German hypothetical comparative constructions (HCCs), which was brought to our attention after we had already worked out the core ideas in this paper.[8] However, there are some important differences between our account of English *as if*-phrases and Bücking's account of German HCCs—such as our emphasis on selection from stereotypical alternatives—which we discuss as they arise.

While Bücking's HCCs correspond to the *as if*-adjuncts in manner uses (and related modifier uses), we also analyze *as if*-phrases occurring in perception reports and nominal predicative uses. In §4, we show how our analysis of *as if*-adjuncts from §3 can be carried over smoothly to the *as if*-complements of perceptual source verbs, offering an alternative to conceptually problematic approaches that assimilate PRRs like (2) and (7)-(9) to propositional attitude reports, while still fitting nicely with contemporary event-semantic analyses of psychological reports in general

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(Hacquard 2006, 2010; Kratzer 2006; Anand & Hacquard 2008; Moulton 2009, 2015; Rawlins 2013b; Moltmann 2017; among others). In §5, we also apply our core situation-semantic entry to the NP-complements in nominal predicative uses, unifying our account of descriptive *as if*s. We conclude in §6 by suggesting directions for further research on descriptive uses, including the need for a more fine-grained degree-semantic analysis to accommodate *as if*-sentences with degree modifiers, and for detailed studies comparing *as if* with the many closely related linguistic items that crowd it on all sides—including different kinds of *if*-conditionals, *as*-headed manner adverbials, Zobel's (2016) "secondary-predicate-like adjectival *as*-phrases", and of course *like* and *as though*.

2   Idiosyncrasies of *As If*

It's tempting to think that *as if*-phrases are constructed from a regular *if*-clause headed by regular *as*, and that the meaning of the full phrase is then compositionally determined from the meaning of these standard elements. Bücking (2017), for instance, offers a compositional treatment of German *wie wenn* ('how if') in related work. Even in English, it is possible to insert material between *as* and *if* in many of the above examples without any apparent change in meaning, so at first glance *as if* doesn't seem to be particularly special. Consider for instance the following variants of the manner use (1), perceptual resemblance report (2), and nominal predicate use (14):

(18)   Pedro danced *as he would if* he was possessed by demons.[9]

(19)   The food tastes *as it would if* there were an angel peeing on my tongue.

(20)   The look in Crockett's eyes is *as it would be if* a small voltage passed through him.

However, matters aren't so simple, or so we argue, and in this paper we treat *as if* as a lexicalized compound that cannot be cleanly separated into underlying *as* and *if* components. This methodological approach is supported by a number of converging syntactic and semantic considerations that we outline in §2.1, which suggest that *as if*, perhaps unlike German *wie wenn*, is an idiom chunk. Nevertheless, despite its idiomatic nature, *as if* retains many morphosyntactic and inferential features characteristic of regular *as*-phrases and *if*-conditionals, as we

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[9]One can also intervene with possibility modals such as *might*, *probably would*, and *thinks he might*.

discuss in §2.2. Taken together, the points raised in this section suggest that while we should expect prior work on *as* and *if* to inform the semantics of *as if*, we should be wary of trying to analyze *as if*-phrases by just mashing together our best accounts of regular *if*-clauses and *as*.

2.1 Evidence for the idiomatic nature of *as if*

First, as Huddleston & Pullum (2002) observe, the kind of simple meaning-preserving intervention with DP+*would*+(*be*) exhibited in (18)-(20) is not always possible, as shown in the following piece of advice for good kissing:

(21) a. Don't attack a mouth as if you're dipping a mop into a slop-bucket![10]

   b. #Don't attack a mouth as you would if you're dipping a mop into a slop-bucket!

Moreover, *as if* does not accept the intervening modifiers *only*, *even*, or *except*, unlike *as…would…if* constructions which can occur with these modifiers (von Fintel 1994). In this respect *as if* patterns like *what if*, which is given an idiomatic treatment by Bledin & Rawlins (2019):[11]

(22) a. The Dalai Lama smiled as {*only/*even/*except} if he were angry.

   b. The Dalai Lama smiled as he would {only/even/except} if he were angry.

(23) a. John looks as {*only/*even/*except} if he hadn't slept for days.

   b. John looks as he would {only/even/except} if he hadn't slept for days.

(24)   What {*only/*even/*except} if Napoleon had won at Waterloo?

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[10]This example shows how adverbial modification with *as if* can also occur in imperatival constructions, where the *as if*-phrase specifies the manner of activity being ordered, requested, advised, and so forth (see Kaufmann 2012; Condoravdi & Lauer 2012 for more on the functional heterogeneity of imperatives). Though we present other examples of imperatival manner uses in this paper, we focus mostly on declarative sentences and will not offer an analysis of the imperative case.

[11]An anonymous reviewer wonders if this data might be explained by restrictions on gapping (ellipsis) of material between *as* and *if*. While this suggestion deserves further investigation, we think that such an explanation is unlikely to succeed, as the modifiers *only*, *even*, and *except* can directly attach to a conditional clause, indicating that in general an *if*-clause can anchor these particles.

Likewise, *as if* and *as…would…if* pattern differently with respect to the possibility of intervening with adverbs of quantification such as *always*, *usually*, or *never* (Lewis 1975):

(25) a. Ben is cycling as {*always/*usually/*never} if he was drunk.
      b. Ben is cycling as he {always/usually/never} would if he was drunk.

Our example (25) is based on Bücking (2017), ex. 24, which shows that adverbial intervention works perfectly fine with German *wie wenn*:

(26) Ben fährt Rad, wie {immer/normalerweise/typischerweise}
      Ben cycles   how {always/normally/typically}
      wenn er betrunken ist.
      if   he drunk   is.

      'Ben is cycling as he {always/normally/typically} does when he is drunk.'

We take this to be a cross-linguistic difference, and more generally take the limited possibility of intervening elements in English to provide preliminary support for the claim that *as if* is a syntactically fixed sequence.

Moving from the externals of *if* to *if* itself, the first thing to observe is that while *as when* constructions are attested, *as when* has a far more limited distribution than *as if*, which is surprising given that *when* patterns with *if* in many ordinary contexts:

(27) Then it was quiet in a way he did not like either, as when everyone in class watched him for an answer. (COCA)

(28) It will be as when a hungry man dreams—and behold, he is eating; but when he awakens, his hunger is not satisfied. Or as when a thirsty man dreams—and behold, he is drinking; but when he awakens, behold, he is faint and his thirst is not quenched. (Isaiah 29:8)

(29) ??It's as when we still had landlines.

(30) ??Beggar So fought as when drunk.

Moreover, one cannot replace the *if*-clause with a *whether-or-not*-clause to form an unconditional adjunct despite arguments by Rawlins (2008, 2013a) and others that the wh-adjuncts of unconditionals have the same syntax as *if*-adjuncts:

(31) a. Kiss me. Kiss me as if it were the last time. (from *Casablanca*)

    b. *Kiss me as whether or not it was the last time.

    c. Kiss me as you would whether or not it was the last time.
    (Less romantic than 31a, to be sure, but not ungrammatical!)

(32) Diana looks {*as/as she would} whether or not we were going to a fancy dinner.

And one cannot substitute other complementizers like *if and when*:

(33) Beggar So fought {*as/as he would} if and when drunk.

(34) The look in Crockett's eyes is {*as/as it would be} if and when he were to meet the woman of his dreams.

This further supports the proposal that *as if* is syntactically fixed.

    Next, the internals of *as if*-clauses differ from the internals of standard *if*-clauses in various respects. Huddleston & Pullum (2002) observe that *if* cannot be repeated in coordination within *as if*-phrases, but such coordination is possible within *as…would…if*:

(35) Annie was treated by the king {*as/as she would have been} if she were a noblewoman or if she were a commoner.

By contrast, Bücking (p.c.) reports that coordination is possible, though clumsy, with *wie wenn*—another cross-linguistic difference:

(36) Annie wurde behandelt wie wenn sie eine Adlige
Annie was   treated   how if   she a   noblewoman
wäre oder wenn sie eine Bürgerliche wäre.
were or   if   she a   commoner   were.

'Annie was treated as if she were a noblewoman or if she were a commoner.'

Finally, *as if* differs from standard *if* with respect to NPI licensing. While *as…would…if* resembles regular *if* in licensing weak NPIs like *any* and *ever*, non-root *as if* doesn't license such NPIs (or at least is a far less hospitable environment for weak NPIs; Giannakidou & Quer 2013 observe this for *any*):[12]

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[12]On the other hand, as Camp & Hawthorne (2008) and Camp (2012) observe, independent *as if*-clauses license NPI *any* and *ever*, as well as strong NPIs like *in weeks* and *last long*, in which respect they pattern like "sarcastic" *like*:

(i) {As if/Like} my son will ever leave home and get a job!

(ii) A: Who won Eurovision?

    B: {As if/Like} anybody cares!

(iii) {As if/Like} I've seen her in weeks.

(iv) {As if/Like} that relationship is going to last long.

(37) a. If anyone comes to her performance, she'll be delighted.

 b. She took a bow as she would if {someone/anyone} was in the theater watching her perform.

 c. She took a bow as if {someone/*anyone} was in the theater watching her perform.

(38) a. If John ever gets sprayed by a skunk, he'll need to bathe in tomato juice.

 b. John smells as he would if he ever got sprayed by a skunk.

 c. *John smells as if he ever got sprayed by a skunk.

Taken together, the above data suggest that *as if* is semantically and syntactically idiomatic. Perhaps at least some of the idiosyncrasies can be explained away by those seeking a non-idiomatic treatment of *as if* in terms of regular *as* and *if*, but there is a lot of explaining to do and so we don't pursue this. In any case, even if *as if* ultimately proves amenable to a fully compositional treatment, we expect this to share many features of our less-than-fully compositional treatment in this paper.

2.2 Similarities to regular *if* and *as*-phrases

We do not mean to suggest that *as if* is totally disconnected from regular *as* and *if*. Many of the characteristic morphosyntactic and inferential properties of regular *if*- and *as*-phrases carry over to *as if*-phrases. First, like regular *if*-clauses, *as if*-clauses generate nonveridical contexts in that sentences containing them do not entail the complement of *as if*:[13]

(39) a. If Oswald didn't shoot Kennedy, then someone else did.
 ↝̸ Oswald didn't shoot Kennedy.

 b. Oswald {is acting/looks} as if he didn't shoot Kennedy.
 ↝̸ Oswald didn't shoot Kennedy.

One can use the subjunctive mood/fake past to signal counterfactuality (Iatridou 2000; Schulz 2014):

(40) Pedro danced as if he were {possessed/Michael Jackson}.

(41) He's behaving as if he was a Neanderthal.

(42) It's so cold in here. It feels as if we were outside right now.

We account for the NPI-licensing behavior of exclamatory independent uses in the second part of our study focusing on these constructions.

 [13]As previously discussed, this is especially vivid with exclamatory uses, where a speaker *rejects* the proposition expressed by the complement.

There are also analogs in the case of *as if* to more of the distinctive inferential patterns observed for indicative and subjunctive *if*-conditionals. We see apparent failures of *strengthening of the antecedent* (SA) (Goodman 1947; Lewis 1973):

(43) If Sophie had gone to the parade, she would have seen Pedro dance.
⇏ If Sophie had gone to the parade and been stuck behind someone tall, she would have seen Pedro dance. (Gillies 2007)

(44) Messi is playing as if it is the Champions League final.
⇏ Messi is playing as if it is the Champions League final and Barcelona is already five goals ahead.

Furthermore, *as if*-clauses that embed disjunctions give rise to the kind of inferences that motivate the principle of *simplification of disjunctive antecedents* (SDA) for *if*-conditionals (Nute 1975; Ellis et al. 1977; Starr 2014; Willer 2015; Ciardelli 2016; Lassiter 2018):

(45) If Alfonso or Betty comes to the party, it will be fun.
⇝ If Alfonso comes to the party, it will be fun.
⇝ If Betty comes to the party, it will be fun.

(46) Carlos dressed as if he was going to a wedding or funeral.
⇝ Carlos dressed as if he was going to a wedding.
⇝ Carlos dressed as if he was going to a funeral.

(47) It smells as if someone is smoking cannabis or there is a skunk nearby.
⇝ It smells as if someone is smoking cannabis.
⇝ It smells as if there is a skunk nearby.[14]

Lastly, the *iffy* nature of *as if* can also be seen, of course, from many uses that intuitively require us to consider scenarios in which the *as if*-complement holds. The speaker of (42), for instance, is presumably getting hearers to consider counterfactual scenarios in which they are outside at the time of utterance.

On the other hand, *as if* is *asy* in the intuitive sense that many *as if*-sentences do seem to involve similarity comparisons. Presumably, someone who utters (1) is comparing the manner of Pedro's dancing to

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[14]The status of both SA and SDA for indicative and subjunctive conditionals is highly controversial. Our point is not that SA/SDA are invalid/valid and that the corresponding principles for *as if*-sentences are also invalid/valid, but only that we witness similar kinds of apparent failures of antecedent strengthening in both cases, and we can intuitively draw simplification inferences from both *if*-conditionals with disjunctive antecedents and *as if*-clauses with disjunctive complements in a broad range of cases.

the manner of events in scenarios where Pedro was possessed by demons. There seems to be a close connection between the *as if* in (1) and the *as* heading adverbials of comparison in examples like (48)-(50), which alternates with *like*:[15]

(48) Pedro danced {as/like} he always does—reluctantly and with little emotion.[16]

(49) Hodor is tall {as/like} a tower.

(50) Elanor dressed {as/like} Sherlock Holmes for Halloween.

Going forward, then, we pursue an analysis of *as if* that needn't involve the fusion of regular *as* and *if*, but we nevertheless take it to be an important desideratum of our semantics that it remain *asy* and *iffy* in the sense that it has clear conditional and comparative components.

3 A Hypothetical Comparative Semantics

We first pursue an analysis of our lead-off manner use (1), repeated below as (51):

(51) Pedro danced as if he was possessed by demons.

Taking the *as* and *if* in *as if* seriously, our rough proposal is that (51) conveys that Pedro's dancing in the actual world resembles related events in possible situations where he was possessed by demons—from which a hearer can infer that Pedro danced wildly/crazily (more on this inference later). The intuitive idea that *as if*-phrases can help fix some feature of an actual event via a comparison to events in other possible worlds is an old one—as Bücking (2017) reports, this idea (applied to German hypothetical comparative clauses) goes back at least to Kasper (1987). But, of course, the devil is in the details. And, as we will argue, there are some tempting ways to fill in the details that lead to bad results.

We work in a Kratzer-style possibilistic situation semantics, which is a conversative extension of possible worlds semantics (building primarily on Kratzer 1989, 2002, 2020, though see also Davidson 1967; Barwise 1989; Parsons 1990; Landman 2000; Beck & von Stechow 2015 for

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[15]Admittedly, not all uses of *as* involve comparativity, as pointed out by a reviewer with the following causal and temporal *as*-clauses (see Zobel 2016 for more examples):

(i) I went to the bank, as I had to make a withdrawal.

(ii) The policemen stopped them as they were about to enter.

[16]Thanks to an anonymous reviewer for this example.

related proposals). Our background ontology consists of a set $\mathcal{S}$ of possible situations standing in part-whole relations to each other: $s \leqslant s'$ iff s is part of s'. Each situation s is related to a unique maximal element $w_s \in \mathcal{W} \subset \mathcal{S}$, the world of s (the situations in a world form a join semi-lattice). Davidsonian event semantics (Davidson 1967; Parsons 1990) can be embedded in this framework by identifying the set of "eventualities"—Bach's (1981) cover term for both events and states—with a subset of "exemplifying" situations $\mathcal{E} \subset \mathcal{S}$, which are linked to their participants via thematic relations (see Kratzer 2020 for more discussion). In the next few subsections, we introduce further ingredients needed for our analysis, many of which also come from Kratzer's work on modality (Kratzer 1981, 1991, 2012), which are then combined to derive a semantic entry for the *as if*-phrase.

3.1 Situation counterparts

Because eventualities and other situations are world-bound, we help ourselves to the machinery of Lewis's (1968; 1986) *counterpart theory* to identify "similar" situations across worlds. More specifically, we introduce the following transworld relation between situations (following Kratzer 2002, 2020; Schaffer 2005; Schwarz 2009; Arregui et al. 2014; McDonnell 2016; among others):[17]

(52) **Counterpart relation between situations**
$C(s)(s')$ iff s' is a counterpart of s.

Stated in terms of counterparts, a slightly more refined version of our proposal is that (51) conveys that there was an event e of Pedro's dancing that resembles its counterparts in possible worlds in which Pedro was demonically possessed.

Like Lewis, we assume that the counterparthood relation C is reflexive—every situation is a counterpart of itself—but this relation needn't be symmetric or transitive (see Lewis 1968, pp. 115-116 for arguments to this effect). We also assume that while situations often have unique counterparts in other possible worlds, they might have multiple counterparts or none at all. But, like Lewis, we will not attempt to give a full theory of counterparthood here. We acknowledge that C is "problematic in the way all relations of similarity are: it is the resultant of similarities and dissimilarities in a multitude of respects,

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[17]Lewis (1968) himself takes events to be transworld—he identifies events with classes of spatio-temporal regions that can span multiple worlds. While our counterpart-theoretic treatment of events and other situations is inspired by Lewis's work on modality, any conceptual errors associated with (52) are our own.

weighted by the importances of the various respects and by the degrees of the similarities" (Lewis 1968, p. 115). In fact, our counterpart relation between situations is admittedly even more problematic than Lewis's original relation between individuals, as situations are more complex than individuals (indeed, situations often have individuals as participants). Nevertheless, we take the concept of a situation counterpart to be stable enough to employ in semantic reasoning.

Though we do not provide a detailed theory of counterparthood, we need to say a bit more about how we understand this ingredient of our semantics to forestall certain worries that one might have with it. First, given that the counterparthood relation C is itself determined by similarity, doesn't our proposal invoke similarity twice? In fact, one might worry that our counterparthood-based analysis trivializes (51) by rendering it as the vacuous claim that there was a dancing by Pedro that resembles events it resembles in worlds in which he was demonically possessed.[18] However, there is a problem here only if the respects of similarity used to fix situation counterparts (typically things like the type, location, or time of a situation, its participants, and so forth) coincide with the respect(s) in which a situation must resemble its counterparts for an *as if* claim to hold (event-internal manner, in cases like (51)). So long as these respects of comparison differ—as they presumably will in most if not all cases—an *as if* claim can be highly informative.

Second, we need the notion of a situation counterparthood to remain flexible, but not too flexible. Note that when evaluating (51), we seem forced to consider only counterpart *dancings*—we are comparing Pedro's actual dancing to dancings in counterfactual worlds where he was possessed. On the other hand, there are cases like (53) and (54) where the *as if*-complement forces us to consider worlds in which the counterparts of the matrix event are of a different kind:

(53) Pedro danced as if he were jumping rope.

(54) Humphrey attacked Ingrid's mouth as if he were dipping a mop into a slop-bucket.

On our proposal, the relevant counterparts to the event of Pedro dancing that enter into the evaluation of (53) aren't dancing events themselves but rather events of jumping rope. Likewise, the relevant counterparts used to evaluate (54) aren't kissings but mop-dippings. More generally, we assume that the default interpretation strategy for manner uses is to compare a matrix event of V-ing to counterpart V-ings in other

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[18]We are grateful to an anonymous reviewer for raising this objection.

possible worlds. However, this default can be overridden in cases like (53) and (54), where the counterparts aren't of the same kind (though they still involve the same participants and presumably occur at roughly the same time and place as in the world of evaluation).[19] This interpretation strategy can be enforced using the 'modal base' in our semantic machinery, which we discuss in the next subsection.

3.2 Circumstantial modal bases

When selecting relevant counterparts in the course of interpreting an *as if* expression, speakers often restrict their attention to worlds where certain relevant circumstances in the world of evaluation continue to hold (along with the proposition expressed by the *as if*-complement). The following example from Alex Kocurek (p.c.) illustrates this nicely:

(55)   Context: An extremely improbable radioactive event has caused all the rats in the city to become dangerously radioactive. The mayor has warned everyone to avoid all rats. Pedro typically is not afraid of rats, though he is afraid of radiation poison. While walking to work, a gray squirrel scurries across Pedro's path and he shouts in terror.

Pedro acted as if he saw a rat.

In this example, we presumably need to consider counterpart shoutings in highly atypical worlds where the radioactive event occurred and Pedro acted as one might expect him to act upon seeing a radioactive rat.

To handle (55) and other examples where speakers hold fixed certain facts about reality when selecting counterparts, we build on Kratzer's (1977; 1981; 1991; 2012) influential contextualist semantics for modals and assume that a context supplies a "circumstantial modal base" that maps each world to a set of neighboring worlds that agree with the input world in various respects (following Kratzer, we also assume that context supplies an ordering of these circumstantially accessible worlds, as we discuss shortly):

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[19]In some cases, the situational counterparts used in evaluating *as if*-phrases needn't even share the same participants, or their individual counterparts (thanks to Alex Kocurek and Daniel Harris for both suggesting examples of this kind):

(i)   I'm really worried about Pedro. He is ignoring everyone that tries to talk to him. He acts as if they are talking to thin air!

(56) **Circumstantial modal base**
$D(w)$ is the set of worlds in which certain relevant circumstances of w obtain.[20]

In Kocurek's example, this background parameter will return a set of worlds in each of which an improbable radioactive event contaminated the world's rats.

The modal base also helps with the issues raised in the discussion of situational counterparts. As mentioned, when evaluating our main dancing example (51), we seem forced to consider only counterpart dancings and not counterpart rope-jumpings, counterpart shirt-ironings, or other counterpart non-dancings, though this default interpretation strategy can be overridden in examples like (53). The modal base allows us to make better sense of this. We propose that manner uses are by default interpreted relative to a circumstantial modal base that entails the proposition that the matrix event of V-ing took place, ensuring that selected counterparts are themselves V-ings. However, the proposition that a V-ing occurred isn't incorporated into the modal base when this would conflict with the further restriction on counterpart selection contributed by the *as if*-complement, as it would in (53) where speakers would need to consider impossible worlds in which Pedro danced while jumping rope.

Similar reasoning about the modal base must be applied in the following example based on Davidson (1969):[21]

(57) The sphere was heating up as if it was rotating quicker than it actually was.

In (57), one question is whether or not the rotating speed of the sphere in the actual world should be included as a relevant circumstance while calculating the modal base. Note that as in the case of (53), this information is in conflict with the further restriction contributed by the *as if*-complement wherein the sphere must be rotating at a speed higher than its actual one. In this case, then, the information about the sphere's actual rotating speed should be excluded from the circumstantial modal base. In general, we want to exclude at least those circumstances from the modal base that conflict with the event described by the *as if*-complement. Presumably we also want to exclude information about the matrix event that would defeat the purpose of the comparison effected by *as if*, such as the manner of Pedro's dancing

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[20]We deviate slightly from Kratzer whose "conversational backgrounds" are functions from worlds to sets of propositions.

[21]Thanks to Ashwini Deo for this example and discussion.

in (51). And perhaps we want to exclude even more—a detailed and systematic determination of which factual circumstances should be held fixed when evaluating an *as if* claim is an important issue that must be addressed in future work.

3.3 Stereotypicality

The selection of counterparts must be further restricted. When evaluating sentences like (51), not just any counterparts within worlds in the circumstantial modal base where the *as if* complement holds should be taken into account. Presumably, there are possible worlds in which Pedro was possessed yet danced in a calm and sedate manner. We want to screen these possible worlds off and focus on only those in which a demonically possessed Pedro danced wildly. To whittle down the set of counterparts picked out by *as if*, we might turn to Lewis again and adopt the *similarity relations* between possible worlds familiar from his classic work on counterfactuals (Lewis 1973, 1979). The proposal would be that (51) conveys there is an event *e* of Pedro's dancing which resembles its counterparts in the *most similar* circumstantially accessible worlds (to the actual world) in which Pedro was possessed by demons—see Bücking (2017) for a proposal about German hypothetical comparative clauses (HCCs) with "counterfactual readings" along these lines.

However, working with comparative similarity leads to trouble when faced with 'contrary-to-expectation' sentences like (58) and (59) (the reason for our label will become clear shortly):[22]

(58)   Melania is angry but she's not acting as if she's angry.

(59)   Nina has taken ballet classes her entire life but she's not dancing as if she's had this training.

A similarity-based analysis predicts that these sentences should sound as contradictory as their *as…would…if*-variants:

(60)   #Melania is angry but she's not acting as *she would* if she were angry.[23]

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[22]Breckenridge (2007) rejects a similarity-based account of *looks as if* reports on the basis of such examples.

[23]Observe that (60) significantly improves by inserting *normally* or *usually*, or by making the embedded subject an arbitrary *pro* (thanks to Ashwini Deo for the latter suggestion):

(i)   Melania is angry but she's not acting as she would {normally/usually} act if she were angry.

(ii)   Melania is angry but she's not acting as one would if one were angry.

(61) #Nina has taken ballet classes her entire life but she's not dancing as *she would dance* if she had this training.

Take (58), for instance. If the left conjunct holds, then—assuming that similarity orderings are (*strongly*) *centered* in the sense that a world is always more similar to itself than any other world is—the most similar world to the evaluation world in which Melania is angry is just this evaluation world itself. According to a similarity-based version of our semantics for *as if*, the right conjunct then turns on whether Melania's behavior *doesn't* resemble her behavior. However, (58) sounds perfectly fine. So while a similarity-based approach might be appropriate for (60) and (61), it doesn't work for (58) and (59) (which is yet another difference between *as if* and *as…would…if* sentences).

Intuitively, a speaker who utters (58) is saying that Melania is angry but she isn't acting as one might expect her to act when she's angry—she isn't yelling, flailing her arms around, and so forth. To capture this interpretation, we propose that *as if*-phrases select for *stereotypical* or *normalcy* orderings over logical space that represent what speakers consider to be normally the case (one might take these orderings to be induced by Kratzerian 1981; 1991; 2012 "ordering sources"; see also Asher & Morreau 1991; Veltman 1996 for related proposals):

(62) **Stereotypicality relation between worlds**
      $v \leq_w u$ iff v is at least as typical as u from the perspective of what counts as normal in w.

For ease of exposition, we make a version of the "Limit Assumption" (Lewis 1973; Stalnaker 1980) and assume that for every stereotypicality relation $\leq_w$ and non-empty proposition $p \subseteq \mathcal{S}$, there is some p-world (i.e., a world w_s containing a p-situation s) that is at least as normal as all other p-worlds. We can then refine our proposal further and say that (51) conveys that the event e of Pedro's dancing resembles its counterparts in the *most typical* circumstantially accessible worlds in which Pedro was possessed by demons. To its credit, this stereotypicality-based analysis allows for contrary-to-expectation sentences to come out fine, as the world of evaluation needn't be the most stereotypical world by its own standards—our expectations are disappointed in oh so many ways.

3.4   Resemblance

The final ingredient needed for our analysis is a *resemblance* relation, which encodes the critical respect or respects in which the matrix event is compared to its counterparts in evaluating the *as if*-phrase. Of course,

a situation *s* will resemble its counterparts in all sorts of boring respects. Presumably, the counterparts of Pedro's dancing in the most typical worlds in which he danced while possessed by demons all have roughly the same spatiotemporal trace, for instance. But it's the *manner* of these counterpart events that we're interested in here: (51) conveys that the manner of Pedro's dancing is like the manner of its counterparts in the most normal Pedro-possessed-by-demons-while-dancing worlds. Generalizing from this example, it is tempting to analyze *as if* modifiers as effecting a manner comparison between a situation and certain of its counterparts under the scenario described by the embedded clause.

However, this isn't our approach. Rather than lexically associating *as if* with manner, we parametrize out the dimension of comparison and evaluate *as if* constructions relative to a contextually specified relation of resemblance, which encodes both the respect(s) in which a situation and its counterparts are compared and how 'close' situations need to be in these relevant respects to count as resembling:

(63) **Resemblance relation between situations**
    $R(s)(s')$ iff s' resembles s.

We work with this contextual parameter, which we assume to be reflexive and symmetric but not necessarily transitive (due to familiar Sorites-type cases), for a couple of reasons. First, we aim to provide a unified analysis of *as if* on which it makes a constant lexicosemantic contribution across all its different uses, and non-modifier *as if*-phrases such as independent root clauses used for exclamatory purposes don't always involve manner comparisons (our analysis of exclamatory uses in the second part of this project makes no mention of manner). Second, while sentences with *as if* modifiers often receive a manner reading, speakers can also seemingly use *as if*-phrases to convey external properties of an eventuality such as its time or location, as in (64) and (65), as well as event-internal properties besides manner such as the result of an activity, as in (66):[24]

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[24]Bücking (2017) argues that German verb-based HCCs can relate to a variety of event-internal particularized properties (including internal locative properties) but these HCCs cannot function as external locative or temporal modifiers that "locate events as wholes in space and time", as shown by his ex. 11:

(i) #Ben bereitet das Huhn   zu wie wenn er im Urlaub   wäre, nämlich
    Ben   prepares the chicken   how if   he on vacation were namely
    {spät am   Abend/im   Wohnmobil}.
    {late in   the evening/in the camper}.

'Ben is preparing the chicken as if he were on vacation, namely, {late in the evening/in the camper}.'

(64) Context: Dieter is a fastidious man. On weekdays, he eats his breakfast at 7am, lunch at noon, and dinner at 6pm sharp. On weekends, he sleeps in an extra hour and eats his meals an hour later. One Monday, Dieter (surprisingly) loses track of time and eats his breakfast at 8am, lunch at 1pm, and dinner at 7pm.

Though today is Monday, Dieter ate his meals as if it was still the weekend.
⤳ Dieter ate his meals on the weekend schedule.

(65) Context: The king's policy is to meet nobles in his throne room and commoners in the hall. Occasionally he makes exceptions.

Though Annie was a mere commoner, the king met with her as if she were a noblewoman.
⤳ The king met with Annie in the throne room.

(66) Mary poured wine into my glass as if it were water.
⤳ Mary poured wine until my glass was full.

Bücking (p.c.) and an anonymous reviewer raise the possibility that at least some of these examples might be classified as manner uses. For instance, Bücking suggests that in (65) an "adaptive process" triggered by the *as if* modifier transforms the external locative information about the meeting into event-internal mode information. In support of this, he observes that the *as if*-phrase can serve as a short fragment answer to a manner/mode-oriented *how*-question but not to a *where*-question (cf. Maienborn 2001, who applies a similar diagnostic in her discussion of internal locative modifiers with manner interpretations):

(67)   a. How did the king meet Annie? As if she were a noblewoman.
       b. Where did the king meet Annie?   #As if she were a noblewoman.

Note, however, that the *as if* response to the *where*-question is improved when the full sentence is used, though admittedly it still sounds oblique and might elicit a clarification request:[25]

However, the English translation of (i) sounds fine, as do our temporal and locative examples (64) and (65), suggesting that English *as if* is more flexible than German *wie wenn* in that it can be a source of external or internal information about an eventuality.

[25]This slight dissonance might be due to the extra pragmatic inference required to interpret the dimension of resemblance as locative, and to competition from the more direct answer *The king met Annie in the throne room.* Admittedly, more still needs to be said about why the dissonance is greater with a *where*-question than with a *how*-question (thanks to a reviewer for raising this point). One reason for the relative lack of oddness with *how*-questions could be because they readily admit a

(68) A: Where did the king meet Annie?

B: The king met with her as if she were a noblewoman.

A: You mean in the throne room?

B: Yeah.

Likewise, the full *as if* sentence in our temporal example (64) can be used to reply to a *when*-question given the background context:

(69) A: When did Dieter eat today?

B: He ate his meals as if it was still the weekend (namely, breakfast at 8am...)

This suggests that the contrast exhibited in (67) might have more to do with restrictions on the use of *as if*-phrases as short answers (which requires further investigation) than on the kind of information that can be transmitted via *as if* modification. In any case, even if the locative example (65) can be regarded as a manner use, it is less clear that (64) can—not to mention many predicative and exclamatory uses that seem to have nothing at all to do with manner.[26] To be clear, while the underspecified resemblance parameter R allows for comparison in different respects of manner, as well as in respects other than manner, not everything goes. In typical contexts, many candidate dimensions of resemblance will be excluded due to factors like irrelevancy and uninformativity; for instance, as noted earlier when introducing situation counterparts, the resemblance and counterpart relations appearing in our semantics must be keyed to different notions of similarity for an *as if* claim to be non-trivial.

While we treat R as a contextually supplied primitive in this paper, one could make this relation more transparent by deriving it from a

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wider range of answers, as shown below. Such non-selectivity might suffice to render an *as if* utterance felicitous in response to a *how*-question, even before the exact dimension of R-resemblance has been resolved.

(i) A: How did Dieter eat today?

B: He ate very quickly. (manner)

B′: He ate until he was ready to burst. (result)

B″: He ate at a restaurant. (location/means)

B‴: He ate with a fork. (instrument)

B⁗: He ate all his meals before noon. (temporal)

[26]Furthermore, if an adaptive process transforms the locative information in (65) into event-internal mode information, we might expect this process to be possible with German HCCs as well. However, as discussed in footnote 24, German HCCs cannot convey external temporal or locative information.

similarity relation between points in one of Umbach & Gust's (2014) multidimensional "attribute spaces", or Gärdenfors's (2000) "conceptual spaces".[27] Generalizing the measure functions found in degree-based accounts of gradable adjectives like *hot* and *tall*, which are taken to map entities to points in temperature scales, height scales, and so forth (Kennedy 1999), Umbach & Gust map entities to points in an attribute space and then count two entities as similar when their corresponding points in this space are similar. Adapting this approach for present purposes, one could introduce a generalized measure function μ mapping situations into a multidimensional attribute space and then let $R(s)(s')$ when $\mu(s')$ is sufficiently close (i.e., exceeds a contextual threshold) to $\mu(s)$ along the relevant dimension of the attribute space. With this measure function in place, one might also look to off-the-shelf accounts of degree modification in gradable adjectives to handle examples where *as if* is modified by adverbs like *exactly*, *almost*, and *quite*:[28]

(70)   Put someone on a virtual roller coaster and their mind and body will react exactly as if they're on the real thing. (COCA)

(71)   That sounded very businesslike, almost as if I knew what I was doing. (COCA)

(72)   He sat there still fresh-faced and smiling, looking about him quite as if he saw nothing that I was seeing. (COCA)

However, we must leave further discussion of such graded examples for another occasion.

3.5   Putting things together

Summing up, we are proposing that (51) is true in a context c iff there was an event e of Pedro's dancing that R_c-resembles its counterparts (determined by C_c) in the most stereotypical worlds (according to $\leq_{c,w_e}$) where certain relevant circumstances obtain (those entailed by $D(w_e)$) and Pedro was possessed. To turn this proposal into a formal analysis, we interpret sentences through a function $\llbracket \cdot \rrbracket^{c,g}$ relativized to a context of use c and an assignment function g (for evaluating pronouns). Using the counterpart relation C_c and Kratzerian background system $\langle D_c, \leq_c \rangle$ supplied by c, we first define a *selection function F_c* that takes a situation s and proposition p as arguments and returns the counterparts of s in all the most stereotypical circumstantially accessible p-worlds in which a counterpart of s occurs:

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[27]We are grateful to Bücking (2017) for bringing to our attention Umbach & Gust's research on similarity demonstratives.

[28]Thanks to Rachel Rudolph for helpful discussion.

(73) **Selection function**

$s' \in F_c(s)(p)$ iff the following all hold:

  a. $C_c(s)(s')$ (s' is a counterpart of s)

  b. $\exists s''(p(s'') \wedge s'' \leqslant w_{s'})$ (s' inhabits a world with a p-situation)[29]

  c. $w_{s'} \in D_c(w_s)$ (s' is in a world where relevant circs of w_s hold)

  d. $\forall w((\exists s''(C_c(s)(s'') \wedge s'' \leqslant w) \wedge \exists s''(p(s'') \wedge s'' \leqslant w) \wedge w \in D_c(w_s)) \rightarrow w_{s'} \leqslant_{c,w_s} w))$ ($w_{s'}$ is at least as typical with respect to w_s as any relevant circumstantial world with a p-situation and a counterpart of s)

Using the resemblance relation R_c, we then interpret *as if* as a function that takes a proposition p and returns a situational property, which holds of s when it R_c-resembles all its counterparts selected by $F_c(s)(p)$:[30]

(74) **Entry for *as if***

$[\![as\ if]\!]^{c,g} = \lambda p_{\langle s,t \rangle}.\lambda s_s.\forall s'(s' \in F_c(s)(p) \rightarrow R_c(s)(s'))$

We call this a 'hypothetical comparative' property of situations, as it has clear comparative and conditional aspects. The comparativity is manifest in the resemblance parameter R_c, and the selection function F_c should bring to mind the influential Lewis-Heim-Kratzer "restrictor view" of indicative conditionals on which *if*-clauses serve to restrict the domain of nearby modal operators (Lewis 1975; Heim 1983; Kratzer 1986). On Kratzer's version of the theory, indicative conditionals always have a covert or overt modal in their complement, which quantifies over a set of possible worlds contributed by a *modal base f* that are maximal with respect to an *ordering source g* (where g encodes stereotypicality, these contextual parameters pick out the most typical worlds compatible with the propositions in the modal base). To evaluate an indicative conditional, the proposition expressed by its antecedent is added to the modal base, thereby restricting the quantificational domain of the modal in its consequent to worlds in which this antecedent holds:

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[29]A reviewer worries that this specification is not strict enough, in that it does not explicitly force co-temporality between counterparts of Pedro's dancing and his possession by demons. In other words, the worry is that the selection function could return counterparts from worlds in which Pedro is possessed at some other time. However, as we will see, this kind of temporal non-alignment is ruled out by our treatment of tense. During semantic composition, the proposition expressed by the *as if* prejacent is understood to be associated with a temporal signature that can be inferred on the basis of the tense indicated in the matrix clause, as per Kratzer's (1998) 'sequence of tense' analysis. This occurs in (51) given the absence of independent spatiotemporal specification on the prejacent, which ensures temporal alignment between counterparts of Pedro's dancing and his possession by demons.
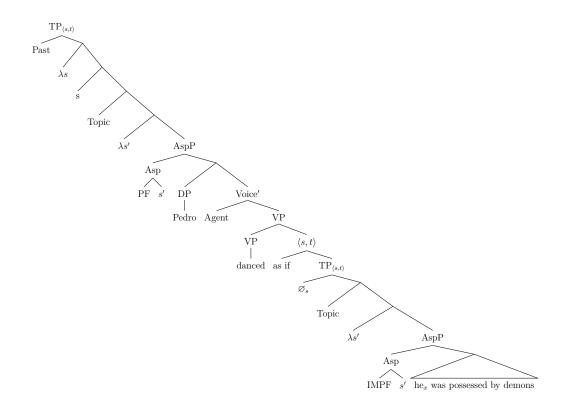
[30]We employ the standard type convention: type e for entities, type t for truth values, and type s for situations.

(75)   **Kratzer's conditional semantics** (Kratzer 1991, Def 13)
$$[\![if \; \varphi \; must \; \psi]\!]^{f,g} = [\![must \; \psi]\!]^{f^+,g} \text{ where } f^+(w) = f(w) \cup \{[\![\varphi]\!]^{f,g}\}$$

Note that effectively the same kind of domain restriction is built into our semantics for *as if*, as one can think of the selection function F_c as restricting the domain of comparison supplied by a circumstantial modal base and stereotypical ordering source with the *as if* prejacent.

To more fully analyze (51), we import our semantic entry for *as if* (74) into an LF clausal architecture with aspectual and tense layers oriented around Austinian *topic situations* (after Austin 1950), which generalize Klein's (1994) *topic times* (see Barwise & Etchemendy 1987; Kratzer 2020 for discussion; the particular implementation below draws heavily on Schwarz 2009). While this level of detail might seem like overkill for the interpretation of manner uses, topic situations will play a crucial role in our analysis of exclamatory uses and we introduce this machinery here to streamline the different parts of our project. Leaving a more extended discussion of topic situations and their connection to Questions Under Discussion (QUDs; Roberts 1996, 2012; Ginzburg 1996; van Kuppevelt 1996; Büring 2003) for the second part of our project, topic situations can simply be regarded for the time being as the particular situations that utterances are *about*.

We interpret our example (51) using the following LF sprinkled with overt situation variables and λ-binders (indicating application of the rule of Predicate Abstraction; see Beck & von Stechow 2015 for an overview of a similar architecture with world and time variables):

$\text{TP}_{\langle s,t\rangle}$
Past
λs
s
Topic
$\lambda s'$ AspP
Asp
PF s' DP Voice′
Pedro Agent VP
VP $\langle s,t\rangle$
danced as if $\text{TP}_{\langle s,t\rangle}$
$\varnothing_s$
Topic
$\lambda s'$ AspP
Asp
IMPF s' he$_x$ was possessed by demons

We purposefully omit a syntactic label on the *as if* node, as we want to remain officially neutral in this paper about the categorial status of *as if*-phrases.[31] Semantically, *as if* combines with the TP *he was possessed by demons* to form a hypothetical comparative property of type $\langle s,t\rangle$:

(76) $[\![[_{\langle s,t\rangle} as\ if [_{\text{TP}_{\langle s,t\rangle}} ... \ he_x\ was\ possessed]]]\!]^{c,g} =$
$\lambda s_s.\forall s'(s' \in F_c(s)([\![... \ he_x\ was\ possessed]\!]^{c,g}) \to R_c(s)(s'))$

This combines with the matrix verb *dance*, which we assume to have a standard Neo-Davidsonian lexical semantics (Carlson 1984; Parsons 1990; Krifka 1992; among others):

(77) $[\![dance]\!]^{c,g} = \lambda e_s.\text{dance}(e)$

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[31]While Bender & Flickinger (1999) and Brook (2014) treat *as if*-complements of perceptual source verbs as CPs headed by the complementizer *as if*, Asudeh (2002) argues that *as if*-phrases are PPs generated from an ordinary *if*-CP and preposition *as*. Although we wish to remain officially neutral about whether *as if*-phrases are CPs, PPs, or perhaps both CPs and PPs at once, let us note for the record that we do not find Asudeh's arguments for the PP approach especially persuasive, as these are largely based on uniformities between *as if* and ordinary *as* and *if*—for instance, he observes that *as if*-phrases take the same pre-modifiers as prepositions and allow for subjunctive mood. We argued in §2 that *as if* is *as*-like and *if*-like in many respects but the evidence also shows that *as if* is syntactically and semantically inflexible in ways that are surprising on Asudeh's proposed treatment.

The result then combines with the severed external argument *Pedro* via the Agent function contributed by a silent voice head to form a more complex property of type $\langle s, t \rangle$ (following Kratzer 1996):

(78) $[\![[[_{\mathrm{DP}}Pedro][Agent[_{\mathrm{VP}}[_{\mathrm{VP}}dance]]_{\langle s,t \rangle} as\ if\ ...\ he_x\ was\ possessed]]]]]^{c,g} =$
$\lambda e_s.\mathrm{dance}(e) \wedge \mathrm{Agent}(e) = \mathrm{Pedro} \wedge$
$\forall e'(e' \in F_c(e)([\![... he_x\ was\ possessed]\!]^{c,g}) \rightarrow R_c(e)(e'))$

The perfective aspectual and past tense layers existentially close this predicate and locate its witness within a contextually supplied topic situation in the past, such as a party the night before. The zero tense of the *as if* prejacent is bound by the matrix tense and thereby refers to this same topic situation, and the imperfective aspect of the prejacent ensures that Pedro was possessed by demons throughout the party in worlds in which counterparts to his dancing are selected.

We leave the complete formal details for a technical appendix, where we help ourselves to a number of off-the-shelf accounts of tense and aspect. Here is the output of the semantics (where s_{topic_c} is the topic situation, UT_c is the utterance time in c, and $\mathcal{R}$ is an accessibility relation contributed by imperfect aspect (Arregui et al. 2014) which in this case relates situations to smaller time-slices they contain as parts):

(79) $[\![(51)]\!]^{c,g_c} = \lambda s_s.C_c(s)(s_{topic_c}) \wedge \exists e(e \leqslant s \wedge \mathrm{dance}(e) \wedge$
$\mathrm{Agent}(e) = \mathrm{Pedro} \wedge \forall e'(e' \in F_c(e)(p) \rightarrow R_c(e)(e')))$

where $p = \lambda s_s.C_c(s)(s_{topic_c}) \wedge \forall s'(\mathcal{R}(s)(s') \rightarrow \exists e(e \leqslant s' \wedge$
$\mathrm{possess\text{-}by\text{-}demons}(e) \wedge \mathrm{Theme}(e) = \mathrm{Pedro}))$

Defined only if $\tau(s_{topic_c}) < \mathrm{UT}_c$.

In words: The topic situation, which is located in the past, contains a dancing event e by Pedro that R_c-resembles its counterparts in all the most stereotypical circumstantially accessible worlds in which Pedro was possessed by demons throughout (counterparts of) the topic situation.

Note that this output remains pragmatically underspecified, as the notions of counterparthood, stereotypicality, and resemblance relevant for determining the full communicative import of (51) aren't supplied by the semantics itself. At this point, extralinguistic world knowledge—or rather, widely shared beliefs about otherworldly scenarios—must come into play to derive the result that the manner of Pedro's dancing was wild. Raised on horror films like *The Exorcist* and *The Conjuring*, a hearer can surmise that someone who utters (51) is bringing up scenarios in which Pedro was possessed by demons because of the frenetic and uncontrolled manner in which people 'normally' act in such scenarios. The manner reading results from the impact of the semantic machinery together with the influence of this world knowledge.

3.6 Further considerations

We have interpreted *as if* as a pragmatically flexible means of natural language expression owing to the various contextual parameters involved in our hypothetical comparative (HC) semantics. While the manner use (51) has served as our running example for working through many details of our analysis, the HC semantics can also be applied to cases of non-manner modification like (64)-(66), as well as to the other descriptive (and expressive) categories of *as if* surveyed in the introduction, or so we argue. We regard the robust interface with pragmatics as a strength of our analysis, though admittedly much more needs to be said about the alignment of production and comprehension, in particular how speakers converge on intended interpretations in particular contexts.

Following much pragmatic theorizing, we assume that *as if* claims, like assertions in general, must be relevant to the current Question Under Discussion (QUD; Roberts 1996, 2012; Ginzburg 1996; van Kuppevelt 1996; Büring 2003). On Roberts's influential account, relevance is in part a matter of informativity in that relevant assertions must at least partially answer the current QUD, and this can help further pin down the intended notion of resemblance with an *as if* assertion. Suppose for instance that Dieter, our fastidious protagonist from (64), really lets it all hang out on the weekends—not only does he eat later than usual but he also eats with his bare hands rather than with a knife and fork as he does during the week. If the current QUD is *When did Dieter eat?*, the claim *Dieter ate as if it was the weekend* receives a temporal reading. If the current QUD is *Did Dieter eat with cutlery?*, this claim receives an instrumental reading.

The stereotypicality parameter $\leq_c$ used in selecting counterparts also requires hearers to engage in further pragmatic reasoning and employ their world knowledge to determine the communicative import of an *as if* claim. Even in contexts where the resemblance relation R_c is easily inferred, an *as if* claim can be infelicitous if hearers are unable to extract a relevant property of the matrix situation by considering its counterparts in stereotypical worlds where the prejacent holds. Consider for instance our example (6), rephrased below as (80):

(80)   A: How did Pedro dance?
       B: ??He danced as if the Earth was flat.

If this exchange takes place in a run-of-the-mill context where there is no special stereotypical connection between manners of dancing and the curvature of the Earth, B's answer doesn't help to resolve A's question.

For another example of the need for information about what is normally the case, suppose that (81) is uttered in a context where John and Mary both just so happen to be dancing in the garden:

(81)   John is dancing as if he's Mary.

Note that unlike in our locative example (65) where the *as if* sentence conveys that the king met Annie in the throne room, (81) cannot convey that John is dancing in the garden (even to hearers who know that Mary is also dancing there). The difference seems to be that the location where the king meets nobles in (65) is part of a standing protocol for engagement, while the location of Mary's dancing in (81) is simply coincidental—that is, in a 'typical' world where John is Mary, there is no way to tell where John (as Mary) is dancing.

Before extending our analysis to perceptual resemblance reports in §4 and nominal predicative uses in §5, we also want to say a bit about 'causal uses' as in (82) and (83), which differ in important respects from the examples of *as if* adverbial modification discussed thus far:

(82)   As if in response to the tough declarations from Hollande on Saturday, the Islamic State moments later asserted responsibility for the attacks. (COCA)

(83)   Phineas made a jaunty pirouette, as if to tell the onlookers that, though bent, he was not yet broken. (COCA)

While the *as if*-phrase in (82) is used to suggest a potential reason for the Islamic State asserting responsibility for the attacks—that this assertion was in response to Hollande's declarations—the speaker isn't saying that this responsibility-taking resembles counterpart situations in respect of its cause or motive. Rather, the speaker doesn't know that the Islamic State was responding to Hollande and is speculating about its motive by bringing this probable cause to a hearer's attention. Likewise in (83), Phineas's actual motive is hidden and the speaker is proposing a potential cause of his pirouetting, though not via a causal or explanatory comparison to counterpart events. Examples like (82) and (83) differ from (51) where the manner of an event is conveyed via a manner-comparison, from (64) where the timing of an event is conveyed via a temporal-comparison, and so forth. In the causal uses, it is the restriction on counterpart selection rather than the comparison to counterparts that is important for their attention-raising purpose.

Bücking (2017) discusses similar causal uses of German *wie wenn*. In his ex. 35, restated here as (84), the modifying "sentential" hypothetical comparative clause (S-HCC) conveys that Bella might be keeping quiet because she feels offended:

(84) Bella schweigt,   wie wenn sie beleidigt wäre.
      Bella keeps silent how if   she offended were
      'Bella is keeping silent, as if she were offended.'

On Bücking's proposal, S-HCCs require a structural analysis different from that for the adverbial V-HCCs found in manner or mode uses, in that S-HCCs do not directly compose with verbal material low in the matrix clause but rather relate directly to the topic situation higher in the clausal structure (cf. Maienborn 2001 on locative PPs and Zobel 2018 on weak free adjunct *as*-phrases, who similarly link interpretive flexibility to varying syntactic attachment sites). The speaker of (84) compares the matrix topic situation, which includes the eventuality of Bella keeping silent, to hypothetical topic situations in possible worlds where Bella is offended, and the causal reading emerges as a byproduct of bringing up the possibility of offense.

We find it very plausible that a similar type of structural analysis holds of causal uses in English as well.[32] Treating *as if*-phrases in causal examples like (82) and (83) as adjuncts merged after the full main clause proposition has been formed can potentially explain some of the distinctive structural and prosodic features of these examples, such as how the *as if*-phrases are often separated by a comma or require a causal break. A Bücking-style structural analysis might also explain why fronting an *as if*-phrase often if not always forces a causal reading. Note that when the *as if* modifier in our main example (51) is moved before the matrix verb, as in (85), the speaker conveys not that the manner of Pedro's dancing was wild but rather that demonic possession led him to dance in the first place:

(85) As if possessed by demons, Pedro danced.

While this claim might be used for humorous effect in a discourse context where one is reporting that the otherwise stoic Pedro danced, it isn't an appropriate response to the question of how he danced.

Zobel (2018, 2019) offers a related analysis of causal-clause-like interpretations of weak adjunct *as*-phrases in examples like (86):

(86) As a child, Peter got in for free.

While (86) has a temporal reading (*When Peter was a child...*), which on Zobel's treatment arises when the *as*-phrase is adjoined within the scope

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[32]More generally, we are attracted to the idea that interpretive differences for English *as if*-phrases can arise from variation in their attachment height. The ability for *as if* to combine directly with a topic situation in LF is a key component of our analysis of exclamatory *as if*s in the second part of our project.

of a temporal operator, this sentence also has a causal reading (*Since Peter {is/was} a child...*), which arises when the *as*-phrase occupies a higher syntactic position above TP. Zobel proposes that the weak adjunct in the causal use contributes the separate presuppositional content that Peter {is/was} a child alongside the truth-conditional content that Peter got in for free expressed by the host matrix clause, and the causal link between these two propositions is pragmatically inferred at the discourse level due to the absence of a lexical connection. Crucially, the causal inference is claimed to be independent of the semantics of the *as*-phrase itself, instead arising as a result of a speaker's willingness to make transparently justified assertions. This lets Zobel maintain a uniform semantic treatment of weak adjunct *as*-phrases across causal, temporal, and other non-causal uses.

A similar idea could be extended to causal *as if*s as well, where the causal link between the adjunct and matrix propositions once again arises as a result of generally available evidential reasoning at the speech act level. The main difference between causally interpreted weak adjunct *as*-phrases *vs.* causal *as if*-phrases would be with respect to the truth of the adjunct proposition in the actual world—with free adjunct *as*-phrases the proposition holds in the actual world, but with *as if*-phrases the prejacent proposition is only required to hold in accessible worlds. We leave the full development of a Bücking + Zobel-inspired account of causal uses of *as if* to future work, but note here that such an account would nonetheless allow us to maintain our core hypothetical comparative semantics even for these uses.

4   Perceptual Resemblance Reports

In this section we turn to *as if*-complements of perceptual source verbs in perceptual resemblance reports (PRRs):[33]

(87)   Banner seems to Thor as if he is morphing into Hulk.

(88)   It looks as if someone took a can of neon-orange paint and sprayed it on some of the leaves. (COCA)

(89)   The soup tastes as if it contains fish sauce.

(90)   It feels as if the stubble is just melting away. (COCA)

The subcategorizations of the verbs *seem, appear, look, sound, feel, smell,* and *taste* with *like, as if,* and *as though*-complements have been discussed

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[33]See Asudeh (2002) and López-Couso & Méndez-Naya (2012a) for arguments from extraction, deletion, coordination, and pronominalization that *as if*-phrases in PRRs are complements rather than adjuncts.

extensively in the syntax-semantics literature on "copy raising", which investigates the alternation between expletive subject constructions like (91-a) and (92-a) and their variants like (91-b) and (92-b) involving a non-expletive DP subject and a pronominal copy in the complement of the perception verb coindexed with this matrix subject (Postal 1974; Potsdam & Runner 2001; Asudeh 2002, 2004; Landau 2011; Asudeh & Toivonen 2007, 2012):

(91) a. It {seems/appears/looks} {like/as if/as though} Banner is morphing into Hulk.

  b. Banner$_i$ {seems/appears/looks} {like/as if/as though} he$_i$ is morphing into Hulk.

(92) a. It tasted {like/as if/as though} there was pomegranate in the cocktails.

  b. The cocktails$_i$ tasted {like/as if/as though} there was pomegranate in them$_i$. (Landau 2011, ex. 14)

Philosophers of perception have also offered analyses of various kinds of PRRs, though their focus tends to be less on natural language semantics per se and more on what a proper account of PRRs can teach us about the metaphysics of perceptual experience (for some recent examples, see Martin 2010; Breckenridge 2007, 2018; Glüer 2017 on *look*, and Brogaard 2012 on *feel*). While our discussion in this section is informed by both of these literatures, we investigate only semantic issues relating to PRRs and must leave a lot of adjacent ground unexplored.

As discussed in the introduction, one general strategy for analyzing *as if*-complements in PRRs is to assimilate them to *as if*-adjuncts in manner uses. This approach is motivated by examples like (93)-(95) where perceptual source verbs take predicative AP complements, which resemble behavioral reports like (96) involving AdvP adjuncts:

(93) Banner seems {greenish/muscular/irritated} to Thor.

(94) The leaves look {neon-orange/beautiful/fake}.

(95) The soup tastes {fishy/sweet and sour/delicious}.

(96) Pedro danced {slowly/clumsily/skillfully/erratically}.

In much the same way that the adverbs in (96) can report the manner of Pedro's dancing, the thought goes, the adjectives in (93)-(95) can tell us about the way Banner seems to Thor, the way the leaves look to the speaker, and so forth (Martin 2010; Breckenridge 2007, 2018; Glüer 2017; more on such experiential *ways* in §4.2). Extending this parallel, it's tempting to think that much as the *as if*-adjunct in the behavioral manner use (51) indirectly conveys the way Pedro danced via comparison

with the manners of counterpart events, the *as if*-complements in PRRs like (87)-(90) indirectly convey the ways things seem, smell, taste, and so forth via comparison with the ways of counterpart seemings, smellings, tastings, and so forth (and this can be formally implemented using our hypothetical comparative semantics).

An alternative strategy is assimilating PRRs to sentences where *seem*, *appear*, and some of the other copular verbs take *that*-complements (which tend to have a more epistemic flavor) and to belief, knowledge, and other propositional attitude ascriptions more generally:

(97)   It seems that the intellective soul is at least as immaterial, simple, and abstract as the intellective power of thinking. (COCA)

(98)   It appears that IBM did get a license for everything they fed into Watson. (COCA)

(99)   John feels that punishment is a good deterrent. (Brogaard 2012)

(100)   Bernard {believes/knows/thinks/hopes} that Florence has been taking singing lessons.

This second approach is most compelling for seemingly non-perceptual epistemic PRRs like (12) and (13), repeated below as (101) and (102), where the prejacent proposition expressed by the finite complement of *as if* might naturally be taken as the representational content of a belief-like cognitive state of the speaker:

(101)   It {seems/appears/looks} as if there are infinitely many twin primes.

(102)   It feels as if very few original ideas have sprung from the post-World War II climate. (COCA)

Many philosophers of perception have also argued that visual and other perceptual experiences have propositional content, understood in terms of their accuracy conditions (see for instance Byrne 2009; Siegel 2010; Schellenberg 2011), so even clearly phenomenal PRRs like (87)-(90) might be given a propositional attitude-style treatment. Of course, there is also the hybrid option where some PRRs are treated like manner uses and others like propositional attitude reports.

To put our cards on the table early, we ultimately promote a hypothetical comparative semantics for all PRRs, including those in (101) and (102) that seem to report epistemic states. Before getting to this, however, we first explore the propositional attitude option in more detail and raise trouble for it.[34]

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[34]An anonymous reviewer notes the absence of examples with *be* in the current

4.1   PRRs as propositional attitude reports

Given the event-situation semantic framework employed thus far in this paper, a useful starting point for formally analyzing PRRs is Asudeh & Toivonen's (2012) event semantic theory from the copy raising literature. Asudeh & Toivonen would analyze (87), for instance, as having the truth condition in (103), where "PSOURCE" and "PGOAL" are their labels for the source (Stimulus, more or less) and goal (Experiencer, more or less) of the perception:

(103) $\exists e(\text{seem}(e, [\![Banner\ is\ morphing\ into\ Hulk]\!]) \wedge$
$\text{PSOURCE}(e) = \text{Banner} \wedge \text{PGOAL}(e) = \text{Thor})$

This truth condition is fairly coarse-grained in that it doesn't say what it takes for a state-proposition pair $\langle e, p \rangle$ to belong in the extension of the seem-relation. While Asudeh & Toivonen don't fill in the details, it's tempting to understand the propositional component of a seem-related pair as representational content assigned to the eventuality component. Landau (2011), who offers a closely related semantics for perceptual source verbs, seems to see things this way when he writes of one of his truth conditions for *sound* that "it involves an auditory sensation impinging on the experiencer and generating a thought/impression, the latter denoted by the propositional argument" (p. 798).

We can make this propositional attitude-like interpretation more explicit by drawing on contemporary neo-Davidsonian analyses of belief reports (Kratzer 2006; Hacquard 2006, 2010; Anand & Hacquard 2008; Moulton 2009, 2015; Rawlins 2013b; Moltmann 2017). In a Kratzer-style decomposition of the standard Hintikkan relational semantics (Hintikka 1962), *believe* denotes a property of eventualities:[35]

(104) $[\![believe]\!]^{c,g} = \lambda e_s.\text{believe}(e)$

Likewise, we might interpret *seem* as follows:

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section, which seem intuitively similar to PRRs though they do not permit the alternation with non-expletive DPs:

(i)   a. It is as if John doesn't want to be here right now.

   b. #John is as if he doesn't want to be here right now.

We take such examples to be closer to independent *as if*-phrases than PRRs in that they compose not with a lexical eventive/stative predicate but rather with the topic situation itself. As such, we defer further discussion to follow-up work.

[35]Kratzer's *believe* has both an eventuality and "content" argument, where this latter argument is saturable with things believed such as newspaper stories or rumors. However, the content argument isn't important in what follows and so we ignore it and present a simpler 1-place denotation.

(105) $[\![seem]\!]^{c,g} = \lambda e_s.\text{seem}(e)$

These neo-Davidsonian entries for *believe* and *seem* leave the content of a belief or seeming unspecified, which comes instead from a complement, such as a *that*-clause, that contributes a "contentful" property of eventualities. The following entry for *that* is formulated using Hacquard's (2006) partial function CON on the set of eventualities $\mathcal{E}$, which maps any eventuality with content to the set of possible worlds compatible with what it represents to be the case:

(106) $[\![that]\!]^{c,g} = \lambda p_{\langle s,t\rangle}.\lambda e_s.\forall w \in \text{CON}(e)(p(w))$

If the *as if*-clause in (87) functions analogously to a *that*-clause in attributing a contentful property to the reported seeming—that is, it's interpreted using (107)—then the PRR expresses the proposition (108) (see the technical appendix for some more details):

(107) $[\![as\ if_{\text{CON}}]\!]^{c,g} = \lambda p_{\langle s,t\rangle}.\lambda e_s.\forall w \in \text{CON}(e)(p(w))$

(108) $\lambda s_s.C_c(s)(s_{topic_c}) \wedge \forall s'(\mathcal{R}(s)(s') \rightarrow \exists e(e \leqslant s' \wedge \text{seem}(e) \wedge$
     $\text{PSOURCE}(e) = \text{Banner} \wedge \text{PGOAL}(e) = \text{Thor} \wedge$
     $\forall w \in \text{CON}(e)([\![Banner\ is\ morphing\ into\ Hulk]\!]^{c,g_c}(w))))$
     Defined only if $\tau(s_{topic_c}) \approx \text{UT}_c$.

In words: There exist seeming states whose source is Banner, goal is Thor, and content is that Banner is morphing into Hulk, which last throughout the temporal trace of the topic situation, which in turn overlaps with the utterance time.

Now for the trouble: while the propositional attitude approach could be implemented in various ways, there are a number of general conceptual and empirical concerns with treating the *as if*-complements of perceptual source verbs like *that*-clauses. The most immediate worry is the missing *iffiness* and *asyness*. If the job of *as if*-clauses in PRRs is to assign their propositional argument as content to the matrix perceptual state, then these *as if*s are related neither to regular *if*-clauses nor to the comparative preposition *as* in any obvious way, unlike the *as if*-adjuncts in the manner and other modification uses discussed in §3 that had clear conditional and comparative dimensions.

Furthermore, if *as if*-clauses in PRRs and *that*-clauses do the same work, then it's a bit surprising that propositional attitude verbs like *believe, know,* and *hope* cannot take *as if*-complements:

(109) *Darcy {believes/knows/hopes} as if it is raining.

Conversely, if PRRs report states with representational content, then we might expect perceptual source verbs to combine more freely with

that-clauses than they actually do. While *seem* and *appear* readily take *that*-complements in expletive subject constructions, these are arguably cases of lexical ambiguity (Matushansky 2002), and parallel examples with *look*, *sound*, *feel*, *smell*, and *taste* are harder to come by (interestingly, these seem to require *to*-PPs):

(110)   *It {looks/sounds/feels/smells/tastes} that we're in Italy.

(111)   It {seems/appears/looks/sounds/feels} to me that the Coronavirus pandemic is far from over.

More strikingly, only *feel* can combine with *that*-clauses in non-expletive subject constructions, which is widely thought to be another case of lexical ambiguity (Asudeh & Toivonen 2012 call this the "propositional attitude use" of *feel*; see also Brogaard 2012):

(112)   Quite frankly, I feel that jumping out of a perfectly good plane is just plain silly. (COCA)

(113)   *My skin feels that there are ants crawling all over it.

(114)   *John {appears/looks/smells} that he hasn't showered for days.

(115)   *Florence {seems/sounds} that she's been taking singing lessons.

We won't put much weight on these distributional observations, as they might be explained by purely syntactic selectional restrictions, but they are nonetheless puzzling given a propositional attitude-style treatment of PRRs.

   A further empirical concern with treating *as if*-phrases in PRRs like *that*-clauses is the existence of minimal pairs like (116) and (117) where these clause types aren't intersubstitutable while preserving felicity:[36]

(116)   Context: It has been an unseasonably cold stretch of days in the middle of summer.
   a. It seems as if it's winter.
   b. ??It seems that it's winter.

(117)   a. It seems as if it's raining harder than it actually is.
   b. #It seems that it's raining harder than it actually is.

While the *seems as if* construction (116-a) is a natural comment on the cold weather, the *seems that* construction (116-b) is not. The latter *could* be used felicitously in an odd Rip-Van-Winkle-context where the speaker has just emerged from a long hibernation and has a tentative belief on the basis of the recent weather that it is winter, as expected if the *that*-complement assigns the content that it is winter to a belief-like

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[36]Thanks to an anonymous reviewer for the second example.

cognitive state. With (116-a), however, there is no pressure to reach for such special contexts, as the speaker seems to simply convey how cold it has been by comparing the recent weather to typical winter weather. Likewise, it is unclear why (117-a) is acceptable while (117-b) is not under an analysis that assimilates *as if*-complements in PRRs to *that*-complements in belief and other propositional attitude reports.

Next, turning to more conceptual issues, another challenge for the propositional attitude-style analysis is that with many PRRs which report mental states that are clearly mediated by one or more of the speaker's sensory modalities, such as (87)-(90), it would be unclear how to understand the content assigned by *as if*-phrases. It is tempting to think of this content as the representational content of the reported experiences themselves, but the idea that perceptual experiences have representational content is controversial (see Byrne 2009; Siegel 2010; Schellenberg 2011 for arguments in favor of this position, and Travis 2004, 2013; Brewer 2006; Breckenridge 2007 for opposition). Moreover, even if perceptual experiences have representational content, it remains unclear which kinds of properties are available for representation in perception (see Siegel & Byrne 2017 and the papers in Brogaard 2014). If perceptual experiences represent only low-level properties like color, shape, and illumination but not high-level properties like being spray-painted or containing fish sauce, then we cannot generally regard the prejacent proposition in a PRR as the content of the matrix state.

Admittedly, there are other options in the vicinity.[37] We might regard the contentful property contributed by *as if*-phrases in PRRs not as a property of the reported experience (which might not have high-level content) but rather as a property of some downstream cognitive state that is caused by this experience or that the experiencer is disposed to form as a result—recall Landau's (2011) proposal that the propositional argument of *sound* is a thought or impression generated by an auditory sensation. However, it isn't clear how this more flexible account would work in many cases. Suppose we are watching Pedro tear up the dance floor and I tell you the following:

(118)   It looks as if Pedro is possessed by demons.

What is the relevant mental state caused by my visual experience that has the content that Pedro is possessed? It can't be any perceptual belief generated more-or-less directly by my perception, nor a belief that I'm readily disposed to form on the basis of this perception, because I certainly don't *believe* that Pedro is possessed, and I'm not disposed to

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[37]We are grateful to Steven Gross for helpful discussion.

believe this. I don't even *accept* that he is possessed for the purposes of conversation (in the sense of Stalnaker 1984). So it needs to be something else and we are unsure what that is.

More confusing still, suppose that I am chatting with a friend the next day and say the following:

(119)   You should have seen Pedro dance. It looked as if he'd drunk too many Red Bulls.

It now looks like one and the same looking state needs to be assigned multiple contents. On the propositional attitude analysis of (118) and (119), the truth of my original claim requires that we assign to some looking the content that Pedro is possessed, while presumably the truth of my subsequent claim requires that we assign to this same looking the content that Pedro drank too much—but, intuitively, I don't seem committed to the existence of a single period of looking associated with the content that Pedro is possessed by demons *and* drank too much.[38]

Summing up: while a propositional attitude-style analysis might be appropriate for constructions with *that*-clauses, it is both conceptually and empirically problematic for *as if*-phrases in many if not all PRRs.

4.2   PRRs as *way* uses

Fortunately, we can avoid all the difficulties just raised by following the second general strategy mentioned at the beginning of this section and treating PRRs like behavioral manner uses. On this alternative approach, *as if*-phrases in PRRs tell us not about the content of the matrix experiential state but rather about its manner or *way*, which we understand to be a nonrepresentational property of this state. An experiential way isn't a proposition, a way the world might be or might have been (Stalnaker 1984). Rather, it is a property of token experiential states in much the same way as a way of riding a bicycle, a manner of riding, is a property of token riding events (Stanley & Williamson 2001; Landman & Morzycki 2003; Breckenridge 2007, 2018). Roughly, we identify ways of experiential states with what philosophers of mind have called their "phenomenal characters" or "qualia"—what

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[38]There is still some room to maneuver. Plausibly, the content associated with experiential states is highly context-sensitive. One might say that the context of my first utterance (118) determines a looking content based somehow on my initial perception and creative interpretation of Pedro's dancing while the context of my second utterance (119) determines a different looking content based on my subsequent reintepretation of the same perceived dancing. With a pliable enough conceptual framework, conclusive counterexamples are hard to come by.

the experience of the PSOURCE is subjectively like to the PGOAL. A way of looking, or way that a visual experience occurs or unfolds, will involve introspectively accessible features of the PGOAL's visual field—the various colors involved, their shapes and sizes—and how these features change over the course of the experience.[39] A way of sounding, or way that an auditory experience unfolds, will involve hearing sounds varying in pitch, intensity, and duration. And so forth.

This way-based approach can be implemented using our hypothetical comparative semantics. We assume that perceptual source verbs have a neo-Davidsonian lexical semantics as in (105), and we follow Asudeh & Toivonen (2012) in assuming that the subject of a non-expletive subject PRR is assigned the PSOURCE role and *to*-PPs contribute PGOALs. However, rather than interpreting the *as if*-complements in PRRs like *that*-clauses using the Hacquardian CON-based entry (107), we use our earlier *as if* entry (74). Previously, the resemblance parameter R allowed for comparisons in many different contextually determined respects. However, this generality isn't needed for the *as if*-complements in PRRs, which don't exhibit the same degree of interpretive flexibility in that they seem to allow for only manner or way interpretations (we take up the issue of epistemic PRRs in §4.3). We propose that perceptual source verbs select for complements expressing a way-based property of eventualities (or disjunctively select for complements expressing either a way-based or CON-based property if these verbs can combine with *that*-clauses without a change in meaning; pace Matushansky 2002 on *seem*). This forces the resemblance relation used in evaluating PRRs to contribute a way comparison:[40]

(120)   Where e and e' are perceptual states:

   $R_{way}(e)(e')$ iff e and e' resemble one another with respect to their way of seeming, appearing, looking, sounding, feeling, smelling, or tasting.

Our main example (87) is now interpretable as follows (see the technical appendix):

(121) $[\![(87)]\!]^{c,g_c} = \lambda s_s.C_c(s)(s_{topic_c}) \wedge \forall s'(\mathcal{R}(s)(s') \to \exists e(e \leqslant s' \wedge$
   $\text{seem}(e) \wedge \text{PSOURCE}(e) = \text{Banner} \wedge \text{PGOAL}(e) = \text{Thor} \wedge$

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[39]See Breckenridge (2018), Ch. 3 for further discussion of ways of looking, which he analyzes in terms of the determinable-determinate relation.

[40]Ways of experience, like manners of behavior, come in different flavors. A visual experience can have a color character, a shape character, a combined color + shape character, and so forth. There is still work for context in determining exactly which kind of way is being compared in a PRR.

$$\forall e'(e' \in F_c(e)(\llbracket Banner \; is \; morphing \; into \; Hulk \rrbracket^{c,g_c}) \rightarrow R_{way_c}(e)(e')))$$

Defined only if $\tau(s_{topic_c}) \approx \mathrm{UT}_c$.

In words: There exist seeming states whose source is Banner and goal is Thor which last throughout the topic situation, which in turn overlaps with the utterance time, and these seeming states resemble each of their counterparts in the most stereotypical circumstantially accessible worlds in which Banner is morphing into Hulk with respect to their way.

Unlike the earlier propositional attitude interpretation (108), the hypothetical comparative interpretation (121) has clear *iffiness* and *asyness* contributed by the selection function F_c and resemblance relation R_{way_c} respectively. We also sidestep the puzzle of making sense of the content of the reported seemings, as the proposition $\llbracket Banner \; is \; morphing \; into \; Hulk \rrbracket^{c,g_c}$ isn't attributed to these seemings as their representational content—the seemings needn't have any content—but rather serves to restrict the selection of counterparts by F_c to states in worlds where Banner is morphing into Hulk.

Moreover, we can explain the contrast between the *seems as if* and *seems that* claims in (116) and (117) (and perhaps also some of the distribution data involving *as if* vs. *that*-clauses, though we don't explore this further here). For instance, applying the hypothetical comparative entry (171) to the *as if*-complement of (116-a) and CON-based entry (107) to the *that*-complement of (116-b) returns different properties of eventualities:

(122) $\llbracket as \; if \; it \; is \; winter \rrbracket^{c,g} =$
$\lambda e_s.\forall e'(e' \in F_c(e)(\llbracket it \; is \; winter \rrbracket^{c,g}) \rightarrow R_{way_c}(e)(e'))$

(123) $\llbracket that \; it \; is \; winter \rrbracket^{c,g} =$
$\lambda e_s.\forall w \in \mathrm{CON}(e)(\llbracket it \; is \; winter \rrbracket^{c,g}(w))$

The hypothetical comparative property (122) holds of a seeming iff it resembles in terms of its way of seeming each of its counterparts in stereotypical circumstantial worlds where it is winter during an interval overlapping with the utterance time—and so the *as if*-phrase can be used to indirectly convey that it seems unseasonably cold. In contrast, the contentful property (123) holds of a seeming iff it has content (otherwise the CON function is undefined) entailing that it is winter.[41]

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[41]It is an interesting question whether, as Matushansky (2002) argues, the meaning of *seem* changes across the pair (116). In our neo-Davidsonian framework where both *seem*s denote the property of being a seeming, the question boils down to whether these are the same seemings or not. A friend of ambiguity might claim that (i) there are two kinds of seemings in natural language metaphysics—*perceptual* seemings with

Lastly, bringing PRRs under the umbrella of our hypothetical comparative semantics unifies the subsidiary complement use of *as if* with its historically basic function as a modifying adjunct (López-Couso & Méndez-Naya 2012b).

4.3 Epistemic PRRs

But what about 'epistemic PRRs' like (124) that led us to entertain the propositional attitude analysis in the first place? What should we say about these cases?

(124)   It seems as if there are infinitely many twin primes.

While we have argued that the hypothetical comparative semantics fares better than the propositional attitude semantics for truly perceptual PRRs where a sensory modality is clearly involved, one might think that epistemically oriented PRRs should still be analyzed as propositional attitude reports. This line of reasoning could lead one to posit an ambiguous semantics for *as if* complements in PRRs, wherein some occurrences are interpreted as hypothetical comparative properties using (171) while others are interpreted as CON-tentful properties using (107). However, in this final subsection, we argue that such ambiguity is not strictly necessary, as even these seemingly epistemic uses can be subsumed within our hypothetical comparative semantics.

An epistemic-perceptual ambiguity theory for PRRs with *as if*-phrases has some precedent in the philosophical literature on *look*. Consider for instance the following example from Glüer (2017):

(125)   Context: The sun is shining but there are dark clouds gathering behind the mountains. Alma is looking out the window of the cottage that she and Martha have rented for their vacation.

Alma: It looks as if we will need our rain gear today.

Glüer claims that Alma's report has two readings (following Chisholm 1957; Jackson 1977). First, on its epistemic reading, Alma is stating

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ways but no content, and *epistemic* seemings with content but no ways; and (ii) the *seem* in the *seems as if* claim (116-a) denotes the property of being a perceptual seeming while the *seem* in the *seems that* claim (116-b) denotes the different property of being an epistemic seeming. On the other hand, a foe of ambiguity will insist that the *seem*s in (116-a) and (116-b) express one and the same property. On our preferred version of this "one *seem*" story, the single class of seemings is a motley crew: while all seemings have ways of occurring, some seemings generate a strong enough impulse or push towards believing some content that they are assigned it by the CON function (cf. Asudeh & Toivonen 2012, who argue that *seems that* constructions have both an epistemic and a perceptual component).

that she has reasons or evidence for believing that she and Martha will need to wear their rain gear. On its non-epistemic comparative reading, Alma is simply reporting that the scene outside has the look typical of impending rain. While this felt difference could potentially be explained by an ambiguity in the meaning of the *as if* complement, this is not the only route available to us.[42] This example doesn't establish that some PRRs must be analyzed as propositional attitude reports, and neither do epistemic PRRs like (124) wherein the speaker also conveys a belief-like state but without necessarily having even a perceptual basis for it.

As observed by Landau (2011) and Asudeh & Toivonen (2012) in the copy raising literature, perceptual source verbs can be used flexibly to express a range of different psychological relations, and they allow for "bleached" metaphorical interpretations where the expressed relation is not strictly perceptual. In such cases, the PSOURCE can be a mental image or node in an internal episode of deliberation that gives rise to certain other thoughts and feelings—such as reaching in one's head the conclusion of a supposed proof that there are infinitely many twin primes. So long as these non-perceptual mental experiences can still be said to have *ways* of occurring, the fact that a PRR like (124) needn't involve a visual, auditory, or other sensory modality doesn't preclude interpreting this report using our hypothetical comparative semantics.

Furthermore, while speakers in examples like (124) and (125) can convey their belief or some weaker acceptance attitude towards the prejacent proposition, this needn't be part of the semantic content of the PRRs—it can plausibly be derived as an extra pragmatic inference beyond what is delivered by the hypothetical comparative semantics. We suggested something similar for causal uses in §3.6, where the causal reading emerges as a byproduct of bringing the prejacent proposition to the hearer's attention. Applied to (125), the proposal is that while Alma only asserts something about the way things look from the cottage window—the non-epistemic comparative use is basic—Martha might draw the further inference that Alma believes that they will need rain gear depending on the contextual situation and which QUDs are in play. If Alma and Martha are busy preparing for a hike, then the proposition that they will need rain gear is highly relevant to their practical domain goals and so Martha will infer that Alma is bringing up this possibility because she believes it.

On the other hand, when such epistemic strengthening is known to

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[42]Glüer herself traces the ambiguity in (125) to the verb *look*, which functions in the first case as an epistemic modal and in the second case as a quantifier over ways of looking. However, we don't want to take this route either.

be incompatible with actual facts, such as when (125) is uttered in a context where Alma and Martha have looked at the weather report and know that it's not going to rain in their location, the strengthened inference is easily overridden, leaving only the non-epistemic, perceptual interpretation; see the variant in (126). Note further the contrast with the minimally different utterance with a *that*-complement in (127), where the epistemic inference is less optional, thereby rendering the ensuing denial quite odd (cf. (117) above).

(126)   It looks as if we'll need our rain gear today, but I don't think we really will. (The weather report says it's going to clear up soon.)

(127)   #It looks to me that we'll need our rain gear today, but I don't think we really will.

5   Nominal Predicative Uses

The final category of descriptive examples that we consider in this paper is the class of nominal predicative uses, exhibited in (128)-(132):

(128)   {The state of the house/?The house} is as if a tornado passed through it.

(129)   {The look in Crockett's eyes/?Crockett} is as if a small voltage passed through him.

(130)   {The China of today/?China} is as if the Europe of the Roman Empire and of Charlemagne had lasted until this day and were now trying to function as a single nation-state.

(131)   {The dinner at Chez Panisse/Dining at Chez Panisse/?Chez Panisse} was as if an angel were peeing on my tongue.

(132)   {The dancing by Pedro/Pedro's dancing/?Pedro} was as if he was possessed.

These initial examples suggest that predicative uses require an eventuality-denoting subject, such as an event description or gerundive construction. The variants with individual-denoting DP subjects are less acceptable, and seem appropriate only to the extent that these subjects can be taken to pick out an event or state (as in (128) where *The house* might be taken to pick out the current state of the house). This apparent subject restriction to event nominalizations and other eventuality-denoting DPs accords with our analysis on which *as if*-phrases denote situational properties of type $\langle s, t \rangle$.

However, Ashwini Deo (p.c.) has emphasized to us that non-eventive nominal expressions can be perfectively acceptable in predicative combination with *as if*, as witnessed in the following attested examples:

(133)   Trump is as if a selfie stick became president.

(134)   The child is as if hypnotized.

(135)   This mattress is as if it was made just for me!

Such predicative uses are prima facie problematic for our analysis of *as if*-phrases, for how can a non-eventive nominal entity compose with a situational expression of type $\langle s, t \rangle$?

This apparent type conflict might be resolved in at least two ways. One possibility is to reconceptualize *as if* as being type-flexible, and offer a polymorphic interpretation on which an *as if*-phrase contributes either a property of situations/events when it combines with verbs or event-denoting nominals, or a property of entities when it combines with non-eventive nominals. In the latter case, our hypothetical comparative semantics could be extended to entities in the natural way: the selection function associated with *as if* would select counterpart entities rather than situations, the resemblance relation would compare entities to their counterparts in terms of their color, size, shape, or some other relevant property or properties of entities, and so forth.

A second option is to coerce non-eventive individuals appearing in felicitous nominal predicate uses into situations of type s, as suggested above, while continuing to assume that *as if*-phrases always express situational properties. Under this proposal, an *as if*-phrase could operate on the minimal situation exemplifying the entity denoted by the nominal (Kratzer 2020), possibly restricted to the time and place of the topic situation when the *as if*-phrase targets a stage-level rather than an individual-level property (as in (134)). In this paper, we do not take up a detailed comparison of these two approaches, leaving the choice between them open.

In the remainder of this section, we instead want to provide a sense of some of the compositional issues involved in extending our hypothetical comparative semantics to nominal predicative uses of *as if* by working through a specific example. To keep things simple, consider the definite variant of (131) where the subject is an event-denoting nominal, referring to the experience of dining at Chez Panisse:

(136)   The dinner at Chez Panisse was as if an angel was peeing on my tongue.

We adopt the following Fregean situation-semantic entry for the definite article based on Schwarz (2009), where an eventish description refers to the unique event that satisfies it within a situation argument:[43]

(137) $[\![the]\!]^{c,g} = \lambda s_s.\lambda V_{\langle s,t\rangle}.\iota e_s(V(e) \wedge e \leqslant s)$
    Defined only if $\exists! e(V(e) \wedge e \leqslant s)$. (uniqueness presupposition)

Applying this to a situation variable s and the event property expressed by the NP *dinner at Chez Panisse* returns the unique dining event at Chez Panisse located in s:

(138) $[\![dinner\ at\ CP]\!]^{c,g} = \lambda e_s.\text{dinner}(e) \wedge \text{Loc}(e) = \text{CP}$

(139) $[\![[_{\text{DP}_s}[the\ s][_{\text{NP}_{\langle s,t\rangle}}dinner\ at\ CP]]]\!]^{c,g} =$
    $\iota e(\text{dinner}(e) \wedge \text{Loc}(e) = \text{CP} \wedge e \leqslant g(s))$
    Defined only if $\exists! e(\text{dinner}(e) \wedge \text{Loc}(e) = \text{CP} \wedge e \leqslant g(s))$.

Meanwhile, the *as if*-phrase is interpreted in the now-familiar way:

(140) $[\![as\ if\ an\ angel\ was\ peeing\ on\ my\ tongue]\!]^{c,g} =$
    $\lambda e_s.\forall e'(e' \in F_c(e)([\![an\ angel\ was\ peeing...]\!]^{c,g}) \rightarrow R_c(e)(e'))$

The remaining compositional details are somewhat tricky. If we assume that copular *be* denotes the identity function and allow the referent (139) to directly saturate the eventuality property (140), we get the following result of type t (we ignore the uniqueness presupposition for ease of exposition):

(141) $\forall e'(e' \in F_c(\iota e(\text{dinner}(e)...))([\![an\ angel...]\!]^{c,g}) \rightarrow$
    $R_c(\iota e(\text{dinner}(e) \wedge \text{Loc}(e) = \text{CP} \wedge e \leqslant g(s)))(e'))$

At this point, we might lambda abstract over the situation variable s and feed the resulting proposition into the Topic operator (forgoing an aspectual projection in the matrix clause), which can then combine with the Past pronoun. The result is the following proposition:[44]

(142) $[\![[_{\text{TP}_{\langle s,t\rangle}}Past[\lambda s[s[Topic[\lambda s'[_t[_{\text{DP}}the\ s'\ dinner\ at\ CP]$
    $[was[_{\langle v,t\rangle}as\ if\ an\ angel\ was\ peeing\ on\ my\ tongue]]]]]]]]]]\!]^{c,g_c} =$

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[43]More specifically, (137) is based on Schwarz's entry for the German weak article. See Schwarz for additional independent evidence showing the need for a situation variable within the determiner phrase.

[44]On this aspectless approach, nominal predicative uses of *as if* pattern similarly to entity-type modification with *individual-level* predicates (e.g., *Hodor is a tall man*) as analyzed by Kratzer (1995) on which they lack an eventuality argument at the clausal level, and consequently lack an aspectual projection altogether (though see Chierchia 1995 for an alternative view of individual-level predication involving generic aspect). A point in favor of this type of analysis is the incompatibility of nominal predicative uses with overt aspectual modifiers, as in *The dinner at Chez Panisse was {being/already} as if an angel was peeing on my tongue.*

$$\lambda s_s.C_c(s)(s_{topic_c}) \wedge \forall e'(e' \in F_c(\iota e(\text{dinner}(e)...))([\![an\ angel...]\!]^{c,g_c}) \rightarrow$$
$$R_c(\iota e(\text{dinner}(e) \wedge \text{Loc}(e) = \text{CP} \wedge e \leqslant s))(e'))$$

Defined only if $\tau(s_{topic_c}) < \text{UT}_c$.

The relevant notion of resemblance in this example presumably concerns the quality of the meal, so someone who utters (136) conveys that the topic situation, which precedes the utterance time, contains a unique dining at Chez Panisse and this event resembles in respect of gustatory experience each of its counterparts in the most typical circumstantially accessible worlds in which an angel was in fact peeing on the speaker's tongue throughout dinner (i.e., the food was tasty!).

Alternatively, we might try to maintain a role for aspect by assuming that the denotation (139) undergoes a type shift from s to $\langle s, t \rangle$ to prevent a later type clash at the aspectual layer (following Renans 2021), though we leave the details of this approach to a footnote.[45]

6 Conclusion

In this paper we have taken steps towards providing a comprehensive account of *as if* constructions in English, which combine comparativity and conditionality and therefore provide an important case study for the interaction between these two frequently occurring aspects of meaning in natural language. Beginning with manner uses, we proposed an event-situation semantics formalizing the intuition that *as if*-adjuncts can be used to inferentially convey the manner of a matrix eventuality through comparison with its counterparts in stereotypical circumstantially accessible worlds in which the prejacent holds. The

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[45]After the type shift, (139) becomes:

(i) $\lambda e.e = \iota e'(\text{dinner}(e') \wedge \text{Loc}(e') = \text{CP} \wedge e' \leqslant g(s))$

If this event property then combines with the *as if* denotation (140) before integrating with the perfective operator PF, we end up with a result similar to before:

(ii) $[\![[_{\text{TP}_{\langle s,t \rangle}} Past[\lambda s[s[Topic[\lambda s'[_{\text{AspP}}[\text{PF}\ s'][_{\langle s,t \rangle}[_{\text{DP}}the\ s'\ dinner\ at\ CP]$
      $[was[_{\langle s,t \rangle}as\ if\ an\ angel\ was\ peeing\ on\ my\ tongue]]]]]]]]]]\!]^{c,g_c} =$
      $\lambda s_s.C_c(s)(s_{topic_c}) \wedge \exists e(e \leqslant s \wedge e = \iota e'(\text{dinner}(e') \wedge \text{Loc}(e') = \text{CP} \wedge e' \leqslant s) \wedge$
      $\forall e'(e' \in F_c(e)([\![an\ angel...]\!]^{c,g_c}) \rightarrow R_c(e)(e')))$

      Defined only if $\tau(s_{topic_c}) < \text{UT}_c$.

Since this is not a paper on aspect or the lack thereof in predicative constructions, we do not try to decide between the two compositional processes, both of which serve to illustrate how our hypothetical comparative semantics can be extended to nominal predicative uses given that the differences between these processes are tangential to the core analysis.

different components of our hypothetical comparative semantics were
motivated by empirical facts pertaining to *as if*. Situation counterparts
are picked out using a relation of stereotypicality rather than similarity
to avoid making bad predictions about contrary-to-expectation sentences
like (58) and (59). Additionally, the dimension of resemblance isn't
restricted to manner but extends to other properties of eventualities
so as to account for temporal examples like (64), locative examples like
(65), and other non-manner interpretations. Interestingly, this flexibility
seems to be specific to English *as if*—German *wie wenn* cannot be used
for event-external spatiotemporal modification (Bücking 2017).

Carrying over the hypothetical comparative semantics to perceptual
resemblance reports, we proposed that the *as if*-complements in
these examples convey ways of seeming, looking, feeling, or otherwise
perceiving through a variety of modalities, and we motivated this
manner-like analysis over an alternative account on which the *as
if*-phrases in PRRs express the content of propositional attitude
ascriptions. We also discussed how our semantics can be extended
to nominal predicative uses, though we suggested that these examples
might involve both the comparison of entities and events to counterparts
in stereotypical circumstantially accessible worlds. In sum, we have
defended a unified formal semantics for the three descriptive varieties
of *as if* highlighted in the introduction that is nevertheless versatile
enough to account for variations arising in their meanings.

This leaves us with exclamatory uses, which we discuss in a second
part of our project. Some additional examples of root independent *as
if*s are provided below:

(143)   As if I'll ever be good enough to play in the NBA!
        ⤳ I'll never be good enough to play in the NBA.

(144)   A: Will you go to the party?
        B: As if I'd ever {go to/miss} a party like that.
            ⤳ I'd never {go to/miss} a party like that.

Even a superficial examination of such independent uses shows that they
behave very differently from the three descriptive categories of *as if* with
respect to both their structural and semantic properties. The main
interpretive difference is that independent uses convey a strong denial
of the prejacent proposition despite the absence of any overt negating
element, while in adverbial and other non-root examples the truth of the
prejacent is generally left open. Structurally, the most striking contrast
is the absence of a matrix clause eventuality altogether. Furthermore,
root *as if*s unlike their non-root counterparts cannot be uttered out

of the blue, they license NPIs, and they are often associated with an incredulous negative affect. These differences pose significant challenges for a unified account of *as if*s, but we ultimately motivate and develop a hypothetical comparative analysis for independent uses as well, and argue for its superiority over alternative non-unified accounts.

While we've covered a lot of ground in the current paper, and cover even more in follow-up work, there remain many avenues for further research that we leave unexplored. First, there are aspects of our analyses that we touched upon but require further development, such as the need for a more precise degree-semantic analysis of resemblance to handle examples with degree modifiers like (70)-(72) and (145) below:

(145) He looked more as if he were trying to knock a small dog off his cuff than as if he were executing a karate kick. (COCA)[46]

Future work also warrants a deeper look into causal uses like (82) and (83), briefly discussed in §3.6 where we tentatively endorsed a Bücking + Zobel-inspired analysis of such examples on which they involve a higher syntactic attachment site for the *as if*-clause.

Another important question relates to the extent to which our hypothetical comparative semantics for *as if* can inform the analyses of related lexical items. *As if* is a near-synonym for both *as though* and *like*, which are often inter-substitutable in modification uses and PRRs:[47]

(146) Pedro danced {as if/as though/like} he was possessed by demons.

(147) It smells {as if/as though/like} someone has been smoking in the airplane restroom.

However, there are a number of distributional differences. First, *as if* and *like* differ in terms of the kinds of complements they can take. For one thing, *like* accepts DP complements but *as if* does not:

(148) Alfonso danced {like/*as if} Michael Jackson.

(149) Luke looks {like/*as if} his father.

For another, *as if* accepts infinitival complements but *like* does not:

(150) Kate moved {as if/*like} to hug her.

Moreover, while *as though* can occur in sarcastic uses like (151), these occurrences are rarer in present-day English (sarcastic *as though* is far

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[46]Thanks to Alex Kocurek for this example.

[47]Interestingly, the concessive meaning of *though* in Present-Day English is thought to have evolved from a conditional *even if*-like meaning that was in use as late as Early Modern English (König & Siemund 2000).

less frequent than sarcastic *as if* in COCA) and substituting *as though* for *as if* in sarcastic cases often sounds awkward:

(151) Are these petty games fun for you? Canceling my credit cards to what? Show me who's boss? As though I need them. As though I don't have my own money. (Corpus of American Soap Operas via Brinton 2014)

(152) A: What is the capital of Baltimore?
B: ??As *though* Baltimore has a capital!

There are also no *Clueless as though*s or *like*s:

(153) A: Zack and Kelly are going steady.
B: *As *though*!/Like!

We leave further investigation of the semantic and syntactic differences between *as if*, *as though*, and *like* for another occasion.

Additionally, as we emphasized in this paper, *as if*-sentences, though idiomatic, are also related to regular *if*-conditionals such as (154), with which they share many morphosyntactic and inferential features:

(154) If Pedro is possessed by demons, we should call an exorcist.

As if-sentences are also related to comparative *as* constructions like (48)-(50), repeated below as (155)-(157):

(155) Pedro danced {as/like} he always does—reluctantly and with little emotion.

(156) Hodor is tall {as/like} a tower.

(157) Elanor dressed {as/like} Sherlock Holmes for Halloween.

There are at least two observations to make about these comparative sentences. First, they seem to involve some notion of stereotypicality, as in the case of *as if*—for instance, (156) relies crucially on prototypical towers being tall. Second, *like*, which is often interchangeable with *as if* when it appears with finite clausal complements, is also interchangeable with *as* in the above examples where it appears with DP complements. In fact, (156) has a close paraphrase with *as if*:

(158) Hodor is tall {as if/like} he is (not a man but) a tower.

Panning out, we view our cross-categorical study of *as if* as part of the broader project of understanding how conditionality and comparativity are expressed in natural language, and it will be interesting to explore the extent to which the machinery introduced in our analysis of *as if*—such as our use of a flexible resemblance relation or a stereotypical

ordering source—can be applied to other expressions. There are, of course, non-comparative *as*-phrases as well (see also note 15):

(159)   The Post Office returned the letter as undeliverable. (Zobel 2016)

(160)   Context: Jack works as a professor and a bartender.

   As a bartender, Jack pulled in fifty thousand dollars last year.

It remains to be seen how much overlap there is, if any, between *as if* modifiers and other superficially similar expressions such as these.

A   More Compositional Details

In this appendix, we provide a more complete semantic interpretation of the manner use (51) and lay out the ingredients needed to analyze the other examples discussed throughout the paper.

(51)   Pedro danced as if he was possessed by demons.

Along with the contextual parameters introduced for our hypothetical comparative semantics for *as if*, we assume that context supplies an assignment function g_c for evaluating referential pronouns like *he* in the *as if*-phrase (Heim & Kratzer 1998), which is interpreted as a free variable that co-refers with *Pedro*:

(161) $[\![Pedro]\!]^{c,g} = \mathrm{Pedro}_e$

(162) $[\![he_x]\!]^{c,g} = g(x)$ (where $g_c(x)$ is Pedro in the context c of (51))

As mentioned in §3.5, eventualities are introduced by a Neo-Davidsonian lexical semantics (Carlson 1984; Parsons 1990; Krifka 1992; among others), where verbs denote properties of eventualities:

(163) $[\![dance]\!]^{c,g} = \lambda e_s.\mathrm{dance}(e)$

(164) $[\![possess\text{-}by\text{-}demons]\!]^{c,g} = \lambda e_s.\mathrm{possess\text{-}by\text{-}demons}(e)$[48]

These eventualities are linked to their participants via thematic roles (functions of type $\langle s, e \rangle$, such as Agent and Theme), which are introduced by syntactic correlates in LF (Kratzer 1996):

(165) $[\![Agent]\!]^{c,g} = \lambda V_{\langle s,t \rangle}.\lambda x_e.\lambda e_s.V(e) \wedge \mathrm{Agent}(e) = x$

(166) $[\![Theme]\!]^{c,g} = \lambda V_{\langle s,t \rangle}.\lambda x_e.\lambda e_s.V(e) \wedge \mathrm{Theme}(e) = x$

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[48]For ease of exposition, we suppress some compositional details when interpreting the material embedded under *as if*. See Bledin & Srinivas (2019) for a more detailed treatment using a passivization operator and thematic analysis of *by*-phrases based on Landman (2000).

Higher up in the clausal hierarchy above the VP-layer is the aspectual layer where a perfective or imperfective operator existentially binds the eventuality argument and takes us from eventualities to larger situations by situating an eventuality with respect to a situation parameter s that can later be saturated with a topic/reference situation supplied by tense. For perfective aspect, we use the following situational variant of Beck & von Stechow's (2015) perfective operator that locates an eventuality within its situation argument:

(167) $[\![\text{PF}]\!]^{c,g} = \lambda s_s.\lambda V_{\langle s,t\rangle}.\exists e(e \leqslant s \wedge V(e))$

Our more complicated imperfectivity operator IMPF is based on the proposal in Arregui et al. (2014) (who build on Cipria & Roberts 2000), which involves a contextually or linguistically determined accessibility relation $\mathcal{R}_{\langle s,\langle s,t\rangle\rangle}$ whose range of interpretations correspond to temporal, generic, and modal flavors of imperfectivity—in example (51), think of $\mathcal{R}$ as returning time-slices of the situation parameter s, which will help ensure that Pedro was possessed by demons at the time of his dancing:

(168) $[\![\text{IMPF}]\!]^{c,g} = \lambda s_s.\lambda V_{\langle s,t\rangle}.\forall s'(\mathcal{R}(s)(s') \to \exists e(e \leqslant s' \wedge V(e)))$

Higher still in the clausal hierarchy is tense, which is given a referential analysis (Partee 1973; Kratzer 1998; Hacquard 2006). In particular, we assume that the tense layer above aspect contributes one of the situational pronouns in (169), where *Present* and *Past* both refer to the topic situation s_{topic_c} and carry the presupposition that its "runtime" $\tau(s_{topic_c})$ (Krifka 1989) overlaps with or precedes the utterance time UT_c respectively, and the zero tense $\varnothing_s$ allows us to implement Kratzer's (1998) analysis of 'sequence of tense':

(169) **English tense pronouns**
    a. $[\![Present]\!]^{c,g} = s_{topic_c}$. Defined only if $\tau(s_{topic_c}) \approx \text{UT}_c$.
    b. $[\![Past]\!]^{c,g} = s_{topic_c}$. Defined only if $\tau(s_{topic_c}) < \text{UT}_c$.
    c. $[\![\varnothing_s]\!]^{c,g} = g(s)$.

Note that feeding a proposition returned by aspect directly into tense would return a truth value of type t rather than a proposition of type $\langle s,t\rangle$ as desired. To ensure that the final output of the compositional machinery is propositional, we follow Schwarz (2009) in assuming that a Topic operator mediates between the aspectual and tense layers (the integration of Topic with the situational treatment of tenses builds on an earlier version of Kratzer 2012; see also Ramchand 2014):

(170) $[\![Topic]\!]^{c,g} = \lambda p_{\langle s,t\rangle}.\lambda s'_s.\lambda s_s.C_c(s)(s') \wedge p(s)$[49]

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[49]We need to use the counterpart relation C here because topic situations are

Lastly, we need our *as if* entry (74), which is restated below:

(171) $[\![as\ if]\!]^{c,g} = \lambda p_{\langle s,t\rangle}.\lambda s_s.\forall s'(s' \in F_c(s)(p) \rightarrow R_c(s)(s'))$

Applying these semantic ingredients, we interpret the prejacent of the *as if*-phrase in (51) as follows:

(172) $[\![[_{\mathrm{TP}_{\langle s,t\rangle}} \varnothing_s [\mathit{Topic}[\lambda s'[_{\mathrm{AspP}}[\mathrm{IMPF}\ s']$
$[_{\langle s,t\rangle} he_x\ was\ possessed\ by\ demons]]]]]]]^{c,g} =$
$\lambda s_s.C_c(s)(g(s)) \wedge \forall s'(\mathcal{R}(s)(s') \rightarrow \exists e(e \leqslant s' \wedge$
possess-by-demons$(e) \wedge$ Theme$(e) = g(x)))$

Feeding this proposition into the *as if* entry (171) delivers the following property of situations:

(173) $[\![[_{\langle s,t\rangle} as\ if...[_{\langle s,t\rangle} he_x\ was\ possessed\ by\ demons]]]\!]^{c,g} =$
$\lambda e_s.\forall e'(e' \in F_c(e)((172)) \rightarrow R_c(e)(e'))$

Assuming that the matrix tense *Past* is raised in order to bind the zero tense in the *as if* complement, (51) is fully interpreted as follows:

(174) $[\![[_{\mathrm{TP}_{\langle s,t\rangle}} Past[\lambda s[s[\mathit{Topic}[\lambda s'[_{\mathrm{AspP}}[\mathrm{PF}\ s'][[_{\mathrm{DP}} Pedro][Agent$
$[_{\mathrm{VP}}[_{\mathrm{VP}} dance][_{\langle s,t\rangle} as\ if[_{\mathrm{TP}_{\langle s,t\rangle}} \varnothing_s[\mathit{Topic}[\lambda s'[_{\mathrm{AspP}}[\mathrm{IMPF}\ s']$
$[_{\langle s,t\rangle} he_x\ was\ possessed\ by\ demons]]]]]]]]]]]]]]]]]]]^{c,g_c} =$

$\lambda s_s.C_c(s)(s_{topic_c}) \wedge \exists e(e \leqslant s \wedge$ dance$(e) \wedge$ Agent$(e) =$ Pedro$\wedge$
$\forall e'(e' \in F_c(e)(p) \rightarrow R_c(e)(e')))$

where $p = \lambda s_s.C_c(s)(s_{topic_c}) \wedge \forall s'(\mathcal{R}(s)(s') \rightarrow \exists e(e \leqslant s' \wedge$
possess-by-demons$(e) \wedge$ Theme$(e) =$ Pedro$))$

Defined only if $\tau(s_{topic_c}) < \mathrm{UT}_c$.

Using these same compositional ingredients, we can also interpret the perceptual resemblance report (87) as follows (only the hypothetical comparative analysis from §4.2 is spelled out in more detail, though it should be clear how the propositional attitude-like analysis from §4.1 would proceed):

(87) Pedro danced as if he was possessed by demons.

(175) $[\![[_{\mathrm{TP}_{\langle s,t\rangle}} Present[\lambda s[s[\mathit{Topic}[\lambda s'[_{\mathrm{AspP}}[\mathrm{IMPF}\ s'][[_{\mathrm{DP}} Banner]$
$[PSOURCE[_{\mathrm{VP}}[_{\mathrm{VP}} seems[_{\mathrm{PP}} to\ Thor]]$
$[_{\langle s,t\rangle} as\ if[_{\langle s,t\rangle} he_x\ is\ morphing\ into\ Hulk]]]]]]]]]]]]]]]]^{c,g_c} =$

$\lambda s_s.C_c(s)(s_{topic_c}) \wedge \forall s'(\mathcal{R}(s)(s') \rightarrow \exists e(e \leqslant s' \wedge$
seem$(e) \wedge$ PSOURCE$(e) =$ Banner $\wedge$ PGOAL$(e) =$ Thor$\wedge$

---

world-bound, and as Schwarz discusses, speakers are not omniscient but often only privy to a relevant subset of properties of the topic situation.

$\forall e'(e' \in F_c(e)(\llbracket Banner \ is \ morphing \ into \ Hulk \rrbracket^{c,g_c}) \rightarrow R_{way_c}(e)(e')))$

Defined only if $\tau(s_{topic_c}) \approx \mathrm{UT}_c$.

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