

RESEARCH

Adjectives relate individuals to states: Evidence from the two readings of English Determiner + Adjective

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As an argument in favor of the (minority) view that adjectives involve a neo-Davidsonian state argument, I argue that it grounds an analysis of the English Determiner + Adjective construction (*the old*). On its “individuated” reading (*the old are generally happier*), this construction seems to refer to *old individuals*; on its “mass” reading (*the old is never ordinary*), to something like *oldness*. Empirically, this paper uses naturally-occurring data to show that both readings are more productive than sometimes suggested. Theoretically, the two readings are parsimoniously derived by existentially closing off one or the other of the two arguments (the individual argument x , the state argument s) made available by the state analysis – $\lambda x \lambda s [old(s) \wedge holder(x,s)]$ – deriving a predicate of individuals for the individuated reading, and a predicate of states for the mass reading. This account of Determiner + Adjective further reflects the philosophical idea that properties can be construed as predicates of individuals or as the abstract thing that those individuals share; and connects to other ways of nominalizing both verb phrases and adjectives.

Keywords: nominalizations; adjectives; states; lexical semantics

1 Introduction

While it is very common for verb phrases to be analyzed to relate individuals to events (1) (Castañeda 1967; Davidson 1967; Higginbotham 1985; Parsons 1990; Kratzer 1996), the parallel “neo-Davidsonian” analysis of adjectives – taking them to relate individuals to states (2) – remains a minority position (advocated by Higginbotham 1985; Parsons 1990; Rothstein 1999; Landman 2000; Mittwoch 2005; Fulst 2006; Husband 2010; Wellwood 2014; 2015; Anderson & Morzycki 2015; Baglini 2015; Ernst 2016: but still outnumbered in the vast literature on adjective meaning).

(1) **Event analysis of verbs**

Alex ran = $\exists e [run(e) \wedge agent(Alex,e)]$
“There is a *run* event carried out by Alex.”

(2) **State analysis of adjectives**

Alex is old = $\exists s [old(s) \wedge holder(Alex,s)]$
“There is an *old* state held by Alex.”

After introducing the debate about adjective meaning (§2), this paper offers an argument in favor of the state analysis: that it illuminates the two readings of a relatively obscure English construction, with better-studied analogues in other Indo-European languages, in

which an adjective combines with a determiner to serve as a determiner phrase (3) (Quirk et al. 1972; Pullum 1975; Huddleston & Pullum 2002; Günther 2017).¹

Without a noun, which usually fixes the referent of a determiner phrase, this construction has two grammatically distinct readings. In what I call the *individuated* reading (3a), *the old* seems to refer to old individuals (presumably people), and acts as a plural count noun (Quirk et al. 1972), triggering plural verb agreement. In what I call the *mass* reading (3b), it seems to refer to something like *oldness* as an abstract concept, and acts as a mass noun (Quirk et al. 1972), with singular agreement. Throughout this paper, the superscript ^{web} indicates that the example was found in naturalistic web data, for which a supplementary file (given at the end of this article) provides the context and URL.

- (3) a. **Individuated:** *The old* are generally happier than the young.^{web}
 b. **Mass:** *The old* is never ordinary.^{web}

The empirical goal of the paper is to show, contrary to some claims in the literature, that this construction is quite productive on both readings (§3; Bauer et al. 2013; Günther 2017). The theoretical goal is not only to capture the correct semantics for each reading, but also to illuminate *why* these two readings are the ones that are found. More broadly, the analysis of Determiner + Adjective is argued to support the claim that adjectives involve a state argument.

Using the state analysis (2), *old* relates an individual x to an *old* state s . To derive the two readings of Determiner + Adjective, §4 proposes (building on King 2018, who in turn builds on a much earlier version of this work, Glass 2014) that either of these two arguments may be existentially closed off. When the state argument is closed off, we get a predicate of *old* individuals (4a): deriving the individuated reading. When the individual argument is closed off, we get a predicate of *old* states (4b): deriving the mass reading.

- (4) a. **Predicate of individuals (individuated reading):**
 $\lambda x \exists s [old(s) \wedge holder(x, s)]$
 “individuals who hold some state of being old”
 b. **Predicate of states (mass reading):**
 $\lambda s \exists x [old(s) \wedge holder(x, s)]$
 “states of being old held by some individual”

§5 relates the proposed analysis of Determiner + Adjective (and the state analysis of adjectives underlying it) to the longstanding philosophical idea that properties can be conceptualized both as predicates of individuals, and as the abstract quality shared by the individuals of whom they are true. §6 connects Determiner + Adjective to other ways of nominalizing both verb phrases and adjectives.

As for alternative ways of analyzing these data, §7.1 discusses approaches to this construction in the literature, and §7.2 explores how the data could be handled on a stateless analysis. Some of these alternatives also capture the facts, but I advocate the current analysis as a way of connecting Determiner + Adjective to independently motivated ideas. §8 concludes.

¹ Outside English, see for example Kester (1996); McNally & de Swart (2011; 2015) on an analogous construction in Dutch; Giannakidou & Stavrou (1999) on Greek and English; Goes (2007) and Lauwers (2008) on French; Villalba (2009; 2013) on Spanish; Sleeman (2013) on Dutch and Greek; McNally et al. (2017) on Dutch, English, French, and Slovak; and King (2018) on Slovak.

2 Do adjectives have a state argument?

As previewed in §1, this paper weighs in on the debate about whether or not adjectives should be analyzed in terms of a neo-Davidsonian state argument.

2.1 The state analysis

The state analysis expands to adjectives the idea of event semantics originally designed for verb phrases. Without event semantics, an intransitive verb such as *run* is simply a predicate of individuals, yielding *true* of every individual who runs. In the event semantics of Davidson (1967), a verb such as *run* also includes an argument for an *event*, so that *Alex ran* is true if there is an event of running by Alex. Davidson uses events to account for entailment relations among sentences with adverbial modifiers (*Alex ran yesterday* entails *Alex ran*), and to explain anaphoric reference to events (*it was her first run in a while*).

Building on this “Davidsonian” analysis, the “neo-Davidsonian” approach of Castañeda (1967); Higginbotham (1985); Parsons (1990); and Landman (2000) uses thematic roles – labels for the roles played by participants in an event (Gruber 1965; Dowty 1991) – to link the individual arguments of the verb to its event argument: *Alex ran* is true if there is an event of running whose *agent* is Alex. (It is assumed that the subject of a verb like *run* saturates its agent argument, while its event argument is bound existentially; see Champollion 2015.) In some theories of the syntax-semantics interface (Kratzer 1996 and work inspired by it), these thematic roles are treated as separate syntactic heads; but for simplicity (like, e.g., Anderson & Morzycki 2015), I do not adopt that assumption here.

The original Davidsonian analysis did not include adjectives. Since then, researchers (in the tradition of Higginbotham 1985 and Parsons 1990) have proposed to handle adjectives, like verb phrases, as predicates of eventualities. This move is motivated theoretically by analogy to VPs, and empirically by similar data to that which originally motivated event arguments: entailment relations among sentences with adverbial modifiers (*Alex was happy yesterday* entails *Alex was happy*); and anaphoric reference (*it didn't last long*).

On such a view ((5), repeated from above), an adjective like *old* relates an individual to an *old* state held by that individual, just as a verb like *run* relates an individual to a *run* event carried out by that individual:

$$(5) \quad \text{Alex is old} = \exists s[\text{old}(s) \wedge \text{holder}(\text{Alex},s)] \quad = (2)$$

“There is an *old* state held by Alex.”

In (5), *Alex* is an individual, while *s* is a state (taken to be a subtype of eventualities; Bach 1986). *Old(s)* says that *s* is state of being *old*; *holder(Alex,s)* indicates that the *old* state *s* is manifested in – “held by” – *Alex*.

The state analysis is built on the idea that eventualities – events and states (Bach 1986) – are ontologically reified as primitive semantic objects (Parsons 1990; Piñon 1995). As eventualities, states as well as events occupy time and space (Piñon 1995), and can instantiate manners expressed by adverbs (Landman & Morzycki 2003; Mittwoch 2005; Anderson & Morzycki 2015; Ernst 2016: *dance beautifully*; *beautifully old*).

The state analysis is used in various ways to unify adjectives with other phenomena: to connect adjectives to verb phrases (treating both as predicates of eventualities; Parsons 1990; Landman 2000); to handle adjectival analogues of the data which motivated the neo-Davidsonian analysis of verb phrases (Parsons 1990; Piñon 1995); to explain why adjectives can be modified by what appear to be predicates of eventualities (*strangely old*, *suddenly old*; Mittwoch 2005; Fults 2006; Anderson & Morzycki 2015; Wellwood 2015; Ernst 2016); to create a theory of comparison that works for verb phrases (*ran more*) and noun phrases (*more coffee*) as well as adjectives (*older*) (Wellwood 2014; 2015); to build

a theory of aspect that uses states as a primitive building block (Dowty 1979; Rothstein 1999; 2004; 2012); and to unify adjectives with words from other lexical categories expressing adjective-like meanings across languages (Baglini 2015; Baglini & Kennedy 2019), on the assumption that these are all built on states.

In the philosophical tradition, Moltmann (2004; 2009) argues that adjectives relate individuals to *tropes*, which are particularized instantiations of properties. Abstracting away from subtle ontological differences, Moltmann's trope analysis can essentially be seen as a variant of the state analysis (Anderson & Morzycki 2015; Baglini 2015).

The state analysis faces some criticism: for example, Katz (2003; 2008) claims that states are not needed because there are no adverbs that modify them specifically; Maienborn (2005; 2007) argues that some purportedly stative predicates such as *be tired* or *resemble Mary* should not be analyzed as such because she claims that they are not perceptible or located in space/time (Alexiadou 2011 makes similar claims). These arguments are challenged by Mittwoch (2005) and Ernst (2016). The biggest challenge for the state analysis, however, is not just counterarguments, but the fact that many authors do not discuss it.² It is discussed in the literature on event semantics; but within the literature on gradable adjectives, it remains a minority position.

2.2 The state-less analysis

The alternative is that adjectives do not have an eventuality argument. As one widespread implementation of this idea, adjectives can be analyzed simply as functions from individuals to degrees: *old*(*x*) yields *x*'s age (Bartsch & Vennemann 1972; Cresswell 1976; von Stechow 1984; Kennedy 1999). When *old* is used as a predicate in its basic, "positive" form (as opposed to as a comparative or superlative), it is adjusted from a measure function to something that can be true or false of an individual (using an operator known as POS; von Stechow 1984; Kennedy 1999). Ultimately (6) is true if Alex's maximal degree of oldness (age) exceeds some contextual standard θ for what counts as *old*.

- (6) Alex is POS(*old*) = $old(Alex) \geq \theta_{old}$
 "Alex's degree of oldness exceeds the contextual standard for what counts as *old*."

Reflecting the intuition that gradable adjectives describe scalar properties that are not just true or false of an individual, but hold to varying extents, this analysis invokes degrees (points or intervals partially ordered along some dimension, such as age for *old*) and scales (a set of ordered points along a dimension; Bartsch & Vennemann 1972; Kennedy & McNally 2005). As abstract measurements, degrees and scales do not occupy time or space (Moltmann 2009). Degrees are predicted to be modified by scalar modifiers such as *very*, but not by manner modifiers such as *beautifully*, which are taken to modify eventualities. (For Anderson & Morzycki 2015; Wellwood 2015; Ernst 2016, the fact that these modifiers do appear with adjectives constitutes evidence that adjectives are built on states rather than degrees).

Degrees in themselves are broadly consistent with the state analysis, in that degrees can be built on top of states (Moltmann 2004; Fults 2006; Moltmann 2009; Wellwood 2014; 2015; Anderson & Morzycki 2015; Baglini 2015; Baglini & Kennedy 2019). The high-level idea is that states can be grouped into *equivalence classes* (Cresswell 1976; Bale 2008; Lassiter 2011): groups of individuals or states which are the same with respect to some measure. We can make an equivalence class of individuals who are equally *old*, or of *old*

² For example, the state analysis is not mentioned in several recent review articles and dissertations on adjective meaning, such as Demonte (2011); Kennedy (2012); and Bochnak (2013).

states which are equal in oldness (age); and order these equivalence classes with respect to one another. These orderings are then mapped to degrees. Since states can be enriched with degrees, we do not face a choice between one of these analyses or the other, but between both together or one of them alone: between the state analysis enriched with degrees vs. the degree analysis on its own (6) – in other words, the choice of whether adjectives have a state argument or not.

As an empirical argument in that debate, I propose that the state analysis grounds a parsimonious account of Determiner + Adjective.

3 Data

As previewed (§1), this paper explores what I call the “individuated” and “mass” readings of Determiner + Adjective:

- (7) a. **Individuated:** *The old* are generally happier than the young.^{web}
 b. **Mass:** *The old* is never ordinary.^{web}

In English, Determiner + Adjective is said to be rather restricted. On both readings, it is widely thought to appear only with the determiner *the* (Kester 1996; Chierchia 1998; Giannakidou & Stavrou 1999; Huddleston & Pullum 2002; Bauer et al. 2013; Lieber 2016). On its individuated reading, better studied than the mass reading, it is said to denote only humans (Quirk et al. 1972; Pullum 1975; Chierchia 1998; Sleeman 2013), and only as a kind in the sense of Carlson (1977) (Kester 1996; Chierchia 1998; Giannakidou & Stavrou 1999; Huddleston & Pullum 2002) – a generalization across instances of a recognized type, such as *lions*. Determiner + Adjective is sometimes said to not be fully productive across adjectives – which may be linked to kind reference, on the assumption that not all adjectives can be mapped to kinds (Giannakidou & Stavrou 1999). It is also said to disallow certain modifiers, which Giannakidou & Stavrou (1999) say is because a modified adjective may not correspond to an established kind.

These restrictions are called into question by the naturalistic data (culled from web searches) presented here. Converging with other corpus studies (Bauer et al. 2013; Günther 2017), these data show the full diversity of this construction, the first step for analyzing it correctly.

3.1 Distinguishing Determiner + Adjective from ellipsis

In the literature, Determiner + Adjective is distinguished from ellipsis within a determiner phrase, as in (8) (Quirk et al. 1972; Kester 1996; Giannakidou & Stavrou 1999; Lauwers 2008; McNally & de Swart 2015; King 2018).³

- (8) I hope, however, that attention will also be paid to the less pyrotechnic numbers: the Madison in “Hairspray”; the country line dance in “Footloose”, both *the old one and the new*.^{web}

In (8), as in Determiner + Adjective, we observe a determiner and an adjective behaving like a determiner phrase (*the new*). But the ellipsis cases require an antecedent (often a contrastive one), and vary in reference depending on what this antecedent is (Giannakidou & Stavrou 1999), while Determiner + Adjective cases do not. In (8), *the old one* and *the new* refer to (the 1984 and 2011) versions of the film *Footloose* – a highly idiosyncratic referent from the linguistic context, picked up by *one*. In contrast, the two readings of Deter-

³ But see Günther (2017) (reviewed in §7.1) for an analysis which instead attempts to unify Determiner + Adjective with DP-internal ellipsis.

miner + Adjective are stable in their reference (to individuals of whom the adjective is true; to something like the adjective suffixed by *-ness*) across contexts, and generally have no discourse antecedent.

Although the distinction between DP-internal ellipsis and Determiner + Adjective may be clear in theory, it can be difficult in practice to diagnose a given example as one or the other. In (9), *the nonreligious* might be analyzed as ellipsis anteceded by *people*, or as an instance of Determiner + Adjective on its individuated reading.

- (9) There is, for example, convincing evidence that religious people are happier than *the nonreligious*.^{web}

I follow the literature in assuming that DP-internal ellipsis and Determiner + Adjective are distinct phenomena. Similar to King (2018: 47), I distinguish unambiguous examples of Determiner + Adjective by checking the surrounding context of textual examples (provided in a supplementary file) to exclude cases where there is a clear elliptical antecedent – such as (9), where *the nonreligious* could be anteceded by *people*.

3.2 Interpreting attested but “marked” data

In English, Determiner + Adjective is admittedly marked. Although all the examples reported here are taken from vetted attested data, some may be introspectively judged as marginal, “metalinguistic”, or erroneous. Such judgments may also vary with individual speakers, adjectives, or usages in ways to be explored. Determiner + Adjective could often be more naturally replaced by a paraphrase: for the individuated reading, something like *old people* or *those who are old*; for the mass reading, *oldness* (§6.2), *old stuff*, or *that which is old*. A speaker’s choice to use Determiner + Adjective over these alternatives seems to trigger some subtle, variable shades of connotation – but here, I leave those aside in order to focus on the core semantics of this construction.

Although certainly marked, Determiner + Adjective is robust. It appears in highly copy-edited sources such as *The New Yorker* and *The New York Times* (unlikely to contain typos); in colloquial texts such as personal blogs; and everywhere in between. Other authors also consistently find it in corpora and claim that it is productive:

- Quirk et al. (1972), discussing adjectives as heads of noun phrases, distinguish three types (all of them separated from DP-internal ellipsis; §3.1): (a) personal adjectives which act as plurals (the individuated reading, in my terms: *the poor*); (b) nationality/ethnic adjectives (*the Swiss*, which can be modified by adjectives but not adverbs); and (c) those with abstract reference (the mass reading, in my terms; *he admires the mystical*).
- Bauer et al. (2013: 549), who use corpus data, distinguish between cases where the adjective is understood as plural (the individuated reading: *the marina where the rich and famous moor their luxury yachts*) vs. as singular (the mass reading: *the outrageous is expected*). Bauer et al. (2013: 549) claim that “the productivity of [Determiner + Adjective] is not usually fully recognized. Any pragmatically appropriate adjective may be used in this way”. They add that its productivity “is masked by the fact that tokens of the relevant construction types are rare, and where they do occur are often not in a syntactic context where number is apparent”.
- Günther (2017) distinguishes between the “Human” (individuated, plural) and “Abstract” (mass, singular) readings of Determiner + Adjective, drawing on data from the British National Corpus, specifically identifying “hitherto unaccounted-for aspects such as the range of adjectives permitted”. She also acknowledges that at

least the human/individuated reading occurs with a variety of determiners, and that it does not always behave generically or as a kind (§3.4).

These references show that this construction on both its readings has long been recognized in English.

For every example taken from web data in this paper (indicated by the superscript ^{web}), a supplementary file gives its source; date; author (if available); and the sentences that precede and follow it in context. This information not only helps to disambiguate each example from DP-internal ellipsis (§3.1), but also shows that it is produced by a proficient English user, and illuminates its intended meaning in context.

In sum, while acknowledging that it may sound marked and that different speakers may be more or less disposed to use it, I take Determiner + Adjective on both its readings to be robustly part of the structure of English. No matter how infrequent or marked it may be, it clearly exists, is used, and is interpreted, which is what this paper aims to explain.

3.3 Determiners and agreement

Both readings of Determiner + Adjective are prototypically associated with the determiner *the*. But, contrary to what is sometimes suggested, both readings are productive with other determiners as well: possessives, demonstratives, and various quantifiers. The quantifier data reinforce what we see in verb agreement: the individuated reading behaves like a plural count noun, appearing with count quantifiers such as *many* (which work with count nouns such as *lions*, but not mass nouns such as *rice*: *many lions*/?*many rice*) and triggering plural verb agreement; while the mass reading behaves like a mass noun, appearing with mass quantifiers such as *much* (*much rice*/?*much lions*) and triggering singular verb agreement.

- (10) a. **Individuated:** *America's rich* are really, really rich.^{web}
 b. **Individuated:** *These rich* live in apartment houses, not limestone mansions that stretch a block.^{web}
 c. **Individuated:** *Some fired* say they are so relieved to be jobless just so they can be done with that school.^{web}
 d. **Individuated:** *Many educated* are far from role models.^{web}
 e. **Individuated:** *Too many homeless* are warehoused for a night and then tossed out in the morning.^{web}
- (11) a. **Mass:** Facing *your ugly* is difficult. You have to remind yourself of times that are embarrassing, petty, painful, and stressful.^{web}
 b. **Mass:** All of *this pretty* is worth over \$2,000.^{web}
 c. **Mass:** Want to add *some cute* to your workout routine?^{web}
 d. **Mass:** *Trendy* is good, *too much trendy* is not.^{web}
 e. **Mass:** There was not *enough cute* to counteract *the dull and stupid* here.^{web}

Not surprisingly, anaphoric pronouns reflect the same facts about number: the individuated reading acts like a plural count noun (antecedent *they*), and the mass reading acts like a mass noun (antecedent *it*).

- (12) a. **Individuated:** *The rich* are cocky, arrogant people who think *they're* better than everyone else.^{web}
 b. **Mass:** *The crazy* [in that academic repository] is easily detected and easily ignored. *It* doesn't taint the quality of everything else there.^{web}

In addition to all of the diverse determiners available to Determiner + Adjective, we even find examples of both its readings with no determiner at all. These seem to be even more unusual (less common, more marked) than versions with a determiner, although I leave quantitative investigations to future work.

- (13)
- a. **Individuated:** The liberal press recites their favorite politico’s mantra that businesspersons and *wealthy* are more than willing to be subjected to disproportionate taxes.^{web}
 - b. **Individuated:** *Rich and poor, educated and uneducated* are affected.^{web}
 - c. **Mass:** *New* is exciting.^{web}
 - d. **Mass:** *Simple and sleek* is beautiful, but if your business card is plain white with an ordinary black font, you’re taking simplicity too far.^{web}
 - e. **Mass:** The Japanese are born into *cute* and raised with *cute*. They grow up to save money with *cute* (Miffy the bunny on Asahi Bank ATM cards), to pray with *cute* (Hello Kitty charm bags at Shinto shrines), to have sex with *cute* (prophylactics decorated with Monkichi the monkey [...]).^{web}

3.4 Does Determiner + Adjective have to refer to a kind?

It is also claimed (Kester 1996; Chierchia 1998; Giannakidou & Stavrou 1999) that the individuated reading of Determiner + Adjective must refer to a kind in the sense of Carlson (1977): *the rich* is said to describe *rich people in general*.

In fact, it is surprising that *the rich* can refer to a kind at all. English definite plurals do not usually refer to kinds (Carlson 1977; Krifka et al. 1995; Chierchia 1998); the definite plural (14) most naturally refers to particular, salient lions. To refer to lions in general, it is more common to use bare plurals (15), and to some extent singular definites and singular indefinites (16)–(17).

- (14) **Definite plural:** The lions nap for most of the day.
 a. ??lions in general
 b. ✓some particular lions
- (15) **Bare plural:** Lions nap for most of the day.
 a. ✓lions in general
 b. ??some particular lions
- (16) **Definite singular:** The lion naps for most of the day.
 a. ✓lions in general
 b. ✓a particular lion
- (17) **Indefinite singular:** A lion naps for most of the day.
 a. ✓lions in general
 b. ✓a particular lion

The literature on genericity (e.g., Krifka et al. 1995; Carlson 2011; Mueller-Reichau 2011) distinguishes between noun phrases that denote kinds (*lions*) and “characterizing” sentences that generalize across situations or members of a category (*I don’t smoke; these students are motivated*). These two phenomena often co-occur – *lions nap* (15) both refers to lions in general and characterizes their habits – but they come apart. *I don’t smoke* characterizes my habits, but involves no kind-referring noun phrase; *the rat reached Australia in 1770* (Krifka et al. 1995; Doron 2003) refers to a kind, but describes a specific episode.

When a sentence states a generalization, it may involve a kind-denoting noun phrase, a “characterizing” predicate, or both. How to tell if the subject noun phrase is kind-denoting? A noun phrase unequivocally denotes a kind if it combines with a predicate that applies specifically to kinds: *extinct*, *widespread*, *scarce*, *rare*; *invented (by X, in year X)*; *come in several sizes/types*. A noun phrase does *not* denote a kind if it describes particular individuals: if it does *not* combine with kind-only predicates (*extinct*, *scarce*, and so on), and if it *does* combine with “episodic” (non-generic) predicates such as *are ruining my garden*.

Since the literature claims that Determiner + Adjective involves genericity, it is not surprising that the individuated reading is found in characterizing sentences (18), and with kind-only predicates (19). What is surprising is for an English definite plural to behave like a kind.

- (18) a. **Individuated:** *The successful* want more success.^{web}
 b. **Individuated:** *The selfish* say, “I got mine, and the hell with you”.^{web}
 c. **Individuated:** *The grieving* are often isolated when they most need community.^{web}
- (19) a. **Individuated:** Today, wealth has been democratized and individualized, and *the rich* come in all ages, shapes, sizes and ethnicities.^{web}
 b. **Individuated:** *The poor* come in all shades.^{web}
 c. **Individuated:** *The humble* are rare.^{web}

However, contrary to some suggestions in the literature – but consistent with the behavior of English definite plurals in general – we also find examples (20) in which the individuated reading of Determiner + Adjective describes particular individuals and episodes:

- (20) a. **Individuated:** *The homeless* said they had noticed an uptick in the number of officers on subway trains over the last week.^{web}
 b. **Individuated:** When *the displaced* tried speaking to the herders, the alleged perpetrators shot them.^{web}
 c. **Individuated:** Despite skepticism of prominent Catholics, *the faithful* said they trekked to Sterrett [...] with hopes of hearing a message from the mother of Jesus.^{web}

Moreover, the determiner data from above (§3.3) already shows that not all instances of Determiner + Adjective refer to a kind. Determiners such as *some*, which usually do not appear in kind-denoting DPs, are found in Determiner + Adjective.⁴ Such examples do not combine with kind-only predicates: *?some educated are scarce*, *?many homeless are widespread*.

As for the mass reading, it seems to refer to an abstract concept. Kinds are also abstractions, so it may be difficult to separate these notions. Like the individuated reading, the mass reading occurs in characterizing statements (21a) and with kind-only predicates (21b)–(21c):

- (21) a. **Mass:** Just as *the cute* is no longer solely associated with Japan, so too is it no longer solely the preoccupation of females.^{web}
 b. **Mass:** *The crazy* is widespread and just getting worse.^{web}
 c. **Mass:** *The beautiful* comes in infinite shapes, sizes, and forms.^{web}

⁴ The claim that *some* doesn’t occur with kinds has an exception for sub-kinds: *some wines are expensive*.

Also parallel to the individuated reading, the potential for kind reference is actually rather surprising; in English, it is usually bare mass nouns (*rice*) which refer to kinds, not definite ones (*the rice*).

Although often associated with genericity, the mass reading of Determiner + Adjective (like the individuated reading, and like definite mass nouns in English more generally) can also be used in episodic contexts and with the progressive (not usually used in characterizing sentences; Krifka et al. 1995). And we have already seen (§3.3) that – like the individuated reading – it combines with determiners such as *some*, which do not usually appear in kind-denoting DPs (22c)–(22d). Compared to the definite, generic uses of mass Determiner + Adjective, the non-definite, non-generic examples may seem particularly “marked”; but they are still well attested.

- (22) a. **Mass:** I scraped *the burnt* off of the brownies (my mom taught me well), and they came out delicious.^{web}
 b. **Mass:** My girlfriend has always been fairly neurotic, but since we had a child, *the crazy* is making me nuts.^{web}
 c. **Mass:** I really liked the chipotle mayo as it added *some spicy* to the dish.^{web}
 d. **Mass:** Add *some festive* to your home with this Christmas tree.^{web}

In sum, while there are claims that Determiner + Adjective inherently involves kind reference, the reality is more complex. It is actually surprising that definite uses of Determiner + Adjective can refer to kinds at all, since English definite plurals and definite mass nouns do not usually do so. Furthermore, contrary to claims that it must describe a kind, the construction can also describe particulars.

3.5 Does the individuated reading have to refer to humans?

As previewed above, the individuated reading of Determiner + Adjective seems to refer to individuals displaying the property described by the adjective. It is sometimes claimed that the individuated reading refers only to humans; Pullum (1975) names it “*people* deletion”, suggesting that the word *people* serves as an implicit noun in the construction – although, Huddleston & Pullum (2002: 420) note, inserting the noun *people* actually alters the meaning, because *the rich* can describe rich people in general, while *the rich people* (like other definite plurals in English; §3.4) cannot.

But we actually find examples where the individuated reading of Determiner + Adjective refers to animate entities other than humans. (23a) refers to living things from all species, (23b) to opossums, and (23c) to living things in general (discussing evolution and natural selection).

- (23) a. **Individuated:** In nature, only *the fittest* survive.^{web}
 b. **Individuated:** *The young* are about the size of a bee when they are born.^{web}
 c. **Individuated:** *The weak and mutated* die, *the healthy* survive to pass on their genes.^{web}

In rare cases, it even refers to inanimates, such as bike parts (24). However, in all such cases that I have found, the inanimate entity in question is mentioned in the prior discourse, so these cases may be indistinguishable from ellipsis (§3.1).

- (24) **Individuated:** Bike prices are like most economies of the world – *the expensive* are getting more expensive, *the cheap* are getting cheaper, and the middle class has disappeared.^{web}

Although the individuated reading of Determiner + Adjective most commonly refers to humans, (23a)–(23c) show that human reference is not essential.

3.6 Types of adjectives

On both its readings, Determiner + Adjective is productive with a vast range of adjectives, including those from every class proposed by Dixon (1982) (dimension, age, value, color, physical, speed, and human propensity); the intersective (*drunk*), subjective (*talented*), and privative (*imaginary*) classes of Partee (1995); and both the stage-level adjectives (describing transient properties; *drunk*) and individual-level adjectives (describing stable properties; *old*) discussed by Carlson (1977) and Husband (2010). I do not provide all of these examples for space; but (25) illustrates some of the diversity of adjectives used in this construction:

- (25)
- a. **Individuated:** The finding may help explain why *the sleep-deprived* are more likely to give in to calorific temptations.^{web}
 - b. **Individuated:** *The young and the drunk* are both reprieved from that oppressive, nagging sense of obligation that ruins so much of our lives.^{web}
 - c. **Individuated:** *The well-dressed* are heading out on the highway in motorcycle jackets.^{web}
 - d. **Individuated:** *The expensive* are usually the vulnerable; they are the ones who need coverage the most and whom insurance companies want to cover the least.^{web}
 - e. **Mass:** *The imaginary* is the thing that occupies most people's lives and allows them to function.^{web}
 - f. **Mass:** I love these unconventional images; my taste for *the surreal* is thoroughly indulged.^{web}

Some adjectives strongly favor one reading or another; those describing human propensities in the sense of Dixon (*talented*, *proud*) strongly favor the individuated reading; those rarely predicated of humans (*geological*, *spicy*) the mass reading. But the same adjective can appear in both readings:

- (26)
- a. **Individuated:** *The pretty* are recipients of a halo effect, with beneficial impact upon their exam results and ability to make friends.^{web}
 - b. **Mass:** I mention above that *the pretty* is seldom discussed in aesthetics.^{web}
- (27)
- a. **Individuated:** In a mad world, grumble malcontents from Rousseau to Foucault, only *the crazy* are authentic.^{web}
 - b. **Mass:** *The crazy* [in that academic repository] is easily detected and easily ignored.^{web}

3.7 Modifiers

Syntactically, the “adjective” in Determiner + Adjective acts like a noun in that it can be modified by adjectives (28), prepositional phrases (29),⁵ and relative clauses (30); but acts like an adjective in that it can be modified by adverbs (31), degree modifiers, superlatives (32) (Giannakidou & Stavrou 1999; Günther 2017).

⁵ Quirk et al. (1972) claim that prepositional phrase modifiers are possible, but less productive than adjectival modifiers.

- (28) a. **Individuated:** This is a story of *the silly rich*.^{web}
 b. **Mass:** *The understated chic* is something that I think several fashionistas will love.^{web}
- (29) a. **Individuated:** There is little doubt that a system of deferrals would be established that, just as in the Vietnam era, could create a caste-like system separating *the privileged of America* from the others.^{web}
 b. **Mass:** First, there's *the crazy of the minority* – a crazy consisting of wild conspiracy theories by the powerless.^{web}
- (30) a. **Individuated:** Mary O'Connell brings us the stories of *the depressed who are on the path to wellness* and the methods that can be used to get them there.^{web}
 b. **Mass:** After all, how's a nice, left-leaning gal like me going to survive *the crazy that is this election?*^{web}
- (31) a. **Individuated:** Even *the disgustingly rich* aren't immune to rejection.^{web}
 b. **Mass:** Lee Ann, herself, was the outstanding example of the owner's appreciation of *the expensively beautiful*.^{web}
- (32) a. **Individuated:** The Bangladesh committee began giving goats or cows to *the very poor* as a first step toward encouraging their participation in the microcredit program.^{web}
 b. **Individuated:** Intriguingly, *these oldest of the old* are usually of sound mind and physically active until their death [...] ^{web}
 c. **Mass:** His silky voice maintains an air of casual reporting, indicating that even *the very bizarre* is simply business as usual in Night Vale.^{web}

3.8 Summary

This section has shown, using attested data (summarized in Table 1), that Determiner + Adjective is more productive than sometimes claimed. Next comes the theoretical goal of providing an analysis, which in turn is used to motivate the state analysis of adjectives.

4 Analysis

I propose to derive the two readings of Determiner + Adjective by manipulating the two variables – the individual variable and the state variable – present in the state analysis of adjectives (33). The proposal is simply to existentially close off one or these or another, so that the adjective can come to serve as a predicate of individuals (33a), or as a predicate of states (33b).

Table 1: Behavior of the individuated and mass readings of Determiner + Adjective.

	Individuated	Mass
<i>Example</i>	<i>The old are happier</i>	<i>The old is never ordinary</i>
<i>Determiners</i>	Productive; count determiners	Productive; mass determiners
<i>Agreement</i>	Plural	Singular
<i>Referent</i>	Individuals (not necessarily humans) that Adj is true of	"Adjective-ness"
<i>Refers to a kind?</i>	Not necessarily	Not necessarily
<i>Productivity</i>	Productive across adjectives	Productive across adjectives
<i>Modifiers</i>	Degree modifiers, adverbs, adjectives, relative clauses, prepositional phrases	Degree modifiers, adverbs, adjectives, relative clauses, prepositional phrases

- (33) **Basic denotation of an adjective A:** $\lambda x \lambda s [A(s) \wedge \text{holder}(x,s)]$
- Predicate of individuals (state argument closed off):**
 $\lambda x \exists s [A(s) \wedge \text{holder}(x,s)]$
 - Predicate of states (individual argument closed off):**
 $\lambda s \exists x [A(s) \wedge \text{holder}(x,s)]$

Specifically, I propose two nominalizing type-shifters, one (34a) which derives (33a); and one (34b) which derives (33b). These type-shifters close off the correct argument of the adjective, yielding a predicate of the remaining, unclosed-off argument.

- (34) a. **Individuated-deriving type-shifter:** $\lambda A_{\langle e, \langle s, t \rangle \rangle} \lambda x \exists s [A(x)(s)]$
 b. **Mass-deriving type-shifter:** $\lambda A_{\langle e, \langle s, t \rangle \rangle} \lambda s \exists x [A(x)(s)]$

Using this setup, we can derive the meaning of the individuated reading as in (35), and the mass reading as in (36). In both, I analyze *the* in terms of the “maximizing” ι (iota) operator (Sharvy 1980; Link 1983), which takes a property and yields its maximal member in the context. Thus, (35) yields the maximal grouping of individuals y in the context who each hold some *old* state. Given that *old* is often predicated of humans, (35) is understood to describe old people.

- (35) **Individuated reading**
- $\llbracket \text{nom. indiv} \rrbracket = \lambda A_{\langle e, \langle s, t \rangle \rangle} \lambda x \exists s [A(x)(s)]$
 - $\llbracket \text{old} \rrbracket = \lambda x \lambda s [\text{old}(s) \wedge \text{holder}(x,s)]$
 - $\llbracket \text{nom}(\text{old}) \rrbracket = \lambda x \exists s [\text{old}(s) \wedge \text{holder}(x,s)]$
 - $\llbracket \text{the} \rrbracket = \lambda P [\iota y [P(y)]]$
 - $\llbracket \text{the}(\text{nom}(\text{old})) \rrbracket = \iota y \exists s [\text{old}(s) \wedge \text{holder}(y,s)]$

In parallel, (36) yields the maximal grouping of *old* states y in the context for which there is some individual holding that state.

- (36) **Mass reading**
- $\llbracket \text{nom. mass} \rrbracket = \lambda A_{\langle e, \langle s, t \rangle \rangle} \lambda s \exists x [A(x)(s)]$
 - $\llbracket \text{old} \rrbracket = \lambda x \lambda s [\text{old}(s) \wedge \text{holder}(x,s)]$
 - $\llbracket \text{nom}(\text{old}) \rrbracket = \lambda s \exists x [\text{old}(s) \wedge \text{holder}(x,s)]$
 - $\llbracket \text{the} \rrbracket = \lambda P [\iota y [P(y)]]$
 - $\llbracket \text{the}(\text{nom}(\text{old})) \rrbracket = \iota y \exists x [\text{old}(y) \wedge \text{holder}(x,y)]$

I assume that one type-shifter or the other must apply, because otherwise the adjective phrase would have two unsaturated arguments ($\lambda x \lambda s$) – in which case, if it combined with a determiner such as *the*, it would still have an open argument. *The* combined with the un-type-shifted denotation for *old* yields $\iota y \lambda s [\text{old}(s) \wedge \text{holder}(y,s)]$ – which has a dangling, unsaturated state argument. But after the nominalizing type-shifter closes off one of these arguments or another, the determiner can apply properly (35)–(36).

This proposal has several attractive features. When we assume the state analysis of adjectives (§2), then the two arguments used to derive the two readings of Determiner + Adjective are already given in the semantics of adjectives. All that is needed is the widely used operation of existential closure, already needed for the adjective to combine with a determiner. The two meanings derived for *the old* – the individuals holding some *old* state, and the *old* states held by some individual or individuals – approximate the intuitive meanings of each reading. I advocate further below for this analysis, and in turn the state analysis of adjectives, over a variety of alternatives. But first, I lay out some specifics.

Kind reference. The meanings in (33a) and (33b) combine with *the* as given in (35)–(36). In the same way, (33a)–(33b) can also combine with other determiners (*some*, *many*, *much*, and so on), accounting for the diversity of determiners observed in §3.

Unlike regular English definite plurals and mass nouns, however, both readings of definite Determiner + Adjective can refer to kinds (§3.4). I claim that these kind readings arise when *the* is interpreted as Chierchia’s (1998) kind-forming \cap operator rather than the ι operator used for regular, non-kind definites. Of course, English *the* is not usually interpreted as the kind-forming \cap (since English definite plurals don’t usually refer to kinds; §3.4), so more must be said.

The vast literature on kind-referring noun phrases across languages (e.g., Chierchia 1998; Schmitt & Munn 1999; Doron 2003; Krifka 2003; Dayal 2004; 2011) argues over cross-linguistic generalizations in the availability and potential for kind reference of bare vs. definite and singular vs. plural nouns. But restricting our attention to English, it seems that definite noun phrases only refer to kinds when the bare noun phrase is not available. Among plurals, the bare noun *lions* is available; the definite plural *the lions* cannot refer to a kind. Among singulars, the bare noun *lion* is not allowed; the definite *the lion* can refer to lion-kind. Therefore, I suggest that the definite Determiner + Adjective can refer to a kind because the bare version of it is not robustly available.⁶ Perhaps the English definite article can convey the kind-forming meaning \cap only when the silent version of \cap (used by Chierchia and others for kind-denoting bare nouns in English) is not available. It is inherently challenging to explain why the kind-referring potential of Determiner + Adjective diverges from the rest of English; but tying these facts to the relative unavailability of the bare form may be a promising direction.

Existential commitment. The proposed analysis existentially closes one of an adjective’s arguments or the other to leave a predicate of the remaining argument. Of course, whichever argument is existentially bound is required to exist. I argue that these existential implications are welcome. For the individuated reading, every *old* individual requires the existence of an *old* state, which makes sense if we assume that what it means to be *old* is to hold some *old* state. For the mass reading, every *old* state requires the existence of an *old* individual holding that state, which also makes sense if we assume that *old* states do not exist except as they are instantiated by particular individuals – consistent with Piñon’s claim that eventualities only exist if their participants do (Piñon 1995: vi); with Moltmann’s discussion of “tropes” (essentially, states) as properties instantiated by particular individuals; with Anderson and Morzycki’s claim that a state of *oldness* is measured by measuring the age of its bearer (which is required to exist); and with Baglini’s claim (Baglini 2015: 218) that every state must be associated with a unique bearer.

Individuation and plurality. Furthermore, I assume that the individuals (people, animals, and so on) described by the individuated reading are countable, explaining why (35) behaves like a count noun; while states act like mass nouns, capturing the mass behavior of (36). This assumption draws on work by Bach (1986); Krifka (1992); and Piñon (1995) pointing out the formal parallels between the atelicity of states and the unboundedness of mass nouns; and work observing that abstract nouns which arguably denote states (*wisdom*, *courage*; see §6.2) behave similarly – though not identically – to mass nouns (Tovena 2001; Nicolas 2004; Baglini 2015). More basically, to use an idea dating back to Jespersen (1924: 198), perhaps abstractions such as *courage* (or the mass reading of *the old*) behave like mass nouns because they do not come in regular units the way the things denoted by count nouns do (see also Grimm 2012). If one assumes a syntactic analysis of

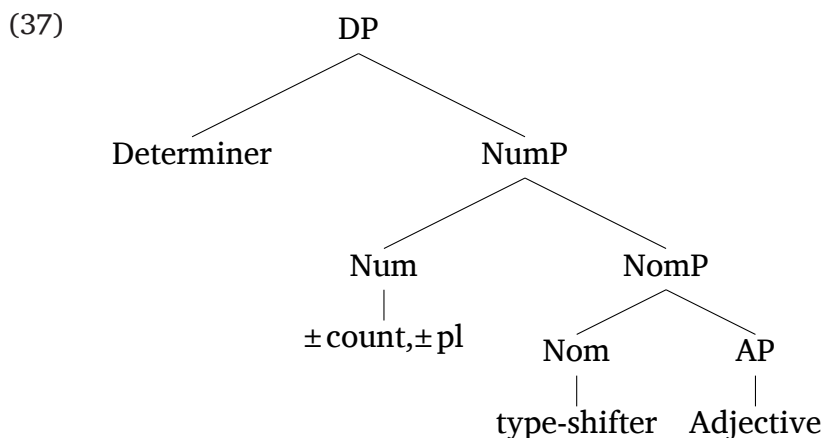
⁶ §3.3 presents some determinerless examples such as *rich and poor are affected*, but these seem to be less productive.

determiner selection and agreement, one could posit a “count” Num(eral) head for the individuated reading and a “mass” Num head for the mass reading (King 2018), in order to reflect facts which are ultimately grounded in the (un)boundedness of the two readings’ referents.

While it may be possible to derive this construction’s mass/count behavior from deeper principles, another fact has no clear motivation: that the individuated reading behaves as a plural. The semantics in (35), combined with a determiner, should in theory be able to pick out a singular referent as well as a plural one: *the old* should be able to refer to a single, salient, old individual. But in reality, the individuated reading only acts as a plural. I follow several previous analysis (reviewed below in §7.1) in simply stipulating this fact. If the count behavior of the individuated reading is captured by a “count” Num head, then this Num head may also be marked as plural.

As for the mass reading, I assume that its Num head is marked as singular, which is consistent with the singular grammatical behavior of mass nouns more generally.

Syntax. Turning to the syntax, I assume a structure like the one sketched in (37): the type-shifter is hosted in a “nominalizing” node Nom, and combines with a full adjective phrase to create a nominalization. This nominalization then combines with a Num head which ensures the correct mass/count and plural behavior: a plural count Num head for the individuated reading, and a mass singular Num head for the mass reading (similar to King 2018). Finally, that whole structure serves as a complement to a determiner.



This representation, not as elaborate as one that a syntactician might propose, is simply intended to capture the syntactic facts laid out in §3. The full construction is analyzed as a DP because it has the syntactic distribution of one. The NumP is used to capture the facts about each reading’s individuation and plurality behavior. The NomP is motivated because the construction can be modified by adjectives, which generally only modify nominals (*the silly rich*; §3). The type-shifter sits in the “nominalizing” node Nom as a sister to the AP because it combines with the adjective phrase to turn it into something noun-like. The adjective is placed within an adjective phrase to explain why the adjective can be modified by adverbs and degree modifiers (*the disgustingly rich*; §3), which can generally only modify adjectives (and are assumed to serve as adjuncts to the adjective phrase).

In sum, the proposal is to derive the two different readings of Determiner + Adjective by existentially closing off one or the other of the two variables which the state analysis makes available in the semantics of adjectives, creating a predicate of individuals (for the individuated reading) or a predicate of states (for the mass reading). Several parts of this analysis invite further work: the potential for kind reference remains a bit of a puzzle; the plural Number projection used for the individuated reading is a stipulation. But on

the positive side, I argue that this analysis of Determiner + Adjective (and in turn, the state analysis of adjectives on which it is built) connects to a variety of independently motivated ideas (§5–§6), giving it an advantage over alternatives (§7).

5 The dual nature of properties

One advantage of the proposed analysis, I argue, is its connection to the philosophical literature on the dual nature of properties.

When we imagine a property such as *old*, we can think of the individuals who display it (*old people*), or we can think of the abstract thing that they share (*oldness*). These two construals have a long history in the philosophy literature on properties – the things which adjectives are thought to describe (Dixon 1982). Since the work of Frege (1892), properties have been analyzed in two ways (Chierchia 1985; Chierchia & Turner 1988; Bealer & Mönnich 1989; Orilia & Swoyer 2016):

- i. as predicates, which can be true or false of individuals
- ii. as abstract individuals themselves

Part of the motivation for this “Fregean” duality comes from natural language (Chierchia 1985; Chierchia & Turner 1988; Moltmann 2004). A predicate of individuals such as (*is*) *old* combines with an individual to create a proposition (*Alex is old*). But when such a predicate of individuals is morphosyntactically nominalized (*oldness*), it functions grammatically as an individual, serving as an argument to other predicates (*oldness is subjective*). These “properties-as-individuals” are “objects” for Frege, and “individual correlates” of properties for Chierchia & Turner. They behave in many ways like mass nouns (Levinson 1978): *so much oldness/?so many oldnesses*. No matter how it is implemented, the intuition is that the concept *old* can be thought of as a thing that is true or false of individuals (the predicate of individuals *old*); or alternatively as the quality shared by the individuals of whom it is true (the mass-like *oldness*).

Of course, these two construals of a property like *old/oldness* – as a predicate of individuals, and as an abstract mass-like noun – are strikingly parallel to the two distinct readings of *the old*. The proposed analysis takes advantage of this parallelism: the “predicate of individuals” construal of properties underlies the individuated reading (implemented as a predicate of individuals who hold some *old* state), and the “abstract mass” construal (implemented as a predicate of *old* states held by some individuals) underlies the mass reading.

More deeply, the proposed analysis of Determiner + Adjective connects to the dual nature of properties because the state analysis of adjectives itself does so. By relating an *old* individual to an *old* state, the state analysis characterizes both the individuals who are *old* (reflecting the construal of properties as predicates of individuals), and the *old* states held by such individuals (reflecting the construal of properties as [predicates of] abstract objects). In other words, the state analysis is not just motivated by analogy to the neo-Davidsonian treatment of verb phrases (§2), but is more fundamentally motivated by its connection to the philosophical conception of properties, which adjectives are thought to describe. I take this connection as a point in favor of both the state analysis of adjectives and of the proposed account of Determiner + Adjective which is built on it.

6 Connection to other nominalizations

As further motivation, I connect the state analysis of adjectives and of Determiner + Adjective to independently motivated analyses of deverbal (§6.1) and deadjectival (§6.2) nominalizations.

6.1 Deverbal nominalizations

The state analysis of adjectives was originally motivated by analogy to the event analysis of verb phrases (§2). The state analysis of *nominalized* adjectives (such as Determiner + Adjective) can similarly be motivated by analogy to the event analysis of nominalized verb phrases.

Broadly, there are two types of deverbal nominalizations (e.g., Baker & Vinokurova 2009; Grimshaw 2011; Roy & Soare 2013): those referring to the individual participants in the event described by the verb phrase (38a) (often ending with *-er* for agents, *-ee* for patients; Levin & Rappaport 1988; Lieber 2004); and those referring to the event described by the verb phrase (38b) (often ending with *-ing*; Higginbotham 1985; Zucchi 1993; Maienborn 2011: §2; Grimm & McNally 2015).

- (38) Adapted from Baker & Vinokurova (2009: 517)
- a. **Agent nominalization:** the finder of the wallet
 - b. **Event nominalization:** (the) finding (of) the wallet

These two types of nominals can be analyzed as predicates of one or the other of two arguments assumed to be present in the semantics of a verb phrase on the neo-Davidsonian analysis: the agent argument (38a), and the event argument (38b) (e.g., Baker & Vinokurova 2009; Roy & Soare 2013).

Of course, this approach exactly parallels the proposed analysis of Determiner + Adjective. The individuated reading of Determiner + Adjective is analyzed as a predicate of individuals holding some *old* state, just as (38a) (before combining with the determiner) is analyzed as a predicate of individuals who serve as agent to an event of finding the wallet. (In the same way, both *-er* nominalizations and the individuated reading of Determiner + Adjective have a strong tendency to refer to humans, but are not required to do so: (38a) is presumably a human, but might also be a dog or robot.) The mass reading of Determiner + Adjective is analyzed as a predicate of *old* states, just as (38b) (before combining with the determiner) is analyzed as a predicate of events of wallet-finding. It is an advantage of the proposed analysis of Determiner + Adjective, and of the state analysis of adjectives more generally, that it mirrors this independent analysis of deverbal nominalizations.

6.2 Nominalizing adjectival suffixes (-ness)

Determiner + Adjective can also be connected to other ways of nominalizing adjectives. There is no widely productive adjectival analogue of the verbal *-er* suffix (38a) to denote individuals; but there are suffixes such as *-ness* which turn an adjective into an abstract mass-like noun (*oldness*) denoting something like the quality shared by *old* individuals.

Most authors would agree that a deverbal nominalization such as *finding the wallet* denotes an event of some sort (§6.1). In contrast, there is no consensus about the meaning of deadjectival mass nouns such as *oldness*. For Nicolas (2004), such nouns denote instances of a property; for King (2018: Chapter 3), they denote tropes (arguably indistinguishable from states); for Moltmann (2004) *et seq.*, *kinds* of tropes; for Villalba (2009; 2013), they may denote more specifically tropes or “entity correlates” of “properties” or “qualities”; for Bochnak (2013: Chapter 4), they denote the maximal degree to which an individual holds a property; for Baglini (2015), they denote states. Citing languages where meanings that would be adjectives in English are instead expressed by abstract mass nouns such as *oldness*, Koontz-Garboden and Francez offer a series of further proposals: for Koontz-Garboden & Francez (2010), words like *oldness* denote the “individual correlate” of a property (Chierchia & Turner 1988); for Francez & Koontz-Garboden (2015), a

predicate of “portions” of an abstract “substance” – the abstract version of a mass noun like *water*, analyzed as in Link (1983). For Francez & Koontz-Garboden (2017), inspired by subtle grammatical differences between abstract nouns like *oldness* and concrete ones like *water* – Tovena (2001) for Romance, Baglini (2015) for Wolof – *oldness* characterizes “portions” of a “quality”, which are ordered by their “size”, whereas portions of concrete masses such as *water* are ordered by a Link-style part/whole relation (Link 1983). In English, the debate extends further to the meaning of the suffix *-ness*: how it does or does not differ from its less productive counterpart *-ity* (Riddle 1985; Romaine 1985; Baeskow 2012; Arndt-Lappe 2014; Dixon 2014; Lieber 2016), and whether it has a semantic function or just a syntactic category-changing one (Riddle 1985; Romaine 1985; Baeskow 2012; Baglini 2015: 291; Lieber 2016: Chapter 7).

The current investigation of Determiner + Adjective raises a more targeted question: how do suffixed forms such as *oldness* compare to the mass reading of *the old*? Grammatically, both forms act like mass nouns; referentially, they seem similar; but are they synonymous?

Looking first at the data, we find many examples where these forms appear interchangeable. (39) provides naturally occurring examples of the mass reading of Determiner + Adjective which scarcely differ (to my native-speaker judgment) from substitutions by the *-ness* form. In the reverse direction, (40) shows examples where the original *-ness* seems to be synonymously substituted with the mass version of Determiner + Adjective.⁷

(39) ***-ness* can replace original mass Determiner + Adjective**

- a. *The {crazy/craziness} [in that academic repository] is easily detected and easily ignored.*^{web}
- b. *My girlfriend has always been fairly neurotic, but since we had a child, the {crazy/craziness} is making me nuts.*^{web}
- c. *All of this {pretty/prettiness} is worth OVER \$2,000.*^{web}
- d. *There was not enough {cute/cuteness} to counteract the {dull/dullness} and {stupid/stupidness} here.*^{web}
- e. *I really liked the chipotle mayo as it added some {spicy/spiciness} to the dish.*^{web}

(40) **Mass Determiner + Adjective can replace original *-ness***

- a. *For the most part, the {silliness/silly} is intended to lift an advertiser’s message beyond the clutter.*^{web}
- b. *And now that the {craziness/crazy} is over, I’ve had time to reflect on my strange five-day adventure in Vegas.*^{web}
- c. *Kitschy things are often pretty, and the {prettiness/pretty} is often merely sentimental or, worse, manipulative.*^{web}
- d. *The result is enough {cuteness/cute} to make your week: a sweet, pitiful almost-howl, interrupted by the most adorable snorts you’ve ever heard.*^{web}
- e. *Food from these countries are among my favourite, if the {spiciness/spicy} is toned down to a reasonable level.*^{web}

But there are also examples where the mass reading of Determiner + Adjective and the *-ness* form are not interchangeable: the *-ness* form cannot be substituted for the original mass Determiner + Adjective in (41); the mass Determiner + Adjective form cannot be substituted for the original *-ness* form in (42).

⁷ The web examples where *-ness* is used in the original are not listed in the supplementary file because no one would dispute that such examples occur robustly in English.

- (41) **-ness cannot replace original mass Determiner + Adjective**
- A new entertaining and insightful exhibition [...] confronts one of the most dynamic and hard-to-define concepts in American cultural life – *the {cool/?coolness}*.^{web}
 - What they [Bronze Age rural people] did share with them [urbanites] was a taste for *the {expensive/?expensiveness}* and the *{exotic/?exoticness}*, and thanks to well-established trade-routes [...] they had long been able to get what they wanted.^{web}
 - This tendency toward *the {cheerful/?cheerfulness}* is grounded in aesthetic choices, certainly.^{web}
 - The line between *the {eccentric/?eccentricness}* and *the {tacky/?tackiness}* is very fine, and season after season, Jeremy Scott has demonstrated his skill at walking that tightrope of taste.^{web}
 - His silky voice maintains an air of casual reporting, indicating that even *the very {bizarre/?bizarreness}* is simply business as usual in Night Vale.^{web}
- (42) **Mass Determiner + Adjective cannot replace original -ness**
- The {coolness/?cool}* of owning great audio gear waxes and wanes.^{web}
 - In the first [study], researchers asked 35 people to rate *the {expensiveness/?expensive}*, *{sweetness/?sweet}* and density of yogurt eaten with several plastic spoons.^{web}
 - [...] along with a cameo by an effusive Busta Rhymes, who has *the {cheerfulness/?cheerful}* of new money.^{web}
 - Not only did it [the cinematography] convey *the {eccentricness/?eccentric}* of the bar, but the juxtaposition of these two shots encapsulates much of the humor in this show.^{web}
 - Knowing someone else is going through *the {bizarreness/?bizarre}* of pregnancy with you makes it feel a little less impossible.^{web}

More generally, when studying constructions or suffixes that can apply to many different lexical items, one faces a methodological question: if many doublets appear synonymous but some diverge, is it better to capture the synonymy and tinker to get the contrasts, or to capture the contrasts and tinker to get the synonymy (Lieber 2016: Chapter 7)?⁸

In this case, I propose to capture the synonymy between these two intuitively similar constructions by deriving the *-ness* form in the same way as the mass version of Determiner + Adjective: closing off the individual variable to yield a predicate of *old* states (43).⁹ This predicate of states can combine with a determiner (*the oldness*); or, like other bare mass nouns in English, can be mapped via Chierchia's \cap operator to a kind-denoting bare mass noun.

- (43)
- $[[old]] = \lambda x \lambda s [old(s) \wedge holder(x,s)]$
 - $[[-ness]] = \lambda A_{\langle e, \langle s, t \rangle \rangle} \lambda s \exists x [A(x)(s)]$
 - $[[oldness]] = \lambda s \exists x [old(s) \wedge holder(x,s)]$

⁸ This question comes up in the literature on *-ness* versus *-ity*: there are doublets that seem synonymous (*the pureness/purity of her enthusiasm*; Lieber 2016) but also ones that differ (*ethnicness/ethnicity*; *antiqueness/antiquity*; Riddle 1985; Baeskow 2012). Lieber (2016) argues that the divergent doublets arise when the *-ity* form “drifts” to encode an idiosyncratic meaning, but do not stem from any semantic difference between *-ity* and *-ness*.

⁹ This analysis coheres with Parsons (1990: Chapter 10), who intuitively that *Agatha's cleverness* refers to a state (“but I don't know how to prove it”, he adds); and with King (2018: Chapter 3), who analyzes the Slovak version of *-ness* essentially the same way as I do here (using “tropes” rather than “states”, although I take these these to be the same thing).

As for the subtle differences between mass Determiner + Adjective and *-ness* forms, I argue that these arise because *-ness* applies only to adjectives, not full adjective phrases; and because the *-ness* version cannot refer to a kind when used as a definite (§3.4), requires no determiner, and is more generally less marked. (41a) may be degraded with the *-ness* form because the original *the cool* in (41a) refers to coolness in general, while the definite *the coolness* refers to some specific coolness, which is absent from the context (similarly for (41b)–(41d)). Consistent with that claim, (41a)–(41d) become much closer in meaning if the definite article is removed from the *-ness* form (*coolness* instead of *the coolness* in (41a)), on the assumption that the determinerless version (*coolness*) can denote a kind. As for (41e), *very bizarre* is too syntactically complex to be suffixed by *-ness* (and *very* does not modify nouns such as *bizarreness*). Conversely, (42a)–(42e) may be degraded with the relatively more marked mass Determiner + Adjective form because its markedness seems to increase in object position (vs. subject position); with particularized, non-kind reference; and with prepositional phrases (Quirk et al. 1972). Such differences can separate the two constructions even if their meaning is identical.

In sum, I propose to analyze both the mass reading of Determiner + Adjective and the *-ness* form in a uniform fashion as predicates of states. In fact, the idea that there are multiple different adjective-nominalizing strategies with the same semantics has historical precedent: the (arguably synonymous) suffixes *-ity* and *-ness* have been in competition for centuries (Riddle 1985; Romaine 1985; Arndt-Lappe 2014). Synchronically, the Determiner + Adjective strategy is clearly the underdog relative to *-ness*; but it remains an open question whether it is gaining or losing ground diachronically.

Stepping back, the state analysis of adjectives was originally motivated by parallels between verb phrases and adjectives. This section has further motivated the analysis by exploring the same parallels among both verb phrases and adjectives that have been nominalized – further illustrating the utility of analyzing adjectives (similar to verbs) not just in terms of the individuals of whom they are true, but also in terms of the properties/states that they ascribe to those individuals.

7 Other ways of analyzing these data

Having advocated for the proposed analysis of Determiner + Adjective and the state analysis of adjectives more generally, I now explore some alternatives: other analyses of Determiner + Adjective from the literature (§7.1), and a hypothetical analysis built on an analysis of adjectives using only degrees, not states (§7.2).

7.1 Previous analyses of Determiner + Adjective

For each analysis of Determiner + Adjective from the literature, I present its empirical predictions and theoretical commitments. Empirically, a few approaches make predictions that do not fit with the English data because they were designed for languages with different facts. Theoretically, while these approaches illuminate various other larger questions, most do not aim to connect Determiner + Adjective to the broader picture of adjectives and nominalizations pursued here.

Mapping properties to kinds. Giannakidou & Stavrou (1999) discuss both readings of Determiner + Adjective, in Greek and to some extent English, but only give an analysis of the individuated reading. For them, the adjective denotes a property and the definite determiner contributes \cap (Chierchia 1998), which maps properties to kinds; so *the rich* denotes rich individuals as a kind.

Theoretically, their account is built on the kind-forming \cap operator. Empirically, Giannakidou and Stavrou predict that Determiner + Adjective requires the definite

determiner; that it inherently denotes a kind (although it need not denote humans); and that it is restricted in its productivity. (Not every property has a corresponding kind, they say, so not every property can appear in Determiner + Adjective.) In English as opposed to Greek, these predictions are called into question by the data presented in §3.

Silent nouns. Another, more common approach derives both readings of Determiner + Adjective using silent nouns with the desired semantics: humans for the individuated reading, stuff for the mass reading. While §3.5 shows that the individuated reading of Determiner + Adjective does not universally refer to humans, this point should not be decisive; any analysis could be adjusted to capture the few exceptions.

Kester (1996) proposes a silent noun with the features [+human +generic +plural] for the individuated reading, and another one with the features [-animate -count] for the mass reading. Empirically, she predicts that the English individuated reading refers only generically, and only to humans. Theoretically, one might wonder why these particular silent nouns are available.

Chierchia (1998) handles the individuated reading of English Determiner + Adjective with a silent plural noun denoting people. On his account, the adjective modifies a null noun (Δ) with a +plural feature. Δ takes an adjective (a predicate of individuals) as an argument, and returns a function from individuals to “true” if those individuals are the unique, maximal, group of people (from the semantics of the ι operator) with that property. Ultimately, *the rich* (44) yields the totality of rich people.

- (44) Adapted from Chierchia (1998: 395)
 the rich $\Delta = \iota x[x = \text{rich}(\text{people})]$
 “the maximal x such that x is the maximal set of rich people”

Empirically, this account predicts that the individuated reading of Determiner + Adjective always refers to humans, as a kind. The definite determiner is said to be needed to license the silent noun Δ . These restrictions may be questioned by the data in §3 showing that the individuated reading occurs with a variety of determiners. Theoretically, the account posits a silent *people*, which Chierchia acknowledges may be stipulative (Chierchia 1998: 395).

McNally & de Swart (2015) analyze the Dutch individuated reading as in (45). The adjective modifies a null noun, *pro*, referring to human kinds. The plural morphology realized on the Dutch adjective *rijken* (‘rich-PL’) then maps this kind to its realizations via a realization operator R (Carlson 1977); and these realizations are guaranteed to be pluralities by the pluralizing ‘star’ \star operator from Link (1983). The result is a function characterizing the set of pluralities of rich people (45); combined with *de* ‘the’, it yields the maximal set of plural realizations of the kind “rich people”.

- (45) *Dutch*; adapted from McNally & de Swart (2015: 324)
de rijken ‘the rich-PL’
 $\text{rijken} = \lambda y[R^*(y, x_k) \wedge \text{rich}_{+human}(x_k)]$
 $\text{de rijken} = \iota y[R^*(y, x_k) \wedge \text{rich}_{+human}(x_k)]$
 “the maximal y such that y is the set of plural realizations of the kind
 of rich people”

For the Dutch mass reading, they propose a construction which works like a free relative (*the good* is analyzed as *that which is good*), explaining certain syntactic restrictions

in Dutch.¹⁰ But in a followup paper, McNally et al. (2017) offer an analysis of the mass Determiner + Adjective in languages such as English where it can combine with a variety of determiners and modifiers. The adjective is nominalized (turning *pretty* into a property of pretty-kinds) and then mapped by a massifying numeral projection to its mass realizations. Ultimately, on its mass reading, ‘the pretty’ has the semantics in (46):

- (46) Adapted from McNally et al. (2017: ex. 33)
 the pretty = $\iota y[R^*(y, x_k) \wedge \text{pretty}(x_k)]$
 “the maximal y such that y realizes the kind of pretty stuff”

Empirically, McNally & de Swart (2015) and McNally et al. (2017) predict that the individuated reading of Determiner + Adjective must refer to humans, but not necessarily as a kind; that the English mass reading of Determiner + Adjective refers to “stuff” displaying the property described by the adjective; and that both constructions occur with a variety of modifiers and determiners. Apart from a minor quibble about human reference (§3.5), these predictions are consistent with the data reported in §3. Theoretically, this account uses a silent *pro* for the individuated reading, and a massifying numeral projection for the mass reading.

A final “null noun” analysis comes from Günther (2017), who studies Determiner + Adjective from a corpus perspective. She not only analyzes both the individuated and mass readings of the construction together, but also further unifies them with the nominal ellipsis discussed in §3.1. For her, the adjective always modifies a silent element *one*, which can refer to (i) an antecedent (for the ellipsis case), or to one of two prototypical concepts denoted by nouns – (ii) humans (for the individuated reading); or (iii) impersonal/abstract things (for the mass reading).

Empirically, she predicts that the individuated reading of English Determiner + Adjective always refers to humans, usually generically (which, she says, is because English adjectives lack the number marking needed to concretize generic concepts) – although she acknowledges some corpus examples where it describes particulars. She acknowledges examples using demonstratives and possessives in addition to the definite determiner. As for the mass reading, she claims that it is always definite, singular, and mass. Theoretically, although Günther’s proposal is unique in relating Determiner + Adjective to DP-internal ellipsis (§3.1), it is similar to other “null noun” analyses in that the desired readings are derived from null material referring to individuals or stuff.

Deriving Determiner + Adjective from material internal to the adjective. A different genre of analysis – exemplified by King (2018), who actually draws on a much earlier instantiation of the current work (Glass 2014) – explains Determiner + Adjective essentially as I do here: using material already posited in the semantics of adjectives.

¹⁰ Specifically, *het goede* ‘the good’ is given the semantics in (i). *Good* combined with *pro* yields a function from situations to anything *good* in that situation; the * operator from Link gives the closure under sum of that function, yielding all *good* from the situation. When we add the ι operator contributed by the definite article, we get a function from situations to the unique, maximal sum of all the *good* stuff in that situation. Note that s stands for a situation (similar to a world as discussed in the literature on modals), not a state, and plays a very different role in (i) than the state variable used in (36).

- (i) Dutch; adapted from McNally & de Swart (2015: 330)
het goede ‘the good’
 $\lambda s \iota x[\text{good}^*(x_{[-anim, -count]})(s)]$
 “function from a situation to the maximal sum of good stuff in that situation”

Focusing on the mass reading of Determiner + Adjective in Slovak,¹¹ King’s analysis begins from a version of the state analysis of adjectives: she assumes that adjectives relate “tropes” (concrete instantiations of properties; Moltmann 2004) to their “bearers” (the individuals or stuff manifesting that property), as in (47a). The Slovak mass reading of Determiner + Adjective is analyzed in terms of a type-shifter which existentially quantifies over the trope variable, leaving a predicate of bearers of that trope (47b) which can then combine with the definite ι operator. Ultimately, the Slovak version of the mass *the new* has the semantics in (47c). Syntactically, King posits that the adjective combines with a -count Num head, capturing its mass behavior.

- (47) *Slovak*; adapted from King (2018: 73)
- (to) *nové* ‘the new’
- $\text{new} = \lambda z \lambda t_{\text{trope}} [\text{new}(t_{\text{trope}}) \wedge \text{bearer}(t_{\text{trope}}, z)]$
 - $\text{new}_{\text{nom}} = \lambda z \exists t_{\text{trope}} [\text{new}(t_{\text{trope}}) \wedge \text{bearer}(t_{\text{trope}}, z)]$
 - (to) *nové* ‘the new’ = $\iota z \exists t_{\text{trope}} [\text{new}(t_{\text{trope}}) \wedge \text{bearer}(t_{\text{trope}}, z)]$
“the unique, maximal z for which there is a trope of newness manifested by z ”

As for the individuated reading, King briefly suggests that it has the exact same semantics as the mass reading (47c), except that it combines with a +count Num head instead of a -count one.

Empirically, King allows that both readings may refer generically or particularly (depending on whether the definite ι or the kind-forming \cap is applied, both of which she takes to be silent in Slovak); that the individuated reading need not refer to humans; and that both readings may be productive with a variety of determiners and modifiers – all consistent with the data presented above §3. Theoretically, her analysis capitalizes on semantic material that is arguably independently motivated when adjectives are taken to relate individuals to states (tropes), just as I do here. However, given that the individuated and mass readings differ in their reference, it may seem odd that they differ only in having a count or mass Number projection. Furthermore, while I analyze the mass reading as a predicate of states and the individuated reading as a predicate of individuals (§4), King analyzes both of these as predicates of individuals and reserves the “predicate of states/tropes” analysis for a third Slovak construction with no English equivalent (see Footnote 12).

While King’s analysis is implemented differently from mine, it shares the broad goal of deriving Determiner + Adjective from material already hypothesized to be present in the semantics of adjectives on the state (“trope”) analysis thereof.

Discussion To summarize, some accounts of Determiner + Adjective do not fully capture the English facts. Others do, but without connecting Determiner + Adjective to the state analysis of adjectives or the analysis of eventuality-denoting nominalizations. While

¹¹ In Slovak, as in Dutch and several other languages (McNally & de Swart 2015; McNally et al. 2017), the individuated and mass readings of Determiner + Adjective are joined by a third construction with no English equivalent where the adjective combines with a prepositional Noun Phrase to yield the meaning “the (adjective) aspect of NP”, as in the Slovak example *to cenné na cirkvi* ‘the valuable (aspect) of the church’ (King 2018: 82). King is primarily interested in on the difference between the Slovak equivalent of the mass reading of Determiner + Adjective (what she calls the “bearer” reading) and the version where the adjective combines with a prepositional phrase (what she calls the “trope” reading). For King, *the valuable of the church* in Slovak has the semantics in (i), where *the church* saturates the “bearer” variable of the adjective and its trope variable is maximized by the definite ι :

- (i) *Slovak*; adapted from King (2018: 82)
- to cenné na cirkvi* ‘the valuable (aspect) of the church’
- $\iota t_{\text{trope}} [\text{valuable}(t) \wedge \text{bearer}(t, \iota c [\text{church}(c)])]$
- “the unique, maximal trope t such that t is valuableness and t is manifested by the church”

any analysis that captures the data is of course valid, I would like to advocate for the value of situating Determiner + Adjective in a broader light, as I have tried to do here.

7.2 The degree analysis without states

One more alternative has not been advocated in the literature, but arises when the state analysis of adjectives is contrasted with the state-less degree analysis (§2): how could Determiner + Adjective be analyzed if adjectives are actually just measure functions (48)?

- (48) Alex is POS(*old*) = $old(Alex) \geq \theta_{old}$
 “Alex’s degree of oldness exceeds the contextual standard for what counts as *old*.”

When the adjective combines with POS (§2), it transforms from a measure function (type $\langle e, d \rangle$) into a function from individuals to truth values (type $\langle e, t \rangle$). In that case, it has only one argument (the individual argument). Whereas §4 handles Determiner + Adjective by existentially closing off one or the other of the two arguments made available by the state analysis, that strategy is not available when the adjective is taken as a predicate of individuals. Instead, one could adopt various other analysis from the literature (§7.1). For Kester, the adjective would modify a silent noun with the correct features. For McNally and de Swart, the individuated reading would be handled with a null *pro* denoting humans, and the mass reading would be handled as a free relative (*that which is old*) or as a predicate of realizations of the kind of *old* “stuff”. For Günther, both readings would involve a silent *one* which can denote either humans or abstractions. These analyses treat adjectives as predicates of individuals,¹² which is what we get on the degree analysis after applying POS.

More along the lines of the analysis advocated here (§4), one could instead manipulate the two variables (the individual variable and the degree variable) used in the degree analysis of adjectives. Drawing on Bochnak (2013: Chapter 4), one could analyze the individuated reading of Determiner + Adjective as a predicate of individuals whose degree of oldness exceeds some contextual threshold for what counts as *old* in the context (49a); and the mass reading as a predicate of degrees of oldness (perhaps those exceeding some threshold) held by some individual (49b).

- (49) a. **Predicate of individuals:** $\lambda x \exists d [old(x) \geq d \geq \theta_{old}]$
 b. **Predicate of degrees:** $\lambda d \exists x [old(x) \geq d \geq \theta_{old}]$

For the individuated reading, (49a) is satisfactory: it yields a predicate of *old* individuals, essentially the same as on my analysis (§4). It is the mass reading – analyzed as a predicate of degrees (49b) – which raises questions. While degrees and states are both quite abstract, they can be distinguished by arguments that states (like all eventualities) occupy space and time (Moltmann 2009; Villalba 2013) and instantiate manners (Landman & Morzycki 2003; Wellwood 2014; 2015; Anderson & Morzycki 2015; Ernst 2016), while degrees do not.¹³ Some authors have claimed to the contrary that states are not full Davidsonian eventualities (Katz 2003; 2008; Maienborn 2007) – that they do not occupy time or space or instantiate manners – but there are strong empirical arguments that they do. For example, stative predicates (including adjectives) can be modified by adverbs thought to apply to eventualities rather than degrees (Mittwoch 2005; Wellwood 2014; 2015; Anderson & Morzycki 2015; Ernst 2016).

¹² Actually, for McNally and de Swart, adjectives (and nouns) are predicates of *kinds* which are mapped to their realizations by number marking; but their analysis could be recast without that assumption.

¹³ Moltmann also claims that degrees cannot serve as objects of perception nor enter into causal relations; but those diagnostics are somewhat less convincing (see Bochnak 2013: Chapter 4).

If states but not degrees occupy space/time and instantiate manners, then the state analysis but not the state-less degree analysis can explain data showing the mass reading of Determiner + Adjective combining with temporal (50), spatial (51), and manner (52) predicates and modifiers – which are all assumed to characterize eventualities rather than degrees.

- (50) a. **Mass:** *The crazy lasted about two months* after pregnancy while hormones levelled out and my body normalized.^{web}
 b. **Mass:** I'm glad *the sad lasted for an hour* and not days.^{web}
 c. **Mass:** *The sour lasts a little bit* – it's the heart of the perfume – and then it dries down to this generic shampoo scent.^{web}
- (51) a. **Mass:** Otherwise *all the interesting is located in the City*, which is easily reached by bus.^{web}
 b. **Mass:** *The sweet is found in herbs*, such as parsley [...] ^{web}
 c. **Mass:** I have spent more of my time trying to control *the crazy on the outside* than I have working toward creating *calm on the inside*.^{web}
 d. **Mass:** I like *the sparkly on the redhead's dress*.^{web}
- (52) a. **Mass:** I love trying to capture *the delicate beautiful* of these winter blooms.^{web}
 b. **Mass:** This photo by Jassen Todorov reveals *the rugged beautiful* of Koehn Lake in the Mojave Desert in California.^{web}

In the same way, if the *-ness* forms are analyzed as synonymous to the mass Determiner + Adjective forms (as predicates of states on the state analysis, or predicates of degrees on the state-less degree analysis), then the state analysis but not the degree analysis explains why those forms also can combine with temporal (53a), spatial (53b), and manner (53c) predicates and modifiers.

- (53) a. One time I bought two dresses for \$100/each. *The happiness lasted for a couple of months* and then disappeared.^{web}
 b. The country's highest court has a strategy for combatting *the craziness in Washington*: stop focusing on the President.^{web}
 c. Explore *the beautiful ruggedness* of the UK coastline whilst enjoying [...] our coastal bed and breakfast accommodation.^{web}

Furthermore, if the degree analysis treats nominalized adjectives as predicates of degrees, then it would abandon the parallel between eventive and stative nominalizations yielded by the state analysis (§6.1).

To summarize, I have argued that the proposed analysis of Determiner + Adjective captures more data when built on the state analysis rather than a rival analysis without states.

8 Conclusion

This paper has weighed in on a debate about adjective meaning – whether adjectives should be given a state argument or not – by arguing that the state analysis better handles the Determiner + Adjective construction in English. Empirically, the paper has shown that Determiner + Adjective is more productive and flexible than sometimes suggested. Theoretically, the two readings of Determiner + Adjective are derived by existentially quantifying one or the other of the two arguments that the state analysis makes available in the semantics of adjectives. On its individuated reading, *the old* picks out the individuals who hold some *old* state; on its mass reading, it picks out the *old* states held by some

individual. This analysis is predicted to extend to similar constructions cross-linguistically. Future work might also build on Cresswell (1976); Bach (1986); Piñon (1995); Kennedy & McNally (2005); Bale (2008); Moltmann (2009); Lassiter (2011); Wellwood (2014); Baglini (2015); Champollion & Krifka (2015); Francez & Koontz-Garboden (2017); and others to further clarify the formal ontological profiles of states, degrees, tropes, and properties, left vague here.

The proposed analysis – and in turn the state analysis of adjectives underlying it – not only captures the two readings of Determiner + Adjective, but also yields insight into why these are the two readings that are found. The two readings of this construction are connected to the conceptual duality of properties from the philosophy literature, as predicates of individuals and as the abstract thing that those individuals share. They are also connected to two ways of nominalizing verb phrases: the individuated reading is parallel to nominalizations of verb phrases denoting participants, while the mass reading is parallel to nominalizations of verb phrases denoting events. By treating the mass reading of Determiner + Adjective as a predicate of states, the analysis further illuminates adjectives nominalized by *-ness*. These connections all build on the idea that adjectives relate individuals to the states they hold, just as verb phrases relate individuals to events in which they participate.

More deeply, the neo-Davidsonian analysis reflects the intuition that verb phrases (*run*) and adjectives (*old*) describe not just individuals, but also events that happen or states that hold. That is why they are given semantic arguments for both individuals and eventualities. From that perspective, it is not surprising that Determiner + Adjective can refer to either of these arguments.

Additional File

The additional file for this article can be found as follows:

- **Supplementary File 1.** Sources and context for naturally-occurring data. DOI: <https://doi.org/10.5334/gjgl.552.s1>

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