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Event Readings of Nouns, Mass Terms, and Bare Singulars in English

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Abstract Eventive readings of non-eventive nominals are systematically possible in English in more or less arbitrary argument positions, we will show, when the noun belongs to a narrow but productive class that includes terms for games and musical instruments—and in the right discourse contexts, other nouns too. On the object reading, these nouns are count, but on the eventive reading, they are necessarily semantically mass. These readings are also possible under a wide variety of determiners. They can even be expressed with bare singular DP arguments, which are of course not generally possible in English. We treat these uses as the result of a semantic shift that approximates the the effects of gerundive nominalization: for example, it may map *piano* to something like 'piano playing'. Building on previous work Greeson et al. (to appear), we demonstrate that these assumptions—along with typical assumptions about kind reference and event kinds—make possible an explanation of the curious behavior of definite descriptions and bare singulars with *play* (*e.g. play (the) piano*). That includes finer-grained facts about kind reference, event kinds, adverbial readings of adjectives, and classificatory/relational adjectives (i.e. subkind modifiers).

Keywords events, event kinds, definiteness, kind reference, modification, adverbial readings, classificatory/relational adjectives, subkind modifiers

1 Introduction

Setting aside mass terms, bare singular nominals—ones lacking an overt determiner—are not generally able to occur in argument positions in English. Bare plurals famously are, and they were the starting point for work on kind reference in formal semantics in Carlson (1977) and elsewhere. But

This paper is an indirect intellectual descendant of joint work by the authors with Daniel Greeson, and the whole project originated in an observation of his. Thanks also to the UBC semantics discussion group.

there is at least one class of singular nouns that *can* generally occur bare in argument positions: terms for musical instruments and games. The former case is illustrated in the contrast between (1) and (2):

(1) **Arbitrary count nouns:**

a. Floyd rode $\left\{\begin{array}{l}\text{bicycles}\\\text{a bicycle}\\\text{*bicycle}\end{array}\right\}$.

b. We could hear $\left\{\begin{array}{l}\text{bangs}\\\text{a bang}\\\text{*bang}\end{array}\right\}$ from the next room.

c. It was $\left\{\begin{array}{l}\text{monkeys}\\\text{a monkey}\\\text{*monkey}\end{array}\right\}$ that posed the biggest challenge.

(2) **Musical instrument terms:**

a. Floyd played $\left\{\begin{array}{l}\text{pianos}\\\text{a piano}\\\text{piano}\end{array}\right\}$.

b. We could hear $\left\{\begin{array}{l}\text{guitars}\\\text{a guitar}\\\text{guitar}\end{array}\right\}$ from the next room.

c. It was $\left\{\begin{array}{l}\text{violins}\\\text{a violin}\\\text{violin}\end{array}\right\}$ that posed the biggest challenge.

The instrument terms in (2) all mean something close—but, as we will see, not identical—to 'music played on the relevant instrument', or, somewhat more precisely, the sound produced by an event of playing it. As far as we can tell, every instrument term has such uses, and newly coined instrument terms are systematically possible in these contexts too. If we invent a horn called a Kentucky nose-whistle, it will instantly become possible to say that some people play Kentucky nose-whistle and that Kentucky nose-whistle is beautiful or alarming or challenging.

Although musical instruments are the arena in which this pattern is probably most productive and transparent, it is not the only one. Terms for games and sports work similarly:

(3) **Sports and games as bare nouns:**

a. Floyd played $\left\{\begin{array}{l}\#\text{chesses}\\ \#\text{a chess}\\ \text{chess}\end{array}\right\}$.

b. We could hear $\left\{\begin{array}{l}\text{basketballs}\\ \text{a basketball}\\ \text{basketball}\end{array}\right\}$ from the next room.

c. It was $\left\{\begin{array}{l}\text{baseballs}\\ \text{a baseball}\\ \text{baseball}\end{array}\right\}$ that posed the biggest challenge.

In these cases, the resulting reading involves an event of engaging in the game associated with a particular object. As with musical instruments, newly coined game terms systematically behave this way.

The picture so far might suggest that this is going to be fundamentally a story about the role of determiners in kind reference. But there's more to it. First, it's not the case that all the instrument terms examples so far straightforwardly involve kind reference. Second, it's not the case that bare singulars are the only result of the phenomenon we will examine. As we will see, the relevant readings occur as well with a wide range of determiners. Another major effect of these eventive readings involves modification possibilities. The adjectives that modify them often get adverbial readings, but only under certain circumstances—they are, for example, impossible inside definite descriptions. There are also important consequences for the interpretation of what are sometimes called relational or classificatory adjectives, which we will call subkind modifiers.

Section 2.1 takes up the question of which determiners are compatible with eventive readings. Section 2.2 addresses whether the readings can be understood in terms of reference to music or something like it. Section 2.3 provides evidence that event-shifted readings are mass. Section 2.4 examines the effect of adjectives. Sections 2.5 and 2.6 address the role of kinds. Section 2.7 notes a curious evidential-like property of which we have no explanation. In section 3, we lay out the analysis. Section 3.1 proposes a semantics for the event shift itself. Sections 3.2, 3.4, and 3.5 explain interactions with determiners, including definiteness and bare occurrences. Sections 3.6 and 3.7 turn to modification possibilities. Section 3.8 provides an analysis of the lexical semantics of the verb *play* and of how it gives rise to an intricate pattern of effects that interact with the eventive shift. Section 4 concludes.

2 The data

2.1 *Eventive readings and determiners*

We began by noting that instrument terms and sports terms occur bare in argument positions, in apparent violation of otherwise robust grammatical regularities about singular count nouns in English. But that's just the most noticeable tip of a much larger iceberg. The *readings* with which these bare uses are associated occur systematically in the presence of determiners as well:

(4) a. This song begins with $\left\{\begin{array}{l}\text{some}\\ \text{a great deal of}\\ \text{lots of}\\ \text{much}\end{array}\right\}$ beautiful piano.

b. The bagpipe lasted far too long.

c. In this song, Floyd plays all the decent guitar. (Then halfway through, Clyde plays the appalling guitar.)

d. Some horrible basketball was played that day.

Of course, a song can't contain a literal piano, so (4a) is compatible with only an eventive reading on which what happens at the start of the song is an event of playing piano beautifully. Likewise, in (4b) is most naturally read not as a complaint about the excessive durability of bagpipes, but rather as a complaint about interminable events of playing them. And in (4c), the definite descriptions characterize unique maximal events of playing guitar, either tolerable or appalling. In all these cases, the reading arises in the presence of an overt determiner.

Indeed, eventive readings of bare instrument terms actually resemble certain definite descriptions, namely weak definites (Schwarz 2009, Aguilar Guevara & Zwarts 2011, among others). These are definite descriptions that lack the usual presupposition of the existence of a unique identifiable individual:

(5) Voters across the country sent off their ballots at <u>the</u> $\left\{\begin{array}{l}\text{post office}\\ \text{library}\end{array}\right\}$.

Aguilar Guevara & Zwarts (2011) argue persuasively that weak definites refer to kinds, so these facts point would seem to point to a kind-referring analysis of at least some instrument terms. Kinds certainly seem important to the analysis, as we'll note in more detail in section **??** and elsewhere. There is another point of resemblance. What in some dialects can be expressed with a definite description is expressed in others with a bare singular (Aguilar

Guevara & Zwarts 2011):

(6) Floyd went to $\left\{\begin{array}{l}\text{school}\\ \text{prison}\\ \text{(the) hospital}\end{array}\right\}$.

In American English, one goes *to the hospital*, obligatorily expressed with a weak definite description. In British English, one goes *to hospital*, obligatorily expressed with a bare singular. These facts are notoriously idiosyncratic. Even in American English, one goes *to school* and not #*to the school* on the relevant reading. Nevertheless, this shows that weak definites and bare singulars can achieve similar semantic effects, and therefore that they might be amenable to a similar analysis.

This connection, however, won't suffice to explain the phenomenon more generally. As (4) reflects, eventive readings are possible with determiners other than *the*, so they're related to weak definites—but not merely a special case of them.

2.2 *Is this implicitly about music?*

It's not immediately obvious that the readings at issue are simply eventive. One might have thought that in some of these cases, what was being referred to was a kind of *music*. This faces two difficulties. First, it's not clear how to extend that to the sports cases. Those really do seem to be irreducibly eventive. Second, the distribution of these readings doesn't track the distribution of overt expressions such as *piano music*:

(7) a. Floyd heard $\left\{\begin{array}{l}\text{a piece}\\ \text{an arrangement}\end{array}\right\}$ of $\left\{\begin{array}{l}\#\text{piano}\\ \text{piano music}\end{array}\right\}$.

b. This book is a collection of $\left\{\begin{array}{l}\text{piano music}\\ \#\text{piano}\end{array}\right\}$.

A better paraphrase of what this use of *piano* denotes is 'piano playing', and indeed that tracks the pattern of unacceptability in (7):

(8) a. #Floyd heard $\left\{\begin{array}{l}\text{a piece}\\ \text{an arrangement}\end{array}\right\}$ of piano playing.

b. #This book is a collection of piano playing.

That said, in some cases there does seem to be a sort of conceptual shift from events to evidence of those events:

(9) a. The piano flowed through his headphones.
b. A burst of piano emerged from the orchestra.

It seems like a slight category error to say that an event flowed through headphones or emerged from the orchestra. Rather, it's the sound of those events that's involved. But again, these examples support a paraphrase as 'piano playing', diminished in acceptability only by the awkwardness of needlessly saying 'playing':

(10) a. The piano playing flowed through his headphones.
b. A burst of piano playing emerged from the orchestra.

That is not, of course, to say that the conceptual shift from events to sensory evidence for them is not independently interesting. For our purposes, though, it should suffice to say that it is, indeed, independent, and we won't provide a separate analysis of how it may arise for the sake of maintaining an empirical focus on eventive readings themselves.

2.3 *Eventive readings are mass*

A hallmark of the eventive readings of instrument and sports terms is that they give rise to mass readings of nouns that are apparently invariably count. Of course, *piano, guitar,* and *basketball* are all count, and therefore compatible with overt plural morphology and with numerals and *many*:

(11) Floyd has $\left\{\begin{matrix}\text{three}\\\text{many}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{pianos}\\\text{guitars}\\\text{basketballs}\end{matrix}\right\}$.

That's on the object reading, of course. On the eventive reading, the situation is reversed:

(12) #What happened next was $\left\{\begin{matrix}\text{three}\\\text{many}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{pianos}\\\text{guitars}\\\text{basketballs}\end{matrix}\right\}$.

The syntactic context in (12) compels an eventive reading, and all the accoutrements of count-noun syntax make the sentence anomalous. One might imagine that the problem in (12) is just the overt plural marking, but deleting only that pushes the sentence into outright ungrammaticality:

(13) *What happened next was $\left\{\begin{matrix}\text{three}\\\text{many}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{piano}\\\text{guitar}\\\text{basketball}\end{matrix}\right\}$.

Yet expressions compatible with mass nouns, like *much*, *a great deal of*, and *a bit of* rescue it (at least in an appropriate context in which instrument or basketball playing is suitably natural):

(14) What happened next was $\left\{\begin{matrix}\text{much}\\\text{a great deal of}\\\text{a bit of}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{piano}\\\text{guitar}\\\text{basketball}\end{matrix}\right\}$.

So the eventive reading systematically transforms count nouns into mass expressions.

It's worth noting, though, that this characterization of the facts doesn't encompass an independent fact: that it is only the singular forms of these count nouns that can be shifted in this way. One might have expected a priori that (15) would be possible on an eventive reading:

(15) #What happened next was $\left\{\begin{matrix}\text{much}\\\text{a great deal of}\\\text{a bit of}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{pianos}\\\text{guitars}\\\text{basketballs}\end{matrix}\right\}$.

The explanation of this fact will require a degree of syntactic explicitness we will not achieve until laying out our analysis in section 3.

2.4 *Evaluative modification and adverbial readings*

Eventive readings of instrument and sports terms shape what kinds of modification are possible. Among the most natural modifiers are evaluative adjectives—taking this term to mean adjectives that express an evaluation, like *excellent* or *beautiful*—as illustrated in (16):

(16) a. $\left\{\begin{matrix}\text{Good}\\\text{Excellent}\\\text{Beautiful}\end{matrix}\right\}$ piano could be heard throughout the building.

b. Floyd plays $\left\{\begin{matrix}\text{good}\\\text{excellent}\\\text{beautiful}\end{matrix}\right\}$ piano.

c. Floyd plays $\left\{\begin{matrix}\text{good}\\\text{excellent}\\\text{beautiful}\end{matrix}\right\}$ basketball.

Importantly, they receive only one reading. The evaluation has to be taken to characterize an event as good or beautiful or excellent. In principle, another reading might have been available, and perhaps more basic: a reading in which the relevant physical object is evaluated. One might for example had imagined that in a particular concert, a beautiful piano is played—badly—and that one might be able to remark on this by uttering (16a). But that reading is clearly impossible:

(17) Beautiful piano could be heard throughout the building.
possible reading: 'An event of playing the piano beautifully could be heard.'
impossible reading: 'An event of playing a beautiful piano could be heard.'

There are two facts that will need to be captured here: first, how the eventive reading arises, and second, how the object reading is blocked.

The eventive reading is particularly notable because it seems to be an instance of the broader phenomenon of adverbial readings of adjectives (Stump 1981, Gehrke & McNally 2015, Zimmermann 2000, Larson 1999, Morzycki 2020). The phenomenon includes a number of different cases, but the classic example is in (18), which can get a reading on which *occasional* can be paraphrased with an adverb:

(18) The occasional sailor strolled by.
reading: 'Occasionally, a sailor strolled by.'

The reading at issue in (16) initially seems to more closely resemble examples like (19), in which *cup of coffee* seems to be shifted to mean 'an event of drinking a cup of coffee':

(19) Floyd had a pleasant cup of coffee.
reading: 'Floyd engaged in a pleasant event of drinking a cup of coffee.'

Here, the adjective can't be directly paraphrased with an adverb, at least not easily. But other examples, including those in (16b) and (16c), *can* actually be paraphrased quite naturally with VP-adjoined adverbs:

(20) a. Floyd plays beautiful piano.
reading: 'Floyd plays piano beautifully.'

b. Floyd plays good basketball.
reading: 'Floyd plays basketball well.'

The explanatory challenge, then, includes explaining why shifted instrument and sports terms can be modified in ways that resemble the effect of an adverb modifying the VP in which they appear—and crucially, with only certain predicates:

(21) Floyd heard good basketball.
possible reading: 'What Floyd heard was basketball being played well.'
impossible reading: 'What Floyd heard well was basketball being played.'

The key to this puzzle, we will suggest, has to do with how modified eventive readings interact with some idiosyncrasies of the verb *play*. This distinguishes it from the behavior of *occasional*.

There are also interesting interactions between these readings and definiteness. The bare instrument term in (22a) and its definite counterpart in (22b) receive essentially the same interpretation:

(22) a. Floyd plays piano.
b. Floyd plays the piano.

But despite this apparent synonymy, only the bare form can host evaluative adjectives:

(23) a. Floyd plays excellent piano.
b. #Floyd plays the excellent piano.
(impossible on the relevant reading)

Of course, (23b) is nevertheless possible on a reading in which Floyd habitually plays a particular excellent piano. It would also be possible on a reading in which *excellent piano* is construed as a newfound kind of piano playing.

That brings us to the next issue: kinds (in the classic Carlson 1977 sense), the structures they give rise to, and their interaction with other modifiers.

2.5 *Well-established kinds and definite descriptions*

One respect in which instrument and sports terms can resemble weak definites is that even when they occur bare, they satisfy a semantic requirement normally associated with definite descriptions. Bare plurals often refer to kinds, as in (24):

(24) a. $\left\{\begin{matrix}\text{Grand pianos}\\ \text{Ugly pianos}\end{matrix}\right\}$ are widespread.

b. $\left\{\begin{array}{l}\text{Electric guitars}\\ \text{Green guitars}\end{array}\right\}$ emerged in the 1960s.

Definite descriptions can of course be kind-referring too, but when they are, they kind they refer to has to be well-established (Carlson 1977, Dayal 2004, among others). The standard example that illustrates this is attributed by Carlson (1977) to Barbara Partee:

(25) The $\left\{\begin{array}{c}\text{Coke}\\ \#\text{green}\end{array}\right\}$ bottle has a long neck.

Green bottles may be a kind of bottle, but they are not a *well-established* kind of bottle. The Coke bottle is. Correspondingly, the definite counterparts of the bare plurals in (24) are only possible when the kind they attempt to refer to is well-established:

(26) a. $\left\{\begin{array}{c}\text{The grand piano}\\ \#\text{The ugly piano}\end{array}\right\}$ is widespread.

b. $\left\{\begin{array}{c}\text{The electric guitar}\\ \#\text{The green guitar}\end{array}\right\}$ emerged in the 20th century.

That's relatively unsurprising. What's more surprising is that when instrument terms occur bare, they manifest the same well-established-kind restriction:

(27) a. $\left\{\begin{array}{c}\text{Grand piano}\\ \#\text{Ugly piano}\end{array}\right\}$ is widespread.

b. $\left\{\begin{array}{c}\text{Electric guitar}\\ \#\text{Green guitar}\end{array}\right\}$ emerged in the 20th century.

This may be further evidence for tying these bare singulars and weak definites together.

But there is an important wrinkle. Definite descriptions achieve kind reference only when the kind is a well-established kind of instrument, but bare singulars can also do so when the kind is a well-established kind of *music*. There is no instrument called a *country guitar* or a *jazz trumpet*, but both are well-established kinds of music, and this is sufficient:

(28) a. Clyde plays ($\#$the) $\left\{\begin{array}{l}\text{country guitar}\\ \text{jazz trumpet}\end{array}\right\}$.

b. ($\#$The) $\left\{\begin{array}{l}\text{country guitar}\\ \text{jazz trumpet}\end{array}\right\}$ emerged in the 20th century.

Of course, because *country guitar* and *jazz trumpet* are styles of playing, they manifest a connection to events.

It is even possible to bring about this effect without the benefit of modifiers like *jazz* or *country*, though it requires an appropriate context. Suppose that an apocalyptic catastrophe has wiped out human civilization, including musical traditions, and years later archaeologists rediscover guitars as artifacts, but haven't identified them as musical instruments and therefore don't know how to play them. The discovery can be reported with the definite description but not with the bare nominal:

(29) a. **true:** The guitar reemerged in 2075 and puzzled everyone.
b. **false:** Guitar reemerged in 2075 and puzzled everyone.

The definite case reports only the discovery a the musical instrument. The bare singular case, crucially, reports the discovery of guitar music or guitar playing, not just of the instrument, and so is false in this context.

2.6 *Subkind modification, event kinds, and object kinds*

As noted in the previous section, when an instrument term occurs in a kind-referring nominal, adjectival modification can have the effect of narrowing the extension to a subkind. For example, *electric guitar* characterizes a subkind of guitar, and *bass trumpet* a subkind of trumpet. Both are well-established subkinds, each its own musical instrument.

This is not a peculiarity of instrument and sports terms. McNally & Boleda Torrent (2003) persuasively argue that forms like *cardiac surgeon* involve modification at the kind level—this example identifies a particular subkind of the kind SURGEON. Certainly, a cardiac surgeon isn't someone in the intersection of surgeons and 'cardiac people', whatever that might be. That's also true of *electric guitar* and *bass trumpet*.

What is special about instrument and sports terms is that they also support subkind readings that characterize subkinds of *events* rather than individuals (Gehrke 2019, Landman & Morzycki 2003, Gehrke & McNally 2015, 2010). That's what happens with *country guitar* and *jazz trumpet*, both of which name a subkind of genre, not a subkind of instrument.

McNally & Boleda Torrent (2003) point out that subkind modifiers occur closer to the noun than most other adjectives:

(30) a. a good electric guitar
b. ??an electric good guitar

(31) a. a beautiful grand piano
b. ??a grand beautiful piano

The only way to rescue (30b) and (31b) is by forcing *small* and *beautiful* to have a subkind reading of their own, on which *small guitar* is a particular kind of guitar.

When the subkind modifier identifies a subkind of event, the ordering effect is recapitulated—the evaluative modifier must precede the subkind modifier:

(32) a. good country guitar
b. #country good guitar

(33) a. good jazz piano
b. #jazz good piano

The eventive readings occur higher in the structure of the nominal than the object ones, but it's a challenge to motivate this claim from ordering restrictions. Nevertheless, if we were to (as suggested earlier) invent a new instrument called a nose-whistle, it might well have an electric variant. Moreover, this electric variant might be played in a country style. The result would be (34a), but not (34b):

(34) a. country electric nose-whistle
b. #electric country nose-whistle (on the relevant reading)

2.7 *Evidential differences between event shifting and gerunds*

A subtle but important contrast in evidentiality emerges between bare involving gerundive paraphrases of event-shifted nouns. For the most part, the effect of event-shifting *piano*, for example, is to achieve something like a gerundive nominalization—in this instance, 'piano playing'. But intriguingly, they differ in direct perception reports:

(35) a. I saw Floyd's piano playing at the mall.
b. #I saw Floyd's piano at the mall. *(under eventive reading)*

The event shift does nothing to assimilate *piano* in (35b) to *piano playing* in (35a).

Similarly, it is possible to describe *piano playing* as *looking great* if the playing has good form, finger work, or posture. The same cannot be said for *piano*:

(36) a. The piano playing looked great.
b. #The piano looked great. *(under eventive reading)*

It is tempting to attribute this contrast to competition between forms. With a possessor like *Floyd's* in (35) or a definite determiner in (36), the interpretation of *piano* could be eventive but this isn't necessary. *Piano playing* is available as an alternative way to express the eventive form, so perhaps the the bare form resists the eventive interpretation when an individual reading is possible. However, if this were the case, we would find this pattern among all uses of the bare form. In fact, this is only the case for visual perception predicates. It is possible to hear *Floyd's piano*, and have this phrase refer to Floyd's piano playing:

(37) I heard Floyd's piano in the song. I remember he was playing his friend's piano back when we recorded.

Similarly in (38), what sounds great is not the physical piano, but the playing associated with it:

(38) The piano on this demo sounds great. The pianist must be very talented sounding this good on that clunky old keyboard our studio has.

From these facts we conclude that bare event-shifted instrument terms—while resembling the semantics of gerunds in many ways—differ in that they presuppose that the event is perceived audibly. This seems an odd quirk, and we will leave it as a small mystery here.

3 Analysis

3.1 *The eventive shift*

The first and most consequential analytical innovation necessary to accommodate these facts is also the least surprising. We need to adopt a type shift that maps from individual-based denotations into eventive ones.[1]

To formalize this, we will treat individual kinds as a sort within the domain of individuals, which we will write D_{e^k}. (In parallel, event kinds will be a sort within the domain of events, D_{v^k}.) We will also distinguish kind variables with a superscript k. We will also need to make use of the independent and standard (Chierchia 1984, 1998) type shifts that map a property to its corresponding kind, written $^{\cap}P$, and a kind to its corresponding

[1] For the moment, we are using 'type shift' in a loose sense. As we will see, it may actually be advantageous to implement it as the denotation of a functional head in a fixed position in the structure of the DP, but we will stick with 'type shift' for the moment because much of the argument doesn't depend on a particular implementation.

property, ${}^{\cup}x^k$. This means that ${}^{\cup}x^k(y)$ can be read as 'y is a realization of the kind x^k'.

The shift—which we will write EVENT—must apply to a property denoted by the nominal meaning it combines with, and it must yield a property of events of playing (in the case of an instrument term) or playing with (in the case of a sports term) an object that instantiates the kind associated with the property. To a first approximation, then, it might look as in (39):

(39) $[\![\text{EVENT}]\!] = \lambda P_{\langle e,t\rangle} \lambda e \,.\, \exists x[P(x) \wedge \textbf{play}(x)(e)]$ *(not final)*

The content of the **play** predicate has to be sufficiently underspecified to encompass what might a priori seem like two distinct senses of the English verb *play*: the instrument sense and the game sense. This may be a surprising result, but if so, interestingly surprising. It reflects that in one important respect, the grammar of English is neutral with respect to this distinction.

We argued in section 2.5 that the event shift is only possible with terms associated with well-established kinds. This can be construed as a presupposition of the shift that would require that the predicate it applies to have a well-established kind correlate:

(40) $[\![\text{EVENT}]\!] = \lambda P_{\langle e,t\rangle} \lambda e : \textbf{well-established}({}^{\cap}P) \,.\, \exists x[P(x) \wedge \textbf{play}(x)(e)]$

We will adopt this approach. But it is a strange denotation. The content of the shift is framed in a way that makes no crucial reference to kinds in any respect apart from the presupposition. This means the presupposition seems like a mysterious and arbitrary additional stipulation. Perhaps that just happens to be how English works, but it would be natural to yearn for something more explanatory.

One way to correct this might be take the hint from the presupposition, and take it as evidence that the whole denotation should be framed in terms of kinds. To do this, the shift could apply to a kind itself, as in (41):

(41) $[\![\text{EVENT}]\!] = \lambda x^k \lambda e : \textbf{well-established}(x^k) \,.\, \exists y[{}^{\cup}x^k(y) \wedge \textbf{play}(y)(e)]$ *(unofficial)*

This would achieve everything we need it to without the odd stipulation. But it makes the nonstandard assumption that the nominal it applies to—which, crucially, is not a bare plural, at least not in general—denotes a kind directly. There are good reasons for suspecting there is a level low in the structure of DPs at which they denote kinds, properties of kinds, or otherwise kind-related (Zamparelli 1995, McNally & Boleda Torrent 2003 among others). This denotation is good evidence in favor of such an approach. Nevertheless, because assuming this is not necessary to our larger goals in this paper, we

will take the more standard course here and treat the first argument of EVENT as a property.

On both implementations, it would predict the ill-formedness of examples like those in (42):

(42) #Floyd played $\left\{\begin{array}{l}\text{small piano}\\ \text{green guitar}\\ \text{ugly trumpet}\end{array}\right\}$.

It's also necessary to restrict the domain of the shift to instrument and sports terms. This isn't entirely trivial. One might have imagined that cases like those in (43) could be well-formed:

(43) #Floyd heard $\left\{\begin{array}{l}\text{concert}\\ \text{piano concert}\\ \text{performance}\\ \text{gig}\\ \text{show}\end{array}\right\}$.

We won't implement in the denotation an explicit prohibition on these kinds of cases, other than to suppose that such a prohibition might be inherited from the selectional restrictions of the **play** predicate.

3.2 *The eventive shift and determiners: a first attempt*

Here's how the EVENT shift works in a concrete example with an indefinite determiner. First, it will be necessary to generalize the denotations of some determiners to make them event-friendly. To so this, it will be helpful to use some nonstandard type labels. We will write type labels like $D_{e\cup v}$ to refer to a type composed of the union of the domains of individuals and of events (i.e., $D_{e\cup v} = D_e \cup D_v$), and use this type to build functional types too. With that in place, (44) provides an event-friendly variant of *some*:

(44) $[\![\textit{some}]\!] = \lambda P_{\langle e\cup v,t\rangle}\lambda Q_{\langle e\cup v,t\rangle}\,.\,\exists a_{e\cup v}[P(a)\wedge Q(a)]$

This just ordinary *some*, but agnostic about whether its first argument is a property of individuals or events. It must therefore quantify over either individuals or events. In (45), the noun *piano* is first shifted to a property of events by the EVENT shift:

(45) Floyd heard some EVENT piano.

Of course, the quantified nominal must take scope by Quantifier Raising (or an equivalent scope-taking strategy):

(46) [some EVENT piano] λe Floyd heard t_e

The first argument of $[\![\, some \,]\!]$ is shifted $[\![\, piano \,]\!]$—we will henceforth omit the presupposition for convenience—yielding the generalized quantifier denotation in (47b), which leads to the sentence denotation in (47c):

(47) a. $[\![\text{EVENT } piano]\!] = \lambda e \,.\, \exists x[[\![piano]\!](x) \wedge \mathbf{play}(x)(e)]$

b. $[\![\, some\ EVENT\ piano \,]\!]$

$$= \lambda Q_{\langle e\cup v,t\rangle} \,.\, \exists a_{e\cup v}\left[\begin{array}{l}\exists x[[\![piano]\!](x) \wedge \mathbf{play}(x)(a)] \wedge \\ Q(a)\end{array}\right]$$

c. $[\![$ *[some piano] λe Floyd heard* t_e $]\!]$

$$= \exists a_{e\cup v}\left[\begin{array}{l}\exists x[[\![piano]\!](x) \wedge \mathbf{play}(x)(a)] \wedge \\ \mathbf{heard}(a)(\mathbf{Floyd})\end{array}\right]$$

This correctly predicts that the sentence is true iff there exists an event (here, a) that Floyd heard and that was the playing of a piano.[2]

Other determiners would need to be similarly adapted to work with both individuals and events. This may seem like a major theoretical commitment, but it isn't. There is a great deal of evidence that event arguments play a crucial role inside NPs, including from modification facts (Larson 1998, 1999) and from nominalizations and eventive nouns like *lecture* or *explosion* (Parsons 1990).

In one respect, though, this denotation clearly is wrong. It involves the count variant of *some*. In fact, as we have observed, the result of the eventive shift is always mass, and it should be the mass variant of *some* that is invoked here. The next section corrects this problem.

3.3 *Event-shifted nouns are mass*

It suffices to solve the issue to switch to a more or less plausible denotation for mass *some* that is suitably event-friendly, as in (48a):

(48) $[\![\, some \,]\!] = \lambda P_{\langle e\cup v,t\rangle}\lambda Q_{\langle e\cup v,t\rangle} \,.\, \exists a_{e\cup v}[P(a) \wedge Q(a) \wedge \mu_{\mathbf{amount}}(a) > d_0]$

This requires that there be an event that, when measured on the scale of amounts, exceeds the zero degree on the scale. The resulting sentence

[2] In principle, in an event semantics the hearing event should itself be represented explicitly, but we suppress it here for clarity.

denotation is in (49):

(49) $[\![$ *[some* EVENT *piano] λe Floyd heard* t_e $]\!]$

$$= \exists a_{e\cup v}\begin{bmatrix} \exists x[[\![piano]\!](x) \wedge \textbf{play}(x)(a)] \wedge \\ \textbf{heard}(a)(\textbf{Floyd}) \wedge \\ \mu_{\textbf{amount}}(a) > d_0 \end{bmatrix}$$

The facts are perhaps clearer for the paragon case of a mass determiner, *much*, which would give rise to sentence denotations like (50):

(50) $[\![$ *[much* EVENT *piano] λe Floyd heard* t_e $]\!]$

$$= \exists a_{e\cup v}\begin{bmatrix} \exists x[[\![piano]\!](x) \wedge \textbf{play}(x)(a)] \wedge \\ \textbf{heard}(a)(\textbf{Floyd}) \wedge \\ \mu_{\textbf{amount}}(a) > \textbf{standard}_{\textbf{much}} \end{bmatrix}$$

The truth conditions differ differ from (49) only in that the amount of the event has to exceed not a zero amount but rather the contextual standard for what counts as much.

This is sufficient to account for why event-shifted nouns are compatible with mass expressions like *much* and *a bit* (*much* EVENT *piano*, *a bit of* EVENT *piano*). With a count determiner like *many* (**many* EVENT *piano*), the problem arises when the determiner attempts to find the cardinality of an atomic event:

(51) $[\![$ **[many* EVENT *piano] λe Floyd heard* t_e $]\!]$

$$= \exists a_{e\cup v}\begin{bmatrix} \exists x[[\![piano]\!](x) \wedge \textbf{play}(x)(a)] \wedge \\ \textbf{heard}(a)(\textbf{Floyd}) \wedge \\ |a| > \textbf{standard}_{\textbf{many}} \end{bmatrix}$$

The atomic event a does not, one might reasonably assume, have any defined cardinality.

The obligatorily mass nature of event-shifted nouns also

These facts may provide an entry point into the observations about *a piece of*, repeated in (52):

(52) a piece of $\left\{\begin{matrix} {}^{\#}\text{piano} \\ \text{piano music} \\ {}^{\#}\text{piano playing} \end{matrix}\right\}$

Classifier-like structures like *a piece of* and *a bottle of* impose various selectional restrictions on their complements. In this case, the mere fact that event-shifted *piano* is a mass term doesn't on its own suffice, because the mass

term *piano music* is possible in (52). But being a mass term, it's vulnerable to exactly the sorts of fine-grained idiosyncratic restrictions such classifiers impose. Given what we have suggested so far, though, it's not surprising to find that event-shifted *piano* and *piano playing* pattern together. It would be nice in principle, though, to have a deeper explanation of why *piece* is incompatible with events that ties it to whatever goes wrong in e.g. #*piece of water* vs *piece of cheese* or *piece of footwear*.

The obligatorily mass nature of event-shifted nouns also provides a means to understand why plural *pianos* lacks an eventive reading. There are in principle two structures to consider: one in which the shift applies first and the result is pluralized, and another in which the noun is pluralized and then shifted. The former is ruled out because mass terms can't be pluralized (at least outside of Lewis-style Universal Packager contexts; Pelletier (1975)).

The latter can't be ruled out as readily. Indeed, because the EVENT shift is interested in kinds—and at least on one appealing formulation in section 3.1, it applies to them—bare plurals might be precisely what one would expect it to target. We don't have a principled explanation of this, but an unprincipled one suggests itself. It could be that the shift is the effect of a functional head with a specific position in the hierarchy of nominal functional heads. It would suffice for our purposes if the functional head that expresses it is anywhere below the Number head, which would be sufficient to ensure that its complement isn't pluralized. A more intriguing possibility is to suppose it actually *occupies* the number head, as suggested in [citation omitted for review].

It's worth noting, though, at least one example in which the eventive shift may be possible even in the presence of plural morphology:

(53) a. Drums emerged from the stage.
b. Floyd plays drums.

Both of these, of course, have object readings. But in both cases, for at least some speakers there may be a reading in which *drums* names an event of playing them. It's presumably not an accident that it is also natural to refer to the relevant instrument as *the drums* rather than *the drum*.

3.4 *Bare singulars*

One of the principal facts to explain is the possibility of bare singular instrument and sports terms—that is, ones with no overt determiner. This too can derived from the mass character of event-shifted nouns. Of course, mass nouns can occur bare quite freely:

(54) Floyd heard water.

What happens in these examples, at least on one view—that of Chierchia (1998) and its descendants—a combination of kind reference and an independent shift from kinds to their instantiations. More precisely, Chierchia takes a mass term like *water* to denote a kind. The predicate *heard*, however, is not kind-level. It's only a realization of the kind WATER that one can hear. In such cases, on this view, a rule is invoked, Derived Kind Predication, that resolves the mismatch by existentially quantifying over realizations of the kind. We'll use an event-friendly variant of this rule:

(55) **Derived Kind Predication** (Crosscategorial Variant)
$P(x^k) = \exists y[^{\cup}x^k(y) \wedge P(y)]$
...where x^k is a kind of individual or event; y an object, either individual or event; and P a property

This yields the denotation in (56):

(56) $\exists x[^{\cup}\textsc{water}(x) \wedge \textbf{heard}(x)(\textbf{Floyd})]$

To assimilate event-shifted nouns to this process, one could assume that the mass denotations the event shift gives rise to are actually kind-denoting, and it is only through Derived Kind Predication that their apparent existential quantificational force arises. Achieving this would require only a small change in the denotation of EVENT: making its output not a property of events, but rather an event kind. All that is necessary to achieve this is to apply Chierchia's $^{\cap}$ shift:

(57) $[\![\textsc{event}]\!] = \lambda P_{\langle e,t\rangle} : \textbf{well-established}(^{\cap}P) \,.\, {}^{\cap}\lambda e \,.\, \exists x[P(x) \wedge \textbf{play}(x)(e)]$
(tentative)

Thus $[\![\textsc{event}\ \textit{piano}]\!]$ would denote the event kind of piano playing, and when it's used in non-kind contexts, it would be shifted away from the kind interpretation by Derived Kind Predication.

This course would be especially appealing if coupled with the kind-oriented alternative formulation of EVENT we considered in 3.1. Putting the two together, EVENT would apply to a kind of individual and yield a kind of event:

(58) $[\![\textsc{event}]\!] = \lambda x^k : \textbf{well-established}(x^k) \,.\, {}^{\cap}\lambda e \,.\, \exists y[^{\cup}x^k(y) \wedge \textbf{play}(y)(e)]$
(unofficial)

This course is appealing. We won't adopt it here chiefly for simplicity. It's not conceptually indispensable, and it would complicate the picture out of

proportion to the benefit to invoke Derived Kind Predication alongside the event shift in virtually every instance.

Nevertheless, for the sake of explicitness we will take this path for the moment. In (59), we invoke an event variant of DKP to combine event-shifted *piano* with the object-level predicate *heard*:

(59) Floyd heard DKP EVENT piano.

a. $[\![\text{EVENT } \textit{piano}]\!] = {}^{\cap}\lambda e \,.\, \exists y[{}^{\cup}\textbf{PIANOKIND}(y) \wedge \textbf{play}(y)(e)]$

b. $[\![\textit{Floyd heard DKP} \text{ EVENT } \textit{piano}]\!]$

$$= \exists e\left[\begin{array}{l}\textbf{heard}(e)(\textbf{Floyd}) \wedge \\ {}^{\cup}[\![\text{EVENT } \textit{piano}]\!](e)\end{array}\right]$$

$$= \exists e\left[\begin{array}{l}\textbf{heard}(e)(\textbf{Floyd}) \wedge \\ {}^{\cup\cap}\lambda e' \,.\, \exists y[{}^{\cup}\textbf{PIANOKIND}(y) \wedge \textbf{play}(y)(e')](e)\end{array}\right]$$

$$= \exists e\left[\begin{array}{l}\textbf{heard}(e)(\textbf{Floyd}) \wedge \\ \exists y[\textbf{piano}(y) \wedge \textbf{play}(y)(e)]\end{array}\right]$$

A similar result could also have been achieved by assuming, more simply, that English has an unpronounced indefinite mass determiner.

The crucial point, though, is that the bare singular uses of instrument and sports terms are predicted because the event-shift systematically creates mass terms that superficially appear to be—and, lower in the DP, actually are—count singulars.

3.5 *Definiteness*

The restriction to mass determiners also rules out simple indefinites on eventive readings:

(60) a. #Floyd heard a piano. *(to mean piano playing)*

b. #Floyd saw a basketball. *(to mean basketball playing)*

Of course, these are possible on a non-eventive reading. On the event reading, *a* couldn't combine with the mass terms EVENT *piano* and EVENT *basketball*.

The mass semantics also explains an interesting fact about definite descriptions. Although kinds figure prominently in the semantics of event-shifted instrument and sports terms, it is not possible for definite descriptions to refer to kinds of events this way:

(61) a. the EVENT piano
possible reading: the maximal relevant portion of piano-playing
impossible reading: the event kind of piano-playing

b. the EVENT basketball
possible reading: the maximal relevant portion of basketball-playing
impossible reading: the event kind of basketball-playing

Of course, definite descriptions are generally robustly able to refer to kinds, as in *the dodo bird* or the individual-kind *the piano*. From this standpoint, one might have expected event-kind readings to be possible too.

What prevents them is an independent fact about definite descriptions in English: they can't express kind reference with mass terms (Dayal (2004)). Thus *water* can refer to the kind WATER, but *the water* cannot. So again, the explanation follows from the fact that event-shifted nouns are mass.

This creates a striking asymmetry. Modifiers that characterize a subkind of instrument can occur in kind-referring definite descriptions, but modifiers that characterize a subkind of *playing* an instrument cannot:

(62) a. the grand piano
b. the electric guitar

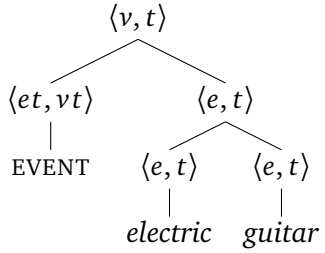
(63) a. #the jazz piano
b. #the country guitar

We now turn to the question of how such modifiers work.

3.6 *Subkind modifiers*

Modifiers can occur either below or above the event shift. That includes subkind modifiers. *Electric guitar* is a subkind of *guitar*, and in this case the result is a subkind of instrument, not a subkind of playing event. That, of course, involves modification below the level of the EVENT shift:

(64) a. Floyd heard some electric guitar.
b.



As the types in (64) reflect, we adopt a standard intersective analysis, though this is for convenience. We will treat the subkind modifier *electric* as a simple property of individuals that in the relevant sense work electrically:

(65) a. $[\![\textit{electric}]\!] = \lambda x \,.\, \textbf{electric}(x)$

b. $[\![\textit{guitar}]\!] = \lambda x \,.\, \textbf{guitar}(x)$

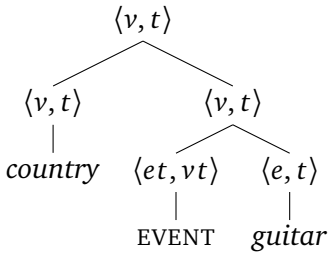
c. $[\![\textit{electric guitar}]\!] = \lambda x \,.\, \textbf{electric}(x) \wedge \textbf{guitar}(x)$

Of course, this fails to represent the kind-based component of the semantics of these expressions. To do so, we could adopt the conception of McNally & Boleda Torrent (2003), in which this variety of adjectives—which they call 'relational adjectives'—are interpreted at a level in the structure of NP where kinds are at play in the type system. For them, the crucial type is one that relates kinds and their realizations. We could in principle make a similar move for cases like (65).

The event shift adds an additional ingredient to the picture. Subkind modifiers can also occur *above* the EVENT shift. Again pursuing an intersective analysis, at this level subkind adjectives have to denote properties of events:

(66) a. Floyd heard some country guitar.

b.



Country could be interpreted as a property of events performed in a country style:

(67) a. $[\![\textit{country}]\!] = \lambda e \,.\, \textbf{country-style}(e)$

b. $[\![\text{EVENT } \textit{guitar}]\!] = \lambda e \,.\, \exists x[[\![\textit{guitar}]\!](x) \wedge \textbf{play}(x)(e)]$

c. $[\![\textit{country} \text{ EVENT } \textit{guitar}]\!] = \lambda e \,.\, \textbf{country-style}(e) \wedge$
$\exists x[[\![\textit{guitar}]\!](x) \wedge \textbf{play}(x)(e)]$

This of course constitutes an explanation for why eventive subkind modifiers always occur above individual subkind modifiers, as noted in **??**.

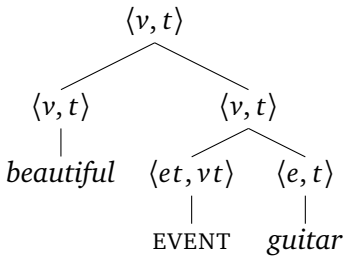
3.7 *Other adjectives*

The structural ingredients of this picture interact interesting with respect to other modifiers.

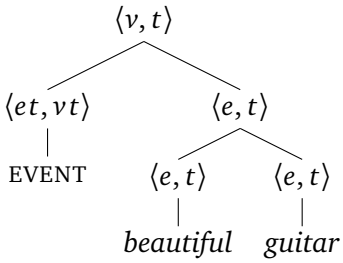
One respect in which this is so is that evaluative adjectives like *beautiful* are, at least under normal circumstances, obligatorily interpreted as

characterizing an event rather than an individual. The reasons are several. First, *beautiful* can straightforwardly be interested intersectively:

(68) a. Floyd heard some beautiful guitar.

b. 

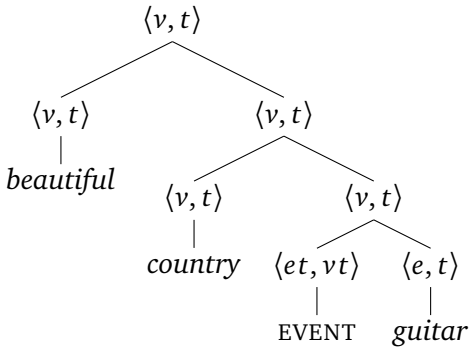
There is nothing about the structure itself, however, to rule out an individual-modifying construal below the EVENT shift:

(69) 

What actually rules out the reading in (69), under normal circumstances, is the presupposition of EVENT that it combine with a property correlate of a well-established kind. Guitars themselves can of course be beautiful, but there isn't a well-established beautiful kind of guitar. With a little imagination, though, one can of course force this reading by assuming a well-established beautiful guitar kind, perhaps by assuming that beautiful guitars as a class play a particular kind of music. That, of course, goes equally for other evaluative adjectives, like *excellent*, *impressive*, *good*, and so on.

But even that strategy isn't enough to force an individual reading above eventive subkind modifiers as in (70):

(70) a. Floyd heard some beautiful country guitar.

b. 

Here, because *beautiful* occurs above the eventive subkind modifier *country*, it must also occur above the EVENT shift itself. Consequently, in this case no effort at concocting a suitable scenario would be sufficient to force an individual-modifying reading onto *beautiful*.

In other examples, certain forms of modification are ruled out because the shifted instrument term is mass. That's the case in (71):

(71) #Floyd heard small guitar.
  a. #small EVENT guitar.
  b. #EVENT small guitar.

In this example, *small* can't occur above the EVENT shift because it can't—as a lexical property of its own—modify mass terms. But it also can't occur below EVENT because *small guitar* doesn't name a well-established kind.

3.8 *Adverbial readings and the grammar of playing*

The core analysis is now in place, but there is a relatively small complication that nevertheless warrants specific discussion. That's the grammar of the verb *play*. It's a matter of the lexical semantics of a single predicate, but that one predicate occurs so frequently with event-shifted nouns that it needs to be addressed. Much of what we will propose here will be a variant of [citation omitted for review].

The essential fact to capture is that *play* occurs naturally with both bare and define forms:

(72) a. Floyd plays piano.
  b. Floyd plays the piano.

Also important is the effect wherein adjectives in this construction are construed adverbially:

(73) Floyd plays excellent piano.

As a reminder, (73) can be paraphrased 'Floyd plays piano excellently'. This reading is absent in the definite form:

(74) #Floyd plays the excellent piano. *(on an adverbial reading)*

It is also absent with arbitrary other verbs:

(75) #Floyd heard excellent piano. *(on the adverbial reading)*

Of course, (75) is completely well-formed as a report of having heard excellent piano-playing—but not as a report of having heard very well the playing of a piano, perhaps badly.

At the heart of these puzzles may be an idiosyncrasy of *play*. It has a use on which its complement refers to an event:

(76) The Traitorous Ophthalmologists are playing a $\left\{\begin{matrix}\text{gig}\\\text{show}\end{matrix}\right\}$ at the Hipster Hole.

In these uses, adjectives can also receive adverbial readings:

(77) The Traitorous Ophthalmologists played an excellent $\left\{\begin{matrix}\text{gig}\\\text{show}\end{matrix}\right\}$ at the Hipster Hole.

This has an interpretation on which the show was performed excellently.

On this reading, *play*—we'll call it $play_{eventive}$ for clarity—is a light verb, like the *take* in *take a shower*. Just as *take a shower* means more or less the same thing as the verb *shower*, the light verb form of *play* doesn't add much semantic content beyond whats already provided by its eventive complement. A reasonable denotation, then, is as in (78):

(78) $[\![play_{eventive}]\!] = \lambda e : \textbf{performance}(e) \,.\, \lambda x \,.\, \lambda e' [e' = e \wedge \textbf{agent}(e') = x]$

This combines with an event-denoting argument. It introduces the presupposition that the argument has to be some sort of performance. Beyond that, *play* merely identifies its own event argument with the event denoted by its argument and makes it possible to assign this event an agent. Thus $play_{eventive}$ can combine with the event-denoting nominal *the gig* to yield a property of events that are identical to the sole contextually-relevant gig:

(79) a. $[\![the\ gig]\!] = \iota e[\textbf{gig}(e)]$

b. $[\![play_{eventive}\ the\ gig]\!] = \lambda x \lambda e'[e' = [\![the\ gig]\!] \wedge \mathbf{agent}(e') = x]$
$= \lambda x \lambda e'[e' = \iota e[\mathbf{gig}(e)] \wedge \mathbf{agent}(e') = x]$

To face the challenge of interpreting a bare event-shifted nominal in object position, we will need to return to the tools we used to interpret bare singular event-shifted nominals in general. These included Derived Kind Predication. On this view, the sentence in (79) gives rise to the denotation in (79b) (this repeats an earlier example):

(80) Floyd heard DKP EVENT piano.
a. $[\![\text{EVENT } piano]\!] = {}^{\cap}\lambda e\ .\ \exists y[{}^{\cup}\mathbf{PIANOKIND}(y) \wedge \mathbf{play}(y)(e)]$
b. $[\![Floyd\ heard\ DKP\ \text{EVENT}\ piano]\!]$

$$= \exists e\left[\begin{array}{l}\mathbf{heard}(e)(\mathbf{Floyd}) \wedge \\ {}^{\cup}[\![\text{EVENT } piano]\!](e)\end{array}\right]$$

$$= \exists e\left[\begin{array}{l}\mathbf{heard}(e)(\mathbf{Floyd}) \wedge \\ {}^{\cup\cap}\lambda e'\ .\ \exists y[{}^{\cup}\mathbf{PIANOKIND}(y) \wedge \mathbf{play}(y)(e')](e)\end{array}\right]$$

$$= \exists e\left[\begin{array}{l}\mathbf{heard}(e)(\mathbf{Floyd}) \wedge \\ \exists y[\mathbf{piano}(y) \wedge \mathbf{play}(y)(e)]\end{array}\right]$$

Eventive *play* is like *hear* in accepting an event-denoting complement, but it will be important to include *play*'s own event argument in the semantics. Beyond that, the computation is similar:

(81) $[\![Floyd\ played_{eventive}\ DKP\ \text{EVENT}\ piano]\!]$

$$= \lambda e'\ .\ \exists e\left[\begin{array}{l}[\![\text{EVENT } piano]\!](e)(x)(e') \wedge \\ {}^{\cup}[\![\text{EVENT } piano]\!](e)\end{array}\right]$$

$$= \lambda e'\ .\ \exists e\left[\begin{array}{l}e' = e \wedge \mathbf{agent}(e') = \mathbf{Floyd} \wedge \\ \exists y[{}^{\cup}\mathbf{PIANOKIND}(y) \wedge \mathbf{play}(y)(e)]\end{array}\right]$$

$$= \lambda e'\ .\ \exists e\left[\begin{array}{l}e' = e \wedge \mathbf{agent}(e') = \mathbf{Floyd} \wedge \\ \exists y[\mathbf{piano}(y) \wedge \mathbf{play}(y)(e)]\end{array}\right]$$

The crucial point about this result is that it brings about a situation in which adjectives above EVENT are construed as predicates of the same event that VP-adjoined adverbs would modify. This is because the event expressed by the object is the same event as the one associated with the event argument of $play_{eventive}$. The adverbial reading of adjectives above the event-shifted instrument term, as in (82a), therefore arises for the same reason that such adverbial readings are possible with more obviously event-denoting expressions like *the show*.

(82) a. Floyd played excellent EVENT piano.
b. Floyd played EVENT piano excellently.

Naturally, an adverb like *excellently* in (82b) is also interpreted as a predicate of the event argument, so it has the same effect.

But why, then, doesn't the adverbial reading arise when an adjective is inside a definite description, as in (83)? (to repeat the example):

(83) #Floyd plays the excellent piano. *(on an adverbial reading)*

To answer, it will be necessary to be more explicit about how expressions like *play the piano*—on the relevant readings—are composed. One should first acknowledge that there is a reading of *play the piano* on which it involves a straightforward event-shifted instrument term inside a definite description. That's what happens in (84):

(84) Floyd plays the guitar in that song, and Clyde plays the piano.

This is straightforward definite reference to the maximal contextually-salient event of piano-playing. But that's quite different from what happens in out-of-the-blue contexts, in which there doesn't actually seem to be any definite reference to a piano-playing event. Rather, what happens in these cases is that the definite description is interpreted as definite kind reference, and combined with the ordinary, non-eventive sense of *play*. The twist is that this too involves DKP, because the object-level predicate *play* seeks to combine with the kind definite description *the piano*:

(85) a. $[\![\textit{play}]\!] = \lambda x \lambda y \lambda e \,.\, \mathbf{play}(x)(e) \wedge \mathbf{agent}(e) = y$

b. $[\![\textit{Floyd played DKP the piano}]\!]$

$= \lambda e \,.\, \exists z[^{\cup}[\![\textit{the piano}]\!](z) \wedge [\![\textit{play}]\!](z)(\mathbf{Floyd})(e)]$

$= \lambda e \,.\, \exists z[^{\cup}\textbf{PIANOKIND}(z) \wedge \mathbf{play}(z)(e) \wedge \mathbf{agent}(e) = \mathbf{Floyd}]$

$= \lambda e \,.\, \exists z[\mathbf{piano}(z) \wedge \mathbf{play}(z)(e) \wedge \mathbf{agent}(e) = \mathbf{Floyd}]$

The combinatorics here, then, is consequentially different from what happens in the event-shifted case. It winds up in a similar place: there must be a particular object piano that has been played. But because the path to that destination involves a kind-referring definite description—and not an event kind at all–any adjective inside the definite description must be construed as characterizing the kind. That means that *the excellent piano* is only possible either if excellent pianos are a well-established kind, or else on a non-kind interpretation in which there is a particular piano that's excellent. Either way, so far as the direct object is concerned, no events are involved. It's because of this that an adverbial reading of the adjective is impossible.

4 Final remark

Musical instrument and sports terms, we have observed, can receive an interpretation on which they're shifted to characterize not ordinary individuals but rather events. For both, the events involve a playing, of one sort or another. We've conceptualized this with a type shift that occurs at a particular position in the nominal extended projection. This type shift can occur below the DP level, so a variety of determiners is compatible with it. Crucially, though, and perhaps surprisingly, the effect of the shift is to create a mass term. That fact constrains the choice of determiner, the modification possibilities, and the potential readings. Modification can occur both above and below the shift, but gives rise to different effects in different positions. Modifiers above the shift characterize the event, either by characterizing it as a particular subkind or else by ascribing some other property to it. This can result in an adverbial reading of an adjective—that is, a reading in which, because the adjective is predicated of an event, the interpretation is adverbial. Modifiers below the shift are interpreted in the usual way, but that too may involve subkind modification. The event shift has an intriguing quirk: it seems to be compatible only with well-established kinds, a feature that is standardly associated only with definite descriptions of kinds. Finally, because of some idiosyncrasies in the interpretation of the verb *play*, an intricate constellation of facts emerges around what readings are available with *play* and how modifiers are construed.

The puzzle we addressed directly implicates a relatively small semantic range of nouns. Most nouns aren't eligible for the eventive shift. But this makes it all the more striking that it has such a wide range of intricate interconnections. This one fairly local type shift turns out to bear on quite a number of ontological categories. These include individuals, events, kinds, event kinds, and the structure of mass and count terms. And it turns out to bear on quite a number of compositional puzzles, including the structural position of adjectives and their relative order, adverbial readings of adjectives, the role of determiners, and constraints on kind reference in definite descriptions.

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