

A Past Passive Participle Puzzle¹

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Abstract

In standard passive constructions, the passive participle is temporally neutral, but in a variety of other contexts it appears to express past-shifting, just like the past participle in a perfect construction does. In this paper I document this variation in temporal interpretation, and propose an account of it in terms of familiar conditions on perfective and imperfective predicates. Adjectival passives are also considered.

1. Perfect participles, passive participles, and past passive participles

The English past participle has a schizophrenic nature. On the one hand, it functions as a perfect participle, combining with the auxiliary verb *have* to convey the perfect aspect, as in (1). On the other hand, it functions as a passive participle, combining with the auxiliary verb *be* to convey the passive voice, as in (2).

- (1) a. Many directors *have mentioned* Lois Weber. (perfect)
b. Dante *has bitten* Phoebe.²
- (2) a. Lois Weber *is mentioned* by many directors. (passive)
b. Phoebe *is bitten* by Dante.

From a morpho-phonological perspective, perfect participles and passive participles are identical. This is true of all verbs, including irregular verbs: for every English verb, there is just one “past” participle, which can function either as a perfect participle or as a passive participle—provided that the verb is compatible with the passive.

Nevertheless, from a syntactic and semantic perspective, perfect participles and passive participles seem to be quite different from each other, and many formal syntactic analyses treat them like distinct entities. Aside from the obvious difference in voice, and the difference in the choice of auxiliary verbs (*have* with the perfect vs. *be* with the passive), there is a temporal distinction between the perfect and the passive: the perfect contributes “past shifting,” whereas the passive does not. This is

¹ Please read the postscript.

² As reported in Borer & Borer (2022).

evident in the contrast between (1) and (2): in (1) the biting and mentioning took place in the past, whereas in (2) they are situated in the present. Furthermore (2) conveys a habitual interpretation. (More on this in Section 3.)

If there is just one past participle, as the morpho-phonological evidence suggests, why does it seem to have a split personality in terms of its temporal interpretation? More specifically, why doesn't the passive convey past-shifting, when it is formed from the same participle that is used to convey past-shifting in the perfect? This, of course, raises the question of why, or rather how, the perfect conveys past-shifting in the first place.³ These two issues provide the background for this study.

It is tempting, as a first approximation, to assume that the absence of past-shifting in passive constructions like those in (2) is directly related to the shift from active to passive voice.⁴ Perhaps past-shifting is intrinsic to the past participle, but is suppressed or deactivated by the passive voice. Or perhaps the participle is capable of expressing *either* temporal past-shifting *or* passive voice, but for some reason cannot express both at the same time.

However, the interpretation of the past participles in (3) provides *prima facie* evidence against either of these hypotheses. Unlike the standard passive construction in (2), the passive constructions in (3) convey both passive voice and past-shifting at the same time. I call them "past passive participles." They occur as reduced relative clauses (both restrictive and appositive), as reduced depictive adjuncts, and as reduced conditional, temporal, and concessive adjuncts.

- (3)
- a. The cat burglar *arrested in Imperial Hall* is drinking a cup of tea.
 - b. Russia, *expelled last month from the Council of Europe*, has threatened to use its nuclear arsenal.
 - c. *Etched by wind and erosion*, the natural arch is a leading tourist attraction.
 - d. *If scratched by Dante*, Phoebe always struck back.

In these examples, the past participle occurs in its pure form, unadorned by a preceding auxiliary verb. The voice that it conveys is passive. And the temporal interpretation that it conveys is past-shifting, like a perfect.

In (3a), the cat burglar's arrest, conveyed by the passive participle, is situated in the past, prior to the present time at which the intruder is drinking tea. (3b) conveys that Russia's expulsion from the Council predates its threat to go nuclear. (3c) implies that the arch was etched by wind and erosion before it was a tourist

³ See Campbell (1989) and Stowell (2008) for discussion of this question.

⁴ It seems unlikely that the passive auxiliary verb *be* is responsible for deactivating past-shifting, since the copula serves as the auxiliary for the perfect with unaccusative verbs in many Indo-European languages, with the usual past-shifting semantics. The verb *get* also combines with the passive participle, with causative transitive and inchoative unaccusative variants: *She got the job done* vs. *The job got done*. These so-called *get*-passives do not seem to differ from garden-variety passives in terms of their temporal interpretation.

attraction.⁵ In (3d), Dante scratches Phoebe before she strikes back. Thus, the examples in (3) present us with precisely the combination of passive voice and temporal past-shifting that is unavailable in either (1) or (2). Why is this possible in (3) but not in (1) or (2), and what does it tell us about the properties of the past participle? These are the questions that I will seek to find answers to here.

The solution that I will propose has three central ingredients, all of which are familiar from the prior literature on tense and aspect. The first ingredient is a collection of familiar observations related to perfectivity. The central assumption is that the past participle retains the aspectual properties of the active predicate from which it is formed. Episodic eventive predicates are intrinsically perfective; past participles formed from them are perfective as well. Stative predicates are intrinsically imperfective; past participles formed from them are imperfective too. Various formatives can merge with a predicate to change its aspectual type; in particular, either the progressive aspect or habitual/dispositional modality can combine with a perfective predicate to make it imperfective. Most verbal past participles can also be converted into adjectives; the resulting “adjectival passives” are stative, like other adjectives, regardless of the aspectual status of the verbal root that the participle is formed from.

The second ingredient in the solution that I will propose is the familiar fact about perfective predicates: they typically introduce new time points, and they resist being anaphorically bound by other time-denoting expressions. Imperfective predicates are the opposite: they do not introduce new times, and they must typically be anaphorically linked to times that are independently expressed or implied in the surrounding discourse.

The third ingredient is a particular theory of tense that I have explored in previous work. I will only mention two assumptions of this theory here. The first is that the present and past tenses in English, and perhaps in other languages as well, are covert (phonetically null), though other constituents in the clause may require their presence. The second assumption is that, in general, either covert present tense or covert past tense is freely available in various types of clauses, though each clause may contain just one or the other.

I will show that these three ingredients conspire together to yield a past-shifting interpretation for the passive clauses in (3) that is unavailable for the standard finite passive construction in (2). The rest of the paper is devoted to documenting and explaining the temporal interpretations of the past passive participles introduced in (3), and considering their implications for the analysis of the perfect.

In Section 2, I discuss how finite tenses and perfect aspect jointly contribute to the temporal interpretation of the clauses in which they co-occur, contrasting this with the combination of finite tense and passive voice. In Section 3, I discuss differences between stative predicates on one hand and episodic eventive predicates on the other. In Section 4, I introduce past passive participles in far greater detail and propose that the range of possible past-shifted interpretations that these clauses

⁵ The passive participle in (3c) is ambiguous: it can be either verbal or adjectival. See Section 6 for discussion.

receive can be accounted for in terms of a structural scope ambiguity. I also suggest that the past-shifted interpretations in (3) are due to a covert past tense within the passive participle reduced clauses. In this context I point out some apparent parallels with relative clauses containing perfect aspect in Mandarin brought to light by Sun and Demirdache (2022).

In Section 5, I discuss the principles determining the temporal interpretation of other types of nominal modifiers, including prepositional phrases, adjective phrases, and present participle phrases, and show how passive participle modifiers fit into this system. In Section 6, I consider the possibility that past passive participles are really resultant-state adjectival passives, in the sense of Kratzer (2000), and conclude that some are probably adjectival but others are verbal. Section 7 draws some general conclusions.

2. Past-shifting in the perfect, and its absence in the passive

The sentences in (1) and (2) all contain finite present tense, but only those with perfect aspect in (1) have a past-shifting interpretation, locating the eventuality prior to the time of speech, like the simple (preterit) *past* in (4).

- (4) a. Many directors *mentioned* Lois Weber.
 b. Dante (often) *bit* Phoebe.

In contrast, the passive examples in (2) are temporally identical to the present tense active sentences in (5):

- (5) a. Many directors *mention* Lois Weber.
 b. Dante (often) *bites* Phoebe.

The same is true when the finite present tense in (1) and (2) is replaced by the finite past tense, as in (6) and (8), or by the future-shifting modal *will*, as in (7) and (9); the perfect is temporally complex in a way that the passive is not.

- (6) Lois sat in her garden on Sierra Bonita.
 She *had formed* her own film company in 1917. (~~=~~ She formed it in 1917.)
- (7) Dante will fall asleep by the window.
 He *will have eaten* Fancy Feast for lunch. (~~=~~ He will eat it for lunch)
- (8) Lois *sat* in her garden on Sierra Bonita.
 Her own film company *was formed* in 1917. (= She formed it in 1917.)
- (9) Dante *will fall* asleep by the window.
 Fancy Feast *will be eaten* for lunch. (= He will eat it for lunch.)

It is helpful to distinguish between the semantic contribution of the finite tense (or the future modal *will*) on one hand, and the contributions of the perfect or

passive on the other. In all cases, the finite tense or modal determines the assertion time—the time about which the sentence makes an assertion. The finite present tense in (1) to (4) locates the assertion time at the time of speech, i.e. simultaneous with it.⁶ In contrast, the finite past tense in (6) & (8) locates the assertion time *before* the time of speech, and the future-shifting modal *will* in (7) and (9) locates the assertion time *after* the speech time.

In (6), and (7), the perfect introduces an additional time point distinct from the assertion time that the finite tense provides. This additional time is located prior to the assertion time; in other words, it is past-shifted in relation to the assertion time, and the eventuality conveyed by the predicate on which the perfect participle is based is temporally located at this additional past-shifted time. The finite tense is merged morphologically with the perfect auxiliary verb *have*, and consequently the assertion time of the perfect is sometimes characterized as the “having time.” If the predicate in the participle is eventive, the “having time” is characterized as a “result state” time—the time interval that begins with the completion of the event. In contrast, in (2), (8), and (9), the passive does not contribute an additional time; it simply situates its eventuality at the assertion time provided by the finite tense, just like its active counterpart.

There is a further difference between the temporal interpretations of the perfect and the passive in these examples. The past perfect and future perfect both require an antecedent for their assertion time (the “having time” or result state time); in this sense, the assertion time of the perfect is a temporal analogue of an anaphor. Typically, the assertion time of the past or future perfect is linked anaphorically to the assertion time or eventuality time of the preceding sentence in a discourse. For this reason, a discourse that begins with a future or past perfect tends to sound anomalous, elliptically referring to a missing antecedent time.⁷

This anaphoric effect is evident in (6) and (7). In each case the assertion time of the second sentence (the result state time) is understood to coincide with the event time of the first sentence; the perfect then past-shifts the eventuality time of the second sentence to a time prior to that. Consequently, in (6), Lois had formed her film company before she sat in her garden; and in (7), Dante will have eaten lunch before he falls asleep by the window.

There is no comparable anaphoric binding of the assertion times of the passive predicates in the second sentences in (8) and (9); even though the assertion times of both sentences in (8) are located in the past, as in (6), the two assertion times are completely independent of each other and therefore they are free to occur in either order. The same is true of the future-shifted assertion times in (9). Consequently the eventuality times are unordered relative to each other as well. In (8), Lois’s film company may have been formed either before or after the time when she sat in her garden, and Dante’s lunch in (9) may either precede or follow his nap.

⁶ The English present perfect is more complicated than this brief discussion implies.

⁷ This difference between the perfect and the passive probably reflects an aspectual difference between them: the perfect auxiliary verb *have* conveys the result state time and is intrinsically stative, whereas the aspectual status of the passive is determined by that of the predicate that it is based on.

The anaphoric behavior of the perfect is evident in the past perfect and future perfect because their assertion times are shifted away from the speech time. With the present perfect, there is no comparable shift: the assertion time coincides with the speech time; arguably, it is anaphorically bound by the speech time.⁸

3. Imperfective, stative, & habitual vs. perfective & episodic eventive

In my discussion thus far, I have avoided mentioning the distinction between stative and eventive predicates. Yet it is well known that this distinction plays a critical role in the interpretation of tenses, especially with regard to interpretations involving simultaneity or coincidence of one eventuality with another. Let's begin with a brief discussion of the distinction between stative predicates and eventive predicates in this respect.⁹ Stative predicates, including VPs headed by verbs like *love*, *own*, *admire*, and *believe*, can freely occur in sentences with either past or present tense, or with a future-shifting modal, without any change of meaning other than the contribution of the tense or modal. This is true both of stative verbs in their active forms, as in (10a-c), and of their passive counterparts in (10d-f):

- (10) a. Dante *loves/loved/will love* Phoebe.
 b. Many directors *admire/admired/will admire* Lois.
 c. She *owns/owned/will own* a fine Craftsman house.
 d. Phoebe *is/was/will be* loved by Phoebe.
 e. Lois *is/was/will be* admired by many directors.
 f. Fine craftsman houses *are/were/will be* owned by Hollywood royalty.

But eventive predicates behave differently. Sentences containing the simple present tense must be construed habitually or dispositionally if the present tense is used to convey simultaneity with the speech time. In this case, the tense locates the habit or disposition at the speech time, rather than locating actual individual events there. This is true of (2a&b) and (5a&b) above, and the phenomenon is quite general. For example, the eventive verbs *eat*, *drink*, *smoke*, and *fly* can freely refer to a single episodic event located in the past (11a) or future (11b), but when the present tense is used to locate the eventuality at the speech time, only a habitual or dispositional interpretation is possible, as in (11d); the episodic interpretations in (11c) are anomalous.¹⁰ In all cases, the same facts hold for both the active and passive versions of all eventive (non-stative) verbs.

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|---------|----------------------------------|---|
| (11) a. | David <i>ate</i> an anchovy. | An anchovy <i>was eaten</i> by David. |
| | Zeina <i>smoked</i> a cigarette. | A cigarette <i>was smoked</i> by Zeina. |
| | Barry <i>flew</i> that plane. | That plane <i>was flown</i> by Barry. |

⁸ If the speech time is represented structurally in the syntactic representation.

⁹ I assume familiarity with Vendler's 1957 distinction; his subdivision of events into activities, accomplishments, and achievements will not concern me here.

¹⁰ Progressive forms of eventive predicates also allow simultaneous interpretations.

- | | | |
|----|--|---|
| b. | David <i>will eat</i> an anchovy.
Zeina <i>will smoke</i> a cigarette.
Barry <i>will fly</i> that plane. | An anchovy <i>will be eaten</i> by David.
A cigarette <i>will be smoked</i> by Zeina.
That plane <i>will be flown</i> by Barry. |
| c. | # David <i>eats</i> an anchovy.
Zeina <i>smokes</i> a cigarette.
Barry <i>flies</i> that plane. | # An anchovy <i>is eaten</i> by David.
A cigarette <i>is smoked</i> by Zeina.
That plane <i>is flown</i> by Barry. |
| d. | David <i>eats</i> anchovies.
Zeina <i>smokes</i> cigarettes.
Barry <i>flies</i> that plane. | Anchovies <i>are eaten</i> by linguists.
Cigarettes <i>are smoked</i> by women.
That plane <i>is flown</i> by Barry. |

That simultaneity with the speech time is the critical factor for the intended episodic interpretations in (11c) is shown by the fact that all of these sentences are perfectly natural, even with an episodic interpretation, if they are used as captions for a photograph or drawing, or as titles for a human-interest story in a newspaper, or as chapter titles in a novel, or as newspaper headlines reporting events that have taken place in the recent past, none of which involve an attribution of simultaneity with the speech time, or any other time.

The same effect is evident in complement clauses of intensional predicates whenever the complement clause has a “simultaneous” or “relative present” interpretation relative to the time of the intensional predicate:¹¹ Stative predicates are fully compatible with simultaneity, but eventive predicates must have a habitual interpretation. For example, in “Sequence of Tense” environments, a simple past tense in the complement clause can convey either simultaneity or past-shifting with respect to the time of the matrix intensional predicate if the complement clause predicate is stative or habitual; but if the predicate refers to a single episodic event, the simultaneous interpretation is excluded.

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|------|----|---|----------------------------|
| (12) | a. | Eric <i>said</i> that Dante <i>loved</i> Phoebe. | (simultaneous OK) |
| | b. | Eric <i>said</i> that Zeina <i>smoked</i> a cigarette. | (past-shifted only) |
| | c. | Eric <i>said</i> that Phoebe was loved by Dante. | (simultaneous OK) |
| | d. | Eric <i>said</i> that a cigarette was smoked by Zeina. | (past-shifted only) |
| (13) | a. | Eric <i>will say</i> that Dante <i>loves</i> Phoebe. | (simultaneous OK) |
| | b. | #Eric <i>will say</i> that Zeina <i>smokes</i> a cigarette. | (*simultaneous episodic) |
| | c. | Eric <i>will say</i> that Zeina <i>smokes</i> cigarettes. | (habitual simultaneous OK) |
| | d. | Eric <i>will say</i> that Phoebe <i>is loved</i> by Dante. | (simultaneous OK) |
| | e. | #Eric <i>will say</i> that a cigarette is smoked by Zeina. | (*simultaneous) |
| | f. | Eric <i>will say</i> that cigarettes are <i>smoked</i> by celebrities | (like 13c) |

¹¹ Or to the “now” of the attitude holder, as in Abusch (1997) and others.

Theories differ on the semantic factor that excludes simultaneous interpretations of episodic eventive predicates, and on the details of why habitual interpretations of eventive predicates behave like stative predicates. For the sake of concreteness, I will mention Giorgi and Pianesi's (1997) proposal. They attribute the simultaneity prohibition to what they call the *Punctuality Constraint*, which prohibits 'closed' (perfective) events from being simultaneous with a 'punctual event,' i.e. an event that behaves as if it is instantaneous. They propose that English eventive verbs are intrinsically perfective in their bare root forms. They also follow Dowty (1979) in assuming that the Speech Time of a main clause is idealized as a punctual event; hence the Punctuality Constraint prevents perfective predicates from being simultaneous with the Speech Time. Giorgi and Pianesi also propose that intensional predicates are punctual, in the same way that they assume the actual Speech Time is, thus extending the purview of their Punctuality Constraint to relations between tenses in subordinate clauses and the temporal co-ordinates of matrix intensional predicates. This accounts directly for the data in (12) and (13).¹² Though I am skeptical about Dowty's punctuality proposal, for reasons immaterial to our present concerns, I will adopt Giorgi and Pianesi's account based on it here for the sake of concreteness.

4. Passive participles that past-shift

4.1 Past-shifting passives in restrictive reduced relatives

Past passive participles can function as restrictive reduced relative clauses, as in (14):

- (14) a. A cat burglar *arrested in Imperial Hall* is drinking a cup of tea.
b. We visited a natural arch *etched by wind and erosion*.
c. Our great grandchildren will live in houses *built by robots*.

In (14a) the main clause present tense locates the tea-drinking event at the speech time. The passive participle is past-shifted relative to this time; but it is unclear whether it is past-shifted directly in relation to the speech time or indirectly, via the tea-drinking time. Perhaps both options are possible.

In (14b), the main clause asserts that we visited a natural arch at some time in the past; on the most salient interpretation, the etching time preceded this visit, suggesting that the passive participle is past-shifted relative to the matrix eventuality time. But the salience of this interpretation is probably influenced by knowledge that geological formations are typically shaped over a period of millennia. If we admit the

¹² They assume that when eventive verbs are construed habitually, Cherchia's (1995) quantificational generic operator has displaced the perfective feature on the verb. As for the progressive aspect, they follow Dowty (1979) in assuming that progressive involves an intensional operator, and claim that the perfective status of a progressive verb is purely intensional.

possibility of rapid and recent geological change, it is possible to interpret the etching of the arch to have occurred *after* our visit, though still prior to the speech time. This less salient interpretation involves past-shifting relative to the speech time rather than relative to the matrix eventuality time. These two types of past-shifting are the only options; the etching of the arch cannot be understood to coincide with our visit.

In (14c), the main clause asserts that our great grandchildren will live in robot-built houses at some time in the future; the building time obviously has to precede the future living time. But the building time need not precede the speech time; indeed, on the most natural interpretation, it does not. So past-shifting relative to the matrix eventuality time must be possible here.

Taken together, the interpretations of (14a-c) show that the eventuality times of these passive participles can be past-shifted in relation to either the speech time or the matrix eventuality time. This is precisely the pattern that has been documented in the literature on the syntax and semantics of tense for restrictive finite relative clauses containing a simple past tense, like the examples in (15):

- (15) a. A cat burglar *who was arrested in Imperial Hall* is drinking a cup of tea. cf. (14a)
 b. We visited a natural arch *that was etched by wind and erosion*. cf. (14b)
 c. Our great grandchildren will live in houses *that were built by robots*. cf. (14c)

The finite relative clauses in (15b,c) are ambiguous in exactly the same way as their counterparts are in (14b,c). This is circumstantial evidence in favor of the hypothesis that the reduced relative clauses in (14) contain a covert past tense counterpart to the overt past tenses in (15). (15a), like (14a), is unambiguous, for the same reason: the speech time and main clause event time coincide.

Previous research on tense interpretation in finite clauses has established that tenses in finite relative clauses behave somewhat differently from tenses in the complement clauses of intensional predicates. The interpretation of tenses in complement clauses is always sensitive to the temporal interpretation of the matrix intensional predicate,¹³ but tenses in relative clauses are not necessarily sensitive to the tense of the matrix clause in which they are embedded, as observed by Enç (1987). Enç suggested that relative clause tenses are *always* interpreted directly in relation to the speech time, without regard to the tense of the main clause. But Abusch (1997) showed that this is not always correct. She pointed out that, when a relative clause is embedded within the complement clause of an intensional predicate, its tense can indeed have an independent interpretation (relative to the speech time), free of the influence of the temporal interpretation of the intensional predicate, but only if the content of the relative clause is interpreted *de re*, conveying a description provided by the speaker rather than by the reported attitude holder. A *de dicto* interpretation for the relative clause does not license an independent tense interpretation (past-shifting relative to the speech time.)

¹³ Or to the “now” of the attitude holder, as in Abusch (1997).

Our hypothesis that the past-shifted passive reduced relatives in (14) contain a covert past tense would lead us to expect similar effects to arise with passive reduced relatives in the same contexts:¹⁴

- (16) a. Phoebe believed that a cat burglar *who was arrested in Imperial Hall* drank a saucer of milk with her.
b. Eric told me that he had visited a church *that was damaged by wind and erosion*.
c. Phoebe believed that a cat burglar *arrested in Imperial Hall* drank a saucer of milk with her.
d. Eric told me that he had visited a church *damaged by wind and erosion*.

An independent tense interpretation allows the arrest in (16a&c) or damage in (16b&d) to occur after the time of the intensional predicates (or the “now” of the attitude holder). In all of these examples, this is possible only if the finite or reduced relative clause is understood *de re*, i.e. as a description contributed by the speaker. If the relative clause has a *de dicto* interpretation (that is, if the content of the relative clause is attributed to the attitude holder of the intensional predicate) the eventuality time of the relative clause must precede the time of the intensional predicate. This provides further support for the hypothesis that past-shifted interpretations of passive participles functioning as reduced relatives must involve a covert counterpart to the overt past tenses in the relative clauses in (16a,b).

In this context, it is particularly interesting to compare the data involving past passive participles discussed in this section with the interpretation of relative clauses containing perfect aspectual markers in Mandarin Chinese. Mandarin is often described as a language lacking any tense morphemes, but Sun and Demirdache (2022) show that Chinese relative clauses containing perfect aspect (but no overt tense) exhibit many of the same patterns of temporal interpretation that have been discussed in the literature on finite relative clauses in languages like English, German, and Japanese, where the data have been attributed to the semantics of tenses. This includes correlations between the construal of relative clause tenses and the *de dicto* versus *de re* status of the content of the relative clauses. On the basis of this, they argue that these superficially tenseless relative clauses must in fact contain silent tenses. The parallel with the past passive participles in reduced relative clauses discussed in this section is striking; indeed, my discussion of the examples in (16) is inspired by their discussion of the Mandarin Chinese data.

Summarizing, I have reached the following interim conclusions:

- (17) a. Past passive participles in reduced relative clauses contain a covert past-shifting tense of some kind, comparable to the past tense that occurs overtly on an inflected copula in synonymous finite relative clauses.

¹⁴ My discussion here is inspired by Sun and Demirdache’s (2022) account of the interpretation of Mandarin relative clauses containing overt perfect aspect.

- b. Reduced relative clauses, like regular relative clauses, exhibit scope-induced ambiguities with respect to their temporal interpretation. The mechanism driving the scope alternations is the same kind of mechanism that derives *de re* interpretations for relative clauses in intensional contexts¹⁵.

The hypothesis that reduced relative clauses composed of passive participles contain a covert tense is reminiscent of the standard analysis of these constructions during the period of classical transformational grammar. This analysis maintained that the reduced relatives in (14) were derived from their finite counterparts in (15) by a rule that Ross (1972) called *Whiz-deletion*. This rule simply deleted the inflected copula and the preceding relative pronoun (or *that*) in (15a-c), to form (14a-c). During the era of Government-Binding theory, many similar theories involving transformational rules that deleted noun phrases or pronouns were replaced by analyses positing empty nominal categories of various sorts (trace, PRO, pro, etc.) For whatever reason, analogous analyses involving null copulas and tenses were not generally adopted to replace theories of *Whiz-deletion* and *to-be-deletion* (used to derive small clauses.) My proposal in (17a) represents a re-evaluation of this approach.

Let us now proceed to examine the temporal interpretation of passive participles occurring in other syntactic contexts.

4.2 Past-shifting passives in reduced appositives and depictive adjuncts

Past passive participles also occur in appositive reduced relatives, as in (18).

- (18) a. Russia, *expelled from the Council of Europe*, may resort to using tactical nuclear weapons.
- b. George, *hired by Grandma to manage the apartment building*, was raised in an immigrant family in Boston.
- c. The Earth, *knocked out of its orbit by a massive asteroid*, will eventually be consumed by the sun.

The passive participles in (18a&b) favor an interpretation of past-shifting relative to the speech time, just like appositive relative clauses with overt past tenses, as in (19a-b). But the reduced relative in (18c) also allows a past-shifted interpretation relative to the future matrix event time, perhaps coerced by its content. This is impossible with a finite appositive relative, which must have an independent tense construal; thus, only (19d) allows the asteroid to hit Earth in the future; (19c) does not.

¹⁵ The nature of this mechanism is controversial, and it is far beyond the scope of this paper to choose among competing accounts (movement, choice functions, concept generators, etc.).

- (19) a. Russia, *which was expelled from the Council of Europe*, may resort to using tactical nuclear weapons. – (18a)
- b. George, *who was hired by Grandma to manage the apartment building*, was raised in an immigrant family in Boston. – (18b)
- c. The Earth, *which was knocked out of its orbit by a massive asteroid*, will eventually be consumed by the sun. ≠ (18c)
- d. The Earth, *which will be knocked out of its orbit by a massive asteroid*, will eventually be consumed by the sun. = (18c)

It has been known for many years that appositive relative clauses behave in many respects as though they were main clauses, for a variety of grammatical phenomena, including the interpretation of tenses. So the possibility of interpreting (18c) as past-shifted relative to the matrix event time is unexpected and potentially problematic.

Actually, however, it is possible that the “appositive reduced relative” in (18c) is really a depictive adjunct, like the synonymous sentence-initial adjunct in (20c), but interpolated into a clause-medial position after the subject. Depictive adjunct counterparts of (18a&b) are also possible, in (20a&b).

- (20) a. *Expelled from the Council of Europe*, Russia may be tempted to use tactical nuclear weapons.
- b. *Hired by Grandma to manage the apartment building*, George was raised in an immigrant family in Boston.
- c. *Knocked out of its orbit by a massive asteroid*, the Earth will eventually be consumed by the sun.

Alternatively, it’s conceivable that the sentence-initial depictive adjuncts in (20) actually originate in the position where they occur in (18), and/or that the relation between (18) and (20) is analogous to the relation between sentence-initial correlative clauses and sentence-internal appositive relatives. Either way, it seems that the sentence-initial passive adjuncts in (20) favor independent past-shifted tense interpretations, but tolerate past-shifting relative to the matrix event time if the content of the relative is biased in that direction.

These conclusions are generally supported by comparing the finite and reduced passive depictive adjuncts placed in intensional contexts in (21):

- (21) a. Mario will tell you that George, *ordered by Grandma to lower our rent*, wants to evict us.
- b. Mario told us that George, *ordered by Grandma to lower our rent*, wanted to evict us.
- c. Mario will tell you that George, *who was ordered by Grandma to lower our rent*, wants to evict us.
- d. Mario told us that George, *who was ordered by Grandma to lower our rent*, wanted to evict us.

The passive reduced clauses in (21a&b) can be interpreted either *de dicto* or *de re*;

on the *de dicto* interpretation of (21b), Grandma's order to lower the rent must occur prior to Mario telling us about George's desire to evict us. The finite appositives in (21c&d) must be construed *de re*; in both cases Grandma's order must precede the speech time, and in (21d) it can occur after Mario telling about George's desire to evict us.

4.3 Stative passive participles don't need to past-shift

At this point I need to return to the issue of the contrast between stative/habitual predicates and episodic/eventive verbs discussed in Section 3. The contrasts discussed in that section illustrated the fact that an episodic eventive predicate cannot be understood to be simultaneous with the speech time (11) or with the time of a higher intensional verb (12-13).¹⁶

All of the past passive participles discussed in Sections 4.1 and 4.2 are based on episodic eventive verbs. This is no accident; passive participles in reduced relatives that are based on stative predicates do not trigger past-shifting interpretations in the same way. Rather, they can be interpreted like normal passives. Consider first the restrictive reduced relatives in (22a-c), involving the stative predicates *dislike*, *admire*, and *own*; they can be interpreted as simultaneous with the matrix eventuality time, like their full relative clause counterparts in (22d-f):

- (22)
- a. A cat burglar *disliked by the police* is drinking a cup of tea.
 - b. We visited a natural arch *admired by geologists worldwide*.
 - c. Our great grandchildren will live in houses *owned by robots*.
 - d. A cat burglar *who is disliked by the police* is drinking a cup of tea.
 - e. We visited a natural arch *that was admired by geologists worldwide*.
 - f. Our great grandchildren will live in houses *that are owned by robots*.

In (22d-f), the passive participles formed from the stative verbs *dislike*, *admire*, and *own* are free to combine with present-tense inflected forms of the copula in (22d&f), yielding simultaneous tense interpretations. Thus, the cat burglar is disliked at the tea-drinking time in (22d) and the houses are owned at the future time when they are lived in (22f). The past-tense form of the copula in (22e) is an instance of a sequence-of-tense simultaneous past tense; the natural arch was admired at the time of our visit. These simultaneous tense interpretations are possible because stative predicates are immune to Giorgi and Pianesi's Punctuality Constraint, discussed in Section 3.

The stative passive participles in (22a-c) are not preceded by any overt copulas or tenses, but they are interpreted in exactly the same way that the finite relative clauses in (22d-f) are, as though they contained covert counterparts to these inflected copulas. If we assume that the reduced relatives in (22a-c) do contain a

¹⁶ See footnote 11.

silent counterpart to this relative present tense, conveying simultaneity like a Japanese present tense, we can immediately account for (22a-c) and (22d-f) in the same way.

This would enable us to say that every reduced relative clause formed from a passive participle may, in principle, contain either a covert past tense or a covert present tense. If the participle is derived from an episodic eventive predicate, it is perfective, and can only combine with a covert past tense; otherwise it would violate the Punctuality Constraint.¹⁷ In principle, a stative predicate can combine with either a covert past or a covert present; but, in general, the covert present tense will be preferred, because it enables the stative predicate to be linked anaphorically to an independently given time, namely the matrix eventuality time. Recall that the assertion time of the perfect (the “having time” or “result state time”) functions like a temporal analogue of an anaphor: it needs to be anaphorically linked to a time mentioned independently. The preference for a simultaneous interpretation in (22a-c) illustrates the broader generalization that all stative predicates need to be linked to an independently given time referent, rather than introducing a new time.

Nevertheless, past-shifted interpretations of stative passive participles serving as reduced relatives are also possible, but they need to be facilitated by certain content changes. The first type of change involves replacing the indefinite article preceding the head noun with a definite article, as in (23a). The second type of change involves the insertion of temporal adverb like *once* or *previously*, as in (23b&c):

- (23) a. The cat burglar *disliked by the police* is drinking a cup of tea.
b. We visited a natural arch *once admired by geologists worldwide*.
c. Our great grandchildren will live in houses *previously owned by robots*.

I will discuss the effect of replacing the indefinite article in Section 5; the critical factor involves replacing a novel referent with a familiar one. The effect of inserting a temporal adverb works differently: adding *once*, meaning “at one time,” or *previously*, meaning “at a previous time,” provides an independent time for the stative predicate to link to.

The idea that only episodic eventive predicates can introduce new times has visible effects across discourse, as has frequently been observed. Consider the narratives in (24):

- (24) a. Dante *walked* into the living room. He *noticed* some leftover sardines and *ate* two of them. He *climbed* onto the sofa. Phoebe *was asleep* next to a cushion; he *took* a swipe at her tail.
b. Phoebe *woke up*. It *was* dark. She *felt* cold. Dante *was stretched out* next to her. The telephone *was ringing*.

The first sentence in each narrative is eventive and introduces a new time. All of the other (non-progressive) eventive verbs move the narrative forward in time,

¹⁷ Depending on how the punctuality constraint is formulated.

arranging the respective events sequentially. All of the stative and progressive predicates leave the time unchanged from the previous sentence. Here we see at the level of discourse the same effect that favors simultaneous over past-shifted tense interpretations for the passive participles in the reduced relatives in (22a-c). The adverbs *once* “at one time” and *previously* “at a previous time” circumvent this by providing an independent time referent for the stative predicate to link to.

Now consider the appositive depictive adjuncts with passive participles based on the stative verbs *admire*, *know*, and *surround*, in (25):

- (25) a. *Grudgingly admired by the police*, the thief sat in a chair waiting for his barrister to show up.
b. *Known by travel professionals everywhere*, the natural arch is a leading tourist attraction.
c. *Surrounded by an invading galaxy*, the Earth will have a different night sky in a few billion years.

Like the restrictive relatives based on stative predicates in (22a-c), these appositive depictive adjuncts have simultaneous interpretations rather than past-shifted ones. In addition, they favor dependent tense construals, conveying simultaneity with the matrix eventuality time rather than with the speech time. This is clearest in (25c), referring to the projected future collision of the Andromeda galaxy with the Milky Way; but also in (25a), there is a clear implication that the thief was admired by the police at the time he sat waiting for his barrister, rather than at the actual speech time. Apparently, the stative predicate’s need to be linked anaphorically to an independently given time overrides the tendency for tenses in appositive adjuncts to be interpreted relative to the speech time.

4.4 Past-shifting passives in reduced adjuncts with *when/if/though/while*

The passive participles in (26) and (27) are similar to those in (18), but they are preceded by *when*, *if*, or *though*:

- (26) a. The Russian army, *when stymied by Ukrainian resistance*, shifted the focus of its operations to the east.
b. Phoebe, *when scratched by Dante*, always chases him.
c. George, *if asked by his tenants to hire a plumber to fix the tap in the bathroom*, will try to do the job himself.
d. Phoebe, *if scratched by Dante*, always struck back.
e. Dante, *if scratched by Phoebe*, probably did something to annoy her.
f. The Earth, *though formed by dust and gas orbiting the sun*, will eventually be consumed by it.
g. The Earth, *though taken over by life forms during the Archean eon*, was first formed by dust and gas orbiting the sun.

- (27) a. *When stymied by Ukrainian resistance*, the Russian army shifted the focus of its operations to the east.
 b. *When scratched by Dante*, Phoebe always chases him.
 c. *If asked by his tenants to hire a plumber to fix the tap in the bathroom*, George will try to do the job himself.
 d. *If scratched by Dante*, Phoebe always struck back.
 e. *If scratched by Phoebe*, Dante probably did something to annoy her.
 f. *Though formed by dust and gas orbiting the sun*, the Earth will eventually be consumed by it.
 g. *Though taken over by life forms during the Archean eon*, the Earth was first formed by dust and gas orbiting the sun.

The reduced passive participles in the (a) and (b) examples can all have past-shifted interpretations of one sort or another. In (27a-c), *when* enforces a temporal or causal proximity between the two events, though not necessarily strict simultaneity. (If the two events are not temporally adjacent, there is an implication of a causal relation between them; the *when*-clause event inevitably leads to the main clause event.) A similar interpretation arises with the *if*-passive participles in (27c&d).

But the conditional in the (e) examples shows that a so-called “backtracking” interpretation (where the event in the main clause precedes the event in the conditional protasis) is also possible.¹⁸ What seems to be going on in (27e) is that *if*-passive participles (unlike *when*-passive participles) allow for independent tense interpretations, with the passive participle past-shifted relative to the speech time rather than to the matrix eventuality time. With both the conditional and the main clause past-shifted relative to the speech time, they are unordered relative to each other, allowing for the “backtracking” interpretation. The concessive *though*-passive participles in the (f) and (g) examples also have an independent tense interpretation with the event of the participle freely ordered with respect to the main clause event time.

Summarizing: bare passive participles functioning as appositive relative clauses or depictive adjuncts have independent tense interpretations. These are past-shifted unless they are based on stative predicates. (Progressive and habitual predicates behave like statives.) The same is true of passive participles introduced by *though*. Passive participles introduced by *when* likewise have past-shifted interpretations if they are based on episodic eventive predicates, but their interpretation is in relation to the eventuality time of the main clause rather than to the speech time. Passive participles introduced by *if* can behave either way: they can behave like *when*-passives or like bare passives. In the former case, they imply a causative relation between the two clauses; in the latter case, they allow a “backtracking” interpretation.

It is interesting to note that *before*- and *after*-passive participles are not possible, contrary to what we might expect, given Geis’s (1970) analysis of finite *before*- and *after*-adjuncts, according to which they include a silent *wh*-moved *when*. Thus, (28a&b) are both completely ungrammatical. On the other hand, *while*-passive

¹⁸ See Ward (2014) and references cited there.

participles are possible, but only with participles based on stative predicates, yielding a strictly simultaneous interpretation, as in (28c&d). This interpretation contrasts sharply with the proximate sequential (past-shifted) interpretation that we saw with *when*-passives in (26) and (27).

- (28) a. * *Before scratched by Dante*, Phoebe led a relatively quiet life.
b. * *After fixed by George*, the bathroom tap stopped working properly, and the sink was cracked.
c. *While surrounded by policemen*, Rodney will not feel safe.
d. *While still widely admired for her directing skills*, Lois stopped making movies in the late 1920s.
e. # *While abandoned by Yoda*, the Empire struck back. (* past-shifted)

This shows that, whereas *when* allows for past-shifting, *while* enforces strict simultaneity, at least on its temporal interpretation. *While* can also function as a concessive subordinating conjunction, in which case it behaves like *though*.

Before proceeding further, I should acknowledge that the possibility of introducing a reduced depictive adjunct with *when*, *where*, *while*, *if*, or *though* is not confined to adjuncts formed with passive participles; other categories that function as depictive adjuncts or secondary predicates can do the same thing. This includes prepositional phrases, adjective phrases, and present or progressive participle phrases formed with the suffix *-ing*.

- (29) a. *When in Rome*, do as the Americans do.
b. *When writing a paper*, it helps to drink lots of coffee.
c. *If in doubt about your condition*, you can always consult Dr. Google.
d. *Though short of cash*, Phoebe managed to buy a few tins of Fancy Feast.
e. *Though needing love and sympathy*, Lois was cheated on by her husband.
f. *While sick with Covid*, Tim started his Hawaiian steam therapy.

This should be borne in mind in the discussion that follows, since the observations apply with equal force to these other types of reduced adjuncts.

The possibility of introducing adjunct passive participles with *when* suggests that depictive adjuncts, including those formed by passive participles, may contain a position that can be targeted by Wh-movement, a conclusion that is corroborated by similar passive participles introduced by *where*, as in (30).¹⁹

- (30) a. *Where rigorously enforced*, jaywalking laws have begun to be obeyed.
b. Sterile mosquitoes, *where introduced by public health advocates*, have decimated local pest populations.

¹⁹ Only referential adjunct wh-phrases allow this; *why* and *how* do not.

Likewise, the conditional and concessive complementizers *if* and *though* normally occur at the left periphery of a finite clause. Their occurrence at the left periphery of reduced depictive adjuncts raises the possibility that these adjuncts may contain other functional structure covertly, including, perhaps, a covert tense. Could a covert past tense be the source of the past-shifted interpretations that the past passive participles introduced by *when*, *if*, *though*, and *while* can exhibit? Unfortunately, there are several reasons to be cautious about embracing this idea.

The first problem concerns the finite counterparts of *when*-clauses when the main clause has a present tense or future-shifting modal *will*. The finite counterpart of (27b) is (31b) with an overt *present* tense, rather than (31a) with overt *past*:²⁰

- (31) a. * *When she was scratched by Dante*, Phoebe always chases him.
b. *When she is scratched by Dante*, Phoebe always chases him.

The same is true of the finite counterpart of (32a), with a future-shifting modal *will* in the main clause, which must be (32b) rather than (32c):

- (32) a. When asked to leave, Frank will refuse.
b. When he is asked to leave, Frank will refuse.
c. * When he was asked to leave, Frank will refuse.

If the passive participles' past-shifting interpretation in (26) and (27) were all triggered by a covert past tense within the reduced clause, we would expect all the finite counterparts of these sentences to contain an overt past tense, but in (31) and (32) they don't. This reflects a general condition that enforces finite tense agreement between temporal adverbial clauses introduced by *when*, *before*, and *after* and the matrix clauses within which they reside.²¹ This effect is well documented, even though the cause of it remains obscure.

The reduced conditional *if*-clauses in (26c&d) and (27c&d) have the same type of proximate past-shifted interpretation, and their finite counterparts also have an overt present tense when the main clause contains a future-shifting modal *will*, reflecting the same kind of finite tense agreement.

- (33) *If he is asked by his tenants to hire a plumber to fix the tap in the bathroom*, George will do the job himself.

But conditional *if*-clauses like (27e), and all concessive *though*-clauses, are temporally independent of the main clause, and do not exhibit finite tense agreement.

²⁰ Note, however, that although (31a) is ungrammatical, *when*-clauses with the present perfect are OK, as in (i). The same is true of *when*-clauses like (32c).

(i) *When she has been scratched by Dante*, Phoebe always chases him.

²¹ I assume, with Abusch (1997) and others, that the finite modal *will* is a conflation of the modal root *woll* and a (so-called) present tense morpheme.

4.5 A further complication involving stative predicates in the main clause

The second problem concerns the aspectual status of the main clause predicate. If the main clause is stative or progressive, the passive participle in the reduced *when*-clause need not be past-shifted relative to the matrix eventuality time, even if its predicate is episodic-eventive; instead, it can coincide with it, as in (34a&b). Coincidence (simultaneity) is also possible if the reduced passive participle is stative and the main clause is eventive, as in (34c&d); in this case, *while* is more natural than *when*, for some reason.²²

- (34) a. *When attacked by the Ukrainian resistance*, the Russian army units were strung out along a highway, waiting for fuel.
b. *When scratched by Dante*, Phoebe will probably be asleep.
c. *When/While owned by my grandfather*, the Topsail house was renovated.
d. *When/While asleep on the sofa*, Phoebe will be scratched by Dante.

If we assume that the passive participle is responsible for inducing a past-shifting interpretation in (26) and (27), we have a problem in explaining why it fails to do so in (34a&b). The observation that main clause stative predicates license simultaneous interpretations of episodic eventive *when*-clauses, as in (34a,b) was noted by Leech (1971), and is discussed by Hallman (2009).

This contrast is reminiscent of the contrast between stative and eventive predicates in the complements of intensional predicates discussed in Section 3, but the two cases are not identical. Unlike the situation with *when*-clauses in (34a&b), stative intensional predicates in the main clause do not license simultaneous interpretations of episodic eventive predicates in their complements:

- (35) a. Marwan *will believe* that Zeina *smokes* a cigarette. (*sim. episodic)
b. Dante *knew* that a mouse was caught by Phoebe. (*sim. episodic)
c. Eric *is sure* that an anchovy is eaten by David. (*sim. episodic)

Nevertheless, what the two cases have in common is the tendency for a stative predicate to be interpreted as simultaneous with a time mentioned independently; this is true of stative predicates occurring in main clauses in (34a&b), in *while*-clauses in (34c&d), and the complement clauses in (12) and (13).

The bare reduced passive participles functioning as depictive adjuncts discussed in Section 4.2, do not behave like participles preceded by *when* and *while* in this respect. Compare the examples in (34) with their counterparts in (36):

- (36) a. *Attacked by the Ukrainian resistance*, the Russian army units were strung out along a highway, waiting for fuel.
b. *Scratched by Dante*, Phoebe will probably be asleep.
c. *Owned by my grandfather*, the Topsail house was renovated.
d. *Asleep on the sofa*, Phoebe will be scratched by Dante.

²² However, stative PPs with *when* seem to be OK: *When in doubt, consult your doctor.*

In (36c&d), the stative predicates in the passive reduced depictive clauses clearly allow a simultaneous interpretation relative to the main clause eventuality time, like their counterparts in (34c&d), and for that matter, like stative predicates in the complements of intensional predicates in (12) and (13). But (36a&b), with eventive predicates in the reduced depictive adjuncts, behave differently: unlike their counterparts in (34a&b), they strongly favor a past-shifted interpretation relative to the speech time. This is most evident in (36b); in (36a), the independent past-shifted interpretation combined with past tense in the main clause allows the two eventualities to accidentally coincide. I already showed in Section 4.3 that appositive depictive participles favor independent tense interpretations when they contain episodic eventive predicates; when they contain stative predicates, as in (36c-d), the stative predicates' need to be anaphorically linked to an independently given time overrides this.

Perhaps surprisingly, given (36), the ability of a stative predicate in the main clause to license a simultaneous interpretation of an episodic-eventive predicate in a reduced *when*-clause in (34) does seem to generalize to at least some types of restrictive reduced relatives with passive participles discussed in Section 4.1. These reduced relative clauses have an interpretation approximating that of a *when*-clause. Compare (14a-c), repeated here, with (37a-c):

- (14) a. A cat burglar *arrested in Imperial Hall* is drinking a cup of tea.
 b. We visited a natural arch *etched by wind and erosion*.
 c. Our great grandchildren will live in houses *built by robots*.
- (37) a. A cat burglar *arrested in Imperial Hall* was reclined on a couch.
 b. Lady Gaga owned some dogs *kidnapped by violent thugs*.
 c. We were asleep in a hotel *struck by lightning*.

In each case in (37), the episodic event in the reduced relative can be understood to have occurred either prior to or during the main clause eventuality time; thus, it seems to allow either a past-shifted or a simultaneous interpretation.

However, while it is true that the eventualities can overlap in (37), this is probably a result of the relative clause having an independent tense interpretation (past-shifted relative to the speech time.) When the main clause has present tense rather than a past tense, as in (14a) and (38a), the finite relative clause counterpart of is (38c), rather than (38b), the opposite of the situation with (31a) versus (31b).

- (38) a. Lady Gaga owns some dogs *kidnapped by violent thugs*.
 b. *Lady Gaga owns some dogs *that are kidnapped by violent thugs*.
 c. Lady Gaga owns some dogs *that were kidnapped by violent thugs*.

In (38c), the main clause present tense ensures that Lady Gaga owns the dogs at the speech time, but her period of ownership may extend far into to the past; nothing prevents the kidnapping event (past-shifted relative to the speech time) from

happening during that period. But now consider (39a&b) with a main clause future-shifting modal *will*:

- (39) a. We will be asleep in a hotel *struck by lightning*.
b. We will be asleep in a hotel *that is struck by lightning*.
c. We will be asleep in a hotel *that will be struck by lightning*.
d. We will be asleep in a hotel *that was struck by lightning*.

Examples (39c&d) both clearly allow an independent tense interpretation for the relative clause; this places the lightning strike after speech time in (39c) and before it in (39d). Nothing prevents the future lightning strike from coinciding with our future nap in (39c). But an independent tense interpretation for the relative clause is impossible in (39b) because of Giorgi and Pianesi's Punctuality Constraint: the episodic event of the lightning strike cannot coincide with the speech time. Instead, (39b) seems to have an interpretation directly analogous to the reduced *when*-clauses in (39b). As for the reduced relative in (39a), it clearly allows both types of past-shifted interpretation (relative to speech time or main clause eventuality time). It probably also allows a simultaneous interpretation synonymous with (39b), though this seems slightly less natural.

5. The temporal interpretation of APs, PPs, and present participles

In Section 4.4 I drew attention to the fact that passive participles are not the only syntactic types of predicates that can be introduced by *when*, *while*, *where*, *if*, or *though* while functioning as appositive depictive adjuncts; prepositional phrases, adjective phrases, and present participles formed by adding the suffix *-ing* to the verbal root can do the same thing, as illustrated in (29). In fact the parallels between passive participles and these other categories is far more extensive than this. All of them can also function either as restrictive reduced relatives or as appositive reduced relatives or depictive adjuncts (secondary predicates). Let's first consider cases involving reduced relatives, in (40), focusing on their temporal interpretation.

- (40) a. A man (*currently*) *sick with Covid* will be hired by the gas station. (AP)
b. The company will only hire someone *eager to work hard*. (AP)
c. Two patients *in the waiting room* had root canals. (PP)
d. The dentist used to talk to a lawyer *in Shoreditch* via Skype. (PP)
e. A horse *wearing a silver saddle* is cantering along Sunset. (pres. part.)

The temporal interpretations of the AP, PP, and present participial reduced relatives in (40) differ from those of the passive participles discussed thus far. In particular, all of the reduced relatives in (40) have interpretations that are simultaneous, rather than past-shifted, coinciding either with the speech time or with the matrix eventuality time. Examples (40a) and (40c) favor simultaneity with the

speech time; (40b) and (40d) favor simultaneity with the matrix event time; (40e), with present tense in the main clause, does not distinguish between the two.

These are precisely the interpretations of adjectival and prepositional phrase modifiers of nouns described by O’Leary (2022), who builds on proposals by Enç (1981), Musan (1999), Ogihara (2003), Tonhauser (2005) and Keshet (2008), among others. Enç and Musan were mainly concerned with temporal interpretation of nouns, as opposed to the temporal interpretation of their modifiers; Keshet’s discussion implies that these should generally not conflict. Ogihara argues that AP and PP (reduced relative) modifiers are typically “controlled by local c-commanding tenses,” pointing out that they behave like present tenses in relative clause in Japanese; this amounts to saying that they are interpreted as simultaneous with the event time of the minimal clause containing the noun that they modify. Ogihara acknowledges that in some cases nominal modifiers are interpreted as simultaneous with the speech time rather than the local eventuality time, but does not make fully explicit proposals about how the scope positions of the NPs containing these modifiers is determined.

O’Leary recognizes additional options for the temporal interpretation of AP and PP modifiers, pointing out that in many cases they can be past-shifted relative to the local eventuality time rather than simultaneous with it. As she observes, these modifiers behave like nouns in this respect. She incorporates proposals by Musan and Tonhauser that the tense interpretation of a noun depends partly on the type of determiner that combines with the NP (definite versus indefinite), which determines whether the referent of the DP is novel or familiar. O’Leary also extends this to cover the interpretation of AP and PP modifiers. If the D is indefinite and the NP is novel, a simultaneous interpretation of the noun and its modifiers is generally required; if the D is definite and the NP is familiar, then a past-shifted interpretation is allowed (in effect, referring back to the temporal location associated with their previous mention.) Here’s a typical example:

- (41) When she was in high school, Susan dated *a lazy student in her class* and *an overweight neighbor living next door to her*.
Ten years later, she met them both again; *the lazy student* was now a hardworking lawyer, and *the overweight neighbor* was a sleek long-distance runner training with the US Olympic team.

In (41), the first mentions of these individuals are indefinite and novel, and the nouns and their AP and PP modifiers are simultaneous with her time in high school. The subsequent mentions of them are definite and familiar, and the temporal interpretation of the nouns and their modifiers is past-shifted to access the time associated with their previous mentions (during her high school years). It is as if *the lazy student* actually means something like “the person who was the lazy student.”

This explains why examples like (23a) in Section 4.3, repeated here, differ from examples like (22a) in allowing a past-shifted interpretation for reduced relative containing a stative passive participle:

- (22) a. A cat burglar *disliked by the police* is drinking a cup of tea.

(23) a. The cat burglar *disliked by the police* is drinking a cup of tea.

Although the definite DP in (23a) appears without a surrounding discourse context, readers can subconsciously supply a missing prior context analogous to (41) containing a previous mention.

So far I have largely ignored present participles. These are clearly imperfective; they can be based on either stative or episodic eventive verbs, and in the latter case, they have progressive interpretations. They are free to occur in contexts analogous to (22a), without violating the Punctuality Constraint.

(42) Phoebe is watching a cat burglar climbing through a window.

Now let's reconsider the examples of APs, PPs, and present participles preceded by *when, if, though*, etc. in (29), repeated here:

- (29) a. *When in Rome*, do as the Americans do.
b. *When writing a paper*, it helps to drink lots of coffee.
c. *If in doubt about your condition*, you can always consult Dr. Google.
d. *Though short of cash*, Phoebe managed to buy a few tins of Fancy Feast.
e. *Though needing love and sympathy*, Lois was cheated on by her husband.
f. *While sick with Covid*, Tim started his Hawaiian steam therapy.

All of these allow temporal interpretations involving simultaneity.

TO BE CONTINUED!

Postscript

Hagit Borer and I have been friends since we met each other as classmates during our first year in MIT's Ph.D. program in linguistics in 1977. I still remember our first meeting at a beginning-of-the-academic-year reception in the E-wing lounge of Building 20. Someone told me that one of my new classmates was an Israeli student and pointed her out to me; she was talking to John McCarthy. I decided to walk over and introduce myself.

They were discussing the ongoing conflict between Israel and its Arab neighbors. Trying to be diplomatic and wishing to avoid offending my new Israeli classmate on our first meeting, I said that I thought Israel should give up the West Bank, but acknowledged that the status of Jerusalem was a more complicated issue. Her immediate response was "What's so complicated? Israel should just get out."

That was the first of many occasions when Hagit impressed me with the clarity and consistency of her political thought and her commitment to the goal of social, economic, and political justice for all. Over the past 45 years I have also acquired a deep respect for the power of her intellect and for her insightful contributions to the field of Linguistics. Above all, I have learned to respect and value her friendship and steadfast loyalty. Our field, my life, and the world in general, have all benefited profoundly from her being part of them.

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