Rethinking (in)direct causation: two classes of lexical causative verbs[*]

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1   Introduction

An important question regarding the difference between so-called lexical causative verbs (e.g. *kill*, *break*, *open*) and periphrastic causatives (e.g. *cause to die*, *cause to break*, *cause to open*) relates to the fact that the former are argued to entail direct causation, whereas the latter are compatible with indirect causation. This difference between lexical causative verbs and periphrastic causatives regarding direct causation has been argued for extensively and is widely accepted by many linguists from different theoretical approaches, e.g. Fodor (1970), Katz (1970), Smith (1970), Ruwet (1972), Shibatani (1976), McCawley (1978), Bittner (1999), Wolff (2003), Rappaport Hovav and Levin (2001), (2012), among others. Regarding the notion of (in)direct causation, there have been proposed different approaches that have attempted to distinguish between whether a causal chain is direct or indirect (see Wolff 2003: 3-5 for a detailed overview). In this respect, one of the most widely-assumed definitions of what constitutes direct causation, in contrast to indirect causation, is probably the one proposed by Wolff (2003), which is defined as in (1).[1]

> Direct causation is present between the causer and the final causee in a causal chain
> (1) if there are no intermediate entities at the same level of granularity as either the
> initial causer or final causee, or (2) if any intermediate entities that are present can be
> construed as an enabling condition rather than an intervening causer. (Wolff 2003: 5)

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[1]In the present paper, the term *lexical causative verb* is used to refer to those verbs that have a causative component in their (lexical) semantics, i.e. *x causes y to break/open/melt* etc.

In Wolff's (2003: 6) account, an entity qualifies an an intermediary "only if it is fully independent of the causer and causee and is at the same level of granularity as that implied by the causer or causee." In this respect, Wolff (2003: 6) provides the example of a lunar eclipse that can be said to have stopped a concert by having distracted the players. In this scenario, there are many intermediate events present between the causer and the final causee in the causal chain (e.g. seeing the moon and how the musicians stop playing). Yet, Wolff notes that such intermediate events would not qualify as proper intermediaries because they are not of the same level of granularity. Wolff then concludes that despite the fact that there can be many intermediaries in an event of stopping a concert "the prediction is that the overall chain would be construed as involving only a cause and causee, without intermediaries, thus making the causal chain direct." Wolff (2003: 33-34) further illustrates the importance of granularity when considering whether certain intermediaries between the causer and the final causee actually qualify as proper intermediaries by considering the following examples:

(1) a. William the Conqueror changed the English language
       (by occupying England in 1066).
    b. Prince Charles is destroying the monarchy
       (with his undignied behavior).
    c. The eclipse stopped the concert
       (by distracting the players).

The sentences in (1) illustrate cases of direct causation, despite the fact that they may involve many intermediaries between the causer and the final causee but, crucially, none of them have the same level of granularity as the causer and causee, and therefore the causation is direct. Regarding enabling conditions, Wolff (2003: 6) argues that there can be intermediaries between the causer and the causee if they qualify as enabling conditions, i.e. an intermediary that enables a causer in the sense that "the intermediary does something that is concordant with the tendency of the causer." In this respect, a canonical case of enabling conditions are instruments. Thus, in sentences such as the ones in (2), although the instruments would qualify as intermediate entities between the causer and the final causee, they simply enable the causer to carry out its tendency, i.e. they do not actually cause the event, and therefore, the type of causation is still direct.[2]

(2) a. John cut the bread with this knife.
       (cf. This knife enabled John to cut the bread)
    b. The thief killed the robbers with the bomb.
       (cf. The bomb enabled the thief to kill the robbers)
    c. Tom turned on the TV with the remote control.
       (cf. The remote control enabled Tom to turn on the TV)

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[2]For further discussion on the notions of enabling conditions and causation, see Wolff (2003, 2007) and Wolff and Song (2003). For further discussion on the concept of granularity of an event, see Bittner (1999), Croft (1991) and Truswell (2011).

Roughly put, then, indirect causation necessarily involves an intermediate entity (at the same level of granularity) that intervenes between the causer and the final causee in the causal chain. The apparent restriction that lexical causative verbs are not compatible with indirect causation can be illustrated by the famous example by Katz (1970).

(3) A gunsmith faultily repairs the gun that a sheriff brings him for inspection. The next day, the sheriff's gun jams and he is killed when he tries to defend his town from incoming bandits.

    a. The gunsmith caused the sheriff to die.
    b. #The gunsmith killed the sheriff.

The example in (3) allegedly shows that lexical causative verbs cannot be used to describe scenarios in which an intermediate entity intervenes between the causer and the final causee, as only periphrastic causatives are allowed. Put differently, in (3) there is a causal chain between the event of faultily repairing the gun by the gunsmith and the sheriff's death, yet this causal relation cannot be described by lexical causative verbs since the gunsmith's faultily repair cannot be interpreted as the immediate cause of such event (as there is an intermediate entity that actually kills the sheriff, namely the bandits).

Against this view, Neeleman and Van de Koot (2012) argue that examples like those in (3) do not actually show that lexical causative verbs are necessarily incompatible with indirect causation, since the relevant notion in examples such as those in (3), they argue, appears to be 'accountability'. In this respect, Neeleman and Van de Koot note that if we control for accountability, i.e. if the subject can be shown to be accountable for bringing about the result state encoded by the lexical causative verb, then lexical causative verbs are indeed compatible with indirect causation. In order to show this, we need to change the same scenario in (3) so that we can explicitly express that the gunsmith is necessarily held accountable for bringing about the death of the sheriff. The example in (4) thus shows that lexical causative verbs are indeed compatible with indirect causation if certain conditions, in this case, accountability, are controlled for.

(4) A gunsmith faultily repairs the gun that a sheriff brings him for inspection on purpose by intentionally adding dust to it, as the gunsmith knows that the dust will cause the gun to jam. The next day, the sheriff's gun jams and he is killed when he tries to defend his town from incoming bandits.

    a. The gunsmith caused the sheriff to die.
    b. The gunsmith killed the sheriff.

In the present paper, following Neeleman and Van de Koot (2012), I argue that lexical causative verbs do not constitute a uniform class since only one class of lexical causative verbs do entail direct causation. I claim that the lexical causative verbs that fall under the classification of result verbs by Rappaport Hovav and Levin (2010), e.g. *break*, *kill*, *open*, entail causation, but not direct causation and allow intermediate entities to intervene between the causer and final causee. I thus follow Martin (2018) in arguing that direct causation in

lexical causative verbs is a (strong) inference, but not an entailment of this class of lexical causative verbs. However, I depart from Neeleman and Van de Koot (2012) and Martin (2018) in arguing that lexical causative verbs that encode both a manner of action and a result state (i.e. lexical causative verbs that fall under the classification of so-called manner-result verbs (Beavers and Koontz-Garboden 2012, 2017, Ausensi pearb) do entail direct causation, and therefore disallow intermediate entities. In order to make my case, I focus on what I called *murder* verbs (i.e. *murder*, *slay*, *assassinate*, *massacre* and *slaughter*) in Ausensi (pearb), since *murder* verbs encode a manner of action that brings about the result state of death of the patient, in contrast to *kill*, which only encodes a result state. I propose then that entailing direct causation is contingent on encoding a manner of action and a result state, which follows if lexical causative verbs of the *murder* sort not only encode a result state, but also a manner of action, i.e. a specific action that brings about the result state. I note that if this is correct, then we can account for the fact that verbs of killing of the *kill* sort do indeed permit intermediate entities, whereas verbs of killing of the *murder* sort do not. Lastly, I argue that the difference between the two classes of lexical causative verbs result from the different semantics of the roots from which lexical causative verbs are derived, insofar as the roots of lexical causative verbs of the *kill* sort only require that the state they encode be caused (either directly or indirectly), whether the roots of lexical causative verbs of the *murder* sort require that the state they encode be caused by a specific type of action.

The present paper is organized as follows. In Section 2, I briefly describe the hypothesis by Rappaport Hovav and Levin (2010) regarding the claim that verbs fall into two classes, manner and result verbs, i.e. Manner/Result Complementarity. In the same section, I review previous accounts against Manner/Result Complementarity. In Section 3, I argue that lexical causative verbs do not constitute a uniform class and need to be split into two classes. In the same Section, I develop the analysis of such verb classes. Section 4 concludes the paper.

2 Manner/Result Complementarity

In lexical semantics, an important question, dating back (at least) to Lakoff (1965) and Dowty (1979), relates to (im)possible verb meanings, i.e. whether there are constraints or limitations in the lexical entailments of verbs. In this respect, Rappaport Hovav and Levin (2010) propose a hypothesis regarding constraints on possible verb meanings, i.e. the so-called Manner/Result Complementarity that holds that (simplex) verbs fall into two semantic classes: manner verbs, which encode a manner of action (e.g. *wipe*, *run*, *scrub*), and result verbs, which encode a result state (e.g. *break*, *shatter*, *kill*) (also see Levin and Rappaport Hovav 1991, 2013, 2014; Rappaport Hovav and Levin 1998). In this respect, Rappaport Hovav and Levin strongly argue that a simplex verb cannot encode both a manner of action and a result state, i.e. there are no manner-result encoding verbs. Rappaport Hovav and Levin propose that Manner/Result Complementarity follows from the insertion of roots in the event structure: roots of manner verbs (e.g. $\sqrt{\text{WIPE}}$) are always inserted as modifiers of the so-called ACT predicate, whereas roots of result verbs (e.g. $\sqrt{\text{BREAK}}$) are always inserted as arguments of the so-called BECOME predicate. Thus, Manner/Result Complementarity is also a hypothesis on event structure, insofar as the same root can only be inserted as a modifier or as an

argument, but never as both.

Manner/Result Complementarity, however, has been challenged and argued to not hold categorically in the sense that certain verb classes are argued to encode a manner of action that brings about a result state (Férez 2007; Zlatev and Yangklang 2004; Goldberg 2010; Husband 2011; and see Levin and Rappaport Hovav 2013, 2014; Rappaport Hovav 2017 for some responses). In this respect, an important contribution is that of Beavers and Koontz-Garboden (2012), as they propose that what are known as manner-of-killing verbs (e.g. *crucify*, *electrocute*, *hang*, *drown* and *guillotine*) encode both a manner of action that brings about a result state, in this case, death. However, Rappaport Hovav (2017) has recently argued that manner-of-killing verbs do not actually counterexemplify Manner/Result Complementarity since this is a restriction on root meaning, i.e. on simplex verbs, and some manner-of-killing verbs are overtly bimorphemic (i.e. *crucify* and *electrocute*) or morphologically derived (i.e. *guillotine*). In this respect, Rappaport Hovav (2017: 85) notes the following:

> An analysis in the case of the first two verbs [*crucify*, *electrocute*, JA] would determine the contribution of each morpheme to the meaning of the verb, and in the case of the latter [*guillotine*, JA], the contribution of the nominal root and the derivation of the verb.

Regarding *drown*, Rappaport Hovav convincingly argues that it does not encode any manner of action, but only a result state, in that, among other things, it permits the anticausative in English (6a) as well as natural forces or inanimate subjects as causers (6b), which is relevant insofar as in anticausative uses of verbs the notion of a (manner of) action by an agent is irrelevant.[3]

(5) a. John drowned.
     b. The waters drowned him. (adapted from Rappaport Hovav 2017: 85)

In Ausensi (pearb), I argued in favor of the initial claims by Beavers and Koontz-Garboden (2012), i.e. that Manner/Result Complementarity is contrary to fact. Thus, even if Rappaport Hovav's counterarguments regarding manner-of-killing verbs hold, I nonetheless argued that what I called *murder* verbs (i.e. *murder*, *slaughter*, *assassinate*, *massacre* and *slay*) are in fact simplex verbs of killing that do encode both a manner of action and a result state, where the manner of action relates to performing an intentional action with the intention of bringing about the death of the patient.

In this respect, In Ausensi (to appearb), I showed that *murder* verbs pass all the three manner diagnostics laid out by Beavers and Koontz-Garboden (2012), in contrast to *kill*. The first diagnostic relates to imposing selectional restrictions on the subject. Beavers and Koontz-Garboden (2012) argue that if a verb encodes a manner of action, then it necessarily restricts the type of subject that it permits according to the manner of action. In this respect, *murder* verbs restrict the type of subject permitted insofar as only entities capable of carrying

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[3]Regarding the last manner-of-killing verb, *hang*, Rappaport Hovav (2017) suggests that a similar analysis could be derived for this verb, as she takes it to be a result verb, rather than a manner verb.

out an intentional action with the intention of bringing about the result state encoded by the verb are permitted, in contrast to *kill*. This is shown in the following examples (from Ausensi To appearb).[4]

(6) a. John killed Tom by accident/unintentionally.

   b. The floods killed thousands.

   c. Cancer killed two million people last year.

   d. That machine weapon killed thousands.

(7) a. #John murdered/slew/assassinated the president unintentionally/by accident.

   b. #The floods murdered/slew/assassinated the president.

   c. #Cancer murdered/slew/assassinated every president in the US.

   d. #The machine weapon murdered/slew/assassinated the president.

(8) a. #John slaughtered/massacred the civilians unintentionally/by accident.

   b. #The floods slaughtered/massacred the civilians.

   c. #Cancer slaughtered/massacred all the citizens in that town.

   d. #The atomic bombs slaughtered/massacred the civilians.

The second diagnostic relates to denying that an action has been carried out. In this respect, Beavers and Koontz-Garboden note that denying that an action has been carried out should result in a contradiction if the verb encodes a manner of action. Thus, this diagnostic is the counterpart of the result diagnostic by Rappaport Hovav and Levin (2010), i.e. denying that the result state encoded by the verb holds of the patient after an event of scalar change. As shown in (10), this diagnostic results in a contradiction with *murder* verbs but not with *kill*, since only the former encode a manner of action.

(9) a. John killed Tom, his son, but didn't move a muscle - rather, he did not give consent to his operation on his tumor due to religious beliefs.

   b. #John murdered Tom, his son, but didn't move a muscle - rather, he did not give consent to his operation on his tumor due to religious beliefs.

(10) a. John killed the president, but didn't move a muscle - rather, he refused to alert the Secret Service to the hidden bomb.

   b. #John assassinated the president, but didn't move a muscle - rather, he refused to alert the Secret Service to the hidden bomb.

(11) a. John killed all the passers-by, but didn't move a muscle - rather, he failed to alert security services to the car bomb.

   b. #John slew all the passers-by, but didn't move a muscle - rather, he failed to alert security services to the car bomb.

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[4]I will not show here that *murder* verbs also encode a result state due to space limitations. Yet, the fact that this verb class encodes the death of the patient is a rather uncontroversial claim insofar as *John murder Tom, but Tom didn't die* is a clear contradiction. See Ausensi (to appearb) for further discussion on this.

(12)   a.   John killed all the citizens, but didn't move a muscle - rather, he refused to warn them about the incoming hurricane.

       b.   #John slaughtered/massacred all the citizens, but didn't move a muscle - rather, he refused to warn them about the incoming hurricane.

The third and last diagnostic relates to describing durative events despite encoding nongradable scales (i.e. a two-point scale as in *die*). In this respect, *murder* verbs encode a two-point scale, i.e. alive-dead, and are therefore expected to be punctual, since as Beavers (2008) convincingly argues, multipoint scales typically involve durative predicates (cf. *build a house*), whereas two-point scales involve punctual predicates (cf. *find a key*). More specifically, Beavers and Koontz-Garboden (2012: 348) note the following:

> "[...] if we know independently that the change for some verb is simplex, so that the scale has only two points, then if the predicate is durative, it must be because there is a complex manner."

In this respect, in Ausensi (to appearb), I note that *murder* verbs pattern like canonical manner verbs in that the events they describe are durative, despite encoding nongradable scales, as shown in (13).[5]

(13)   a.   It took John 5 minutes to murder/assassinate/slay the president.
           (*after/during* 5 minutes)

       b.   It took John 5 minutes to slaughter/massacre all the citizens.
           (*after/during* 5 minutes)

In short, as I initially argued in Ausensi (to appearb), *murder* verbs, in contrast to *kill*, are manner-result encoding verbs. More specifically, in Ausensi I proposed that verbs of the *murder* sort encode an intentional action which is carried out with the intention of bringing about the result state of death of the patient. In contrast, *kill* does not place any restriction on the type of action that that causes such state.

     This difference in the lexical semantics of *kill* and *murder*-type verbs thus has implications for the type of causation entailed, since, as I argue next, only *murder*-type verbs entail direct causation, i.e. only manner-result encoding verbs disallow intermediate entities to intervene in the causal chain.

3   Two classes of lexical causative verbs

As mentioned above, Neeleman and Van de Koot (2012: 28) argue that lexical causative verbs are indeed compatible with indirect causation. To this end, Neeleman and Van de

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[5]To test for durativity, I follow Beavers (2008), Beavers and Koontz-Garboden (2012) and the diagnostics laid out by Kearns (2000: 206), i.e. the *take-time* diagnostic. Such a diagnostic yields an *after x time* interpretation with punctual events (cf. *It took John five minutes to find the key*) and both an *after* and a *during x time* reading with durative telic events (cf. *It took John five minutes to build the house*). Durative atelic predicates only have a *during x time* interpretation in the *spend x time* diagnostic (cf. *John spent five minutes eating*).

Koot (2012: 27-28) provide many examples of lexical causative verbs in which intermediate entities intervene between the causer and final causee, thus showing that lexical causative verbs are compatible with indirect causation contra the traditional view.[6]

(14) a. NHS supplies chaos killed my brother.

b. The launch of new iPhone contracts in May has dramatically enlarged T-Mobile's UK market share.

c. As usual, a kind word with the manager opened the door to the Stardust nightclub.

d. Opening bus lanes to motorcycles will redden the streets of London with cyclists' blood.

e. A slip of the lip can sink a ship.

f. Anglican Church says overpopulation may break eighth commandment.

g. A large fleet of fast-charging cars will melt the grid.

In this vein, Martin (2018: 116) convincingly argues that lexical causative verbs do not entail direct causation, but rather trigger a "defeasible inference", which "is obtained via a Gricean reasoning through the competition of lexical causatives with the corresponding periphrastic causatives (e.g. *cause/make*)." Martin notes then that direct causation is not an entailment of lexical causative verbs, but rather an inference, since as she notes, such an inference is defeasible. In this respect, Martin shows that indirect readings of lexical causative verbs such as *destroy* are facilitated by adverbial expressions like *eventually*, *ultimately* or *at the end of the day*, as well as verbs such as *end up* or *manage*. Consider the following example from Martin (2018: 110)

(15) The lighthouse was built in a very sturdy foundation, designed to withstand high winds at the tower top, but the foundation sustained structural damage in an earthquake about ten years ago. Even that would have been fine, but this year, we had record-setting winds and the worst hurricane season anyone can remember, and given the prior damage, it could not take the extra strain provoked by the storms.

a. #The earthquake destroyed the lighthouse.

b. Ultimately, this earthquake destroyed the lighthouse!

c. And this earthquake eventually destroyed the lighthouse!

I argue, however, that *murder*-type verbs, i.e. manner-result encoding verbs, do entail direct causation, as they are not compatible with indirect causation even if the indirect causation reading is facilitated. Crucially, this contrasts with lexical causative verbs that encode just a result state, but not any manner of action, i.e. *kill*. Thus, *murder*-type verbs disallow intermediate entities to intervene in the causal chain, whereas *kill* does allow them, and is therefore compatible with indirect causation. This contrast between *murder*-type verbs and *kill* is shown in the following examples.

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[6]For the present purposes, it is worth pointing out that all the examples that Neeleman and Van de Koot provide of lexical causative verbs expressing indirect causation are cases of canonical result verbs, i.e. *kill*, *enlarge*, *open*, *break*, *sink*, *melt*.

(16) John's friend, Tom, works as a bodyguard for a certain President. For some reason, John wants that President dead, so he then adds dust to Tom's gun, the President's bodyguard. The next day, there is a terrorist attack, Tom's gun jams at a critical moment and the President is assassinated.

    a. John eventually managed to kill the President!

    b. #John eventually managed to murder/assassinate/slay the President!

(17) John wants all the citizens of a certain city dead. He then tampers with the city's defense system, as he knows it will leave the city vulnerable. The next day, there is a terrorist attack, the city's defense system malfunctions and all the citizens are killed.

    a. John eventually managed to kill all the citizens!

    b. #John eventually managed to massacre/slaughter all the citizens!

Martin (2018: 110) further notes that indirect readings of lexical causative verbs are also facilitated in contexts where the change of state encoded by the lexical causative verb is not at issue. This can be expressed, for instance, by means of clefting, since, in this case "what is under issue is the responsibility of the subject's referent, and/or what the ultimate causing event is." As shown in (18)-(19), *murder*-type verbs do not allow indirect causation even in this context, in contrast to *kill*.

(18) John's friend, Tom, works as a bodyguard for a certain President. For some reason, John wants that President dead, so he then adds dust to Tom's gun, the President's bodyguard. The next day, there is a terrorist attack, Tom's gun jams at a critical moment and the President is assassinated.

    a. Ultimately, it was John that killed the President!

    b. #Ultimately, it was John that murdered/assassinated/slew the President!

(19) John wants all the citizens of a certain city dead. He then tampers with the city's defense system, as he knows it will leave the city vulnerable. The next day, there is a terrorist attack, the city's defense system malfunctions and all the citizens are killed.

    a. Ultimately, it was John that killed all the citizens!

    b. #Ultimately, it was John that massacred/slaughtered all the citizens!

In short, canonical result verbs such as *kill* do not entail direct causation, but simply causation, in the sense that, as it will be argued in the next section, the state they encode must be simply caused, yet not necessarily directly. Manner-result verbs, on the other hand, necessarily entail direct causation since the state they encode must be caused by a specific type of action.

3.1 The semantics of roots determines (in)direct causation

In the present paper, I follow current theories of verb meaning in assuming that verb meanings consist of an event structure that decomposes into event templates, defining the temporal and causal structure of the event, and roots, which simply provide real-world information

about the event. As Koontz-Garboden and Beavers (2017) point out, this division of labor is assumed in all theories of verb meaning, whether lexicalist (e.g. Rappaport Hovav and Levin 1998; Pinker 1989), constructionist (e.g. Goldberg 1995; Croft 2001) or neoconstructionist (e.g. Borer 2005; Ramchand 2008; Alexiadou et al. 2015). In a similar vein, a considerable body of work has proposed that verbs are actually created in the syntax by merging a root with one or more event templates, as shown in (20) (e.g. Hale and Keyser 1993, 1997, 2002; von Stechow 1996; Marantz 1997; Harley 2003; Folli and Harley 2005; Borer 2005; Alexiadou et al. 2015).

(20)   a. John broke the vases = [$_{v}$P John [$_{v'}$ v_{CAUSE} [$_{v}$P the vases [$_{v'}$ v_{BECOME} $\sqrt{}$BROKEN]]]]

      b. John cooled the soup = [$_{v}$P John [$_{v'}$ v_{CAUSE} [$_{v}$P the vase [$_{v'}$ v_{BECOME} $\sqrt{}$COOL]]]]

More crucially, though, under such approaches, it is generally assumed that there is a 'clean divide' between the division of labor of roots and event templates, i.e. if there is an entailment of change (e.g. *become broken*), it is because there is the corresponding event template introducing such entailment (i.e. v_{BECOME}). In other words, roots cannot introduce templatic meanings. This is made explicit, for instance, in the so-called Bifurcation Thesis by Embick (2009), or the Root Hypothesis by Arad (2005) (see also Borer 2005; Dunbar and Wellwood 2016), and is also assumed, though implicitly, in all theories of verb meaning, especially those that assume that verbs are created in the syntax. In short, certain aspects of meaning such as change are only introduced templatically, e.g. when a root is merged with the corresponding event template (e.g. v_{BECOME}). Roots, on the other hand, never introduce templatic meanings, as they simply provide real-world details about the state or action they denote.

In Ausensi (peara), following Beavers and Koontz-Garboden (to appear), I departed from current theories of verb meaning by assuming that root meanings can be more complex than simply providing real-world details about the event as they can introduce templatic meanings such as intentionality. In this respect, I argued that what I called $\sqrt{}$MURDER roots (i.e. $\sqrt{}$MURDER, $\sqrt{}$SLAY, $\sqrt{}$MASSACRE, $\sqrt{}$SLAUGHTER and $\sqrt{}$ASSASSINATE) inherently comprise as part of their entailments templatic meanings related to intentionality, which crucially under some theories of verb meaning are only introduced templatically in the syntax by projections such as vDO (Folli and Harley 2005, 2007) or Voice (Kratzer 1996; Pylkkännen 2008; Alexiadou et al. 2015, *i.a.*). More specifically, in Ausensi (to appeara) I made use of sublexical modification with *again* in order to show that entailments of intentionality cannot be severed from $\sqrt{}$MURDER-type roots, in contrast to roots such as $\sqrt{}$KILL, as shown in (21)-(22) (from Ausensi to appeara).[7]

(21)   He murdered/assassinated/slaughtered/massacred/slew the monster kings a-gain.
     OK He caused the monster kings to become dead by intentionally killing them again.
     # He caused the monster king to become dead again by intentionally killing it but the last time they were killed by accident/unintentionally.

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[7]For further details on *again*-modification and the different readings depending on the structural height of its attachment site, see von Stechow (1995, 1996, 2003); Beck and Johnson (2004); Beck (2006); Marantz (2007, 2009); Beavers and Koontz-Garboden (pear).

(22) He killed the monsters again.
   OK He caused the monsters to become dead by intentionally killing them again.
   OK He caused the monsters to become dead again by intentionally killing them but the last time they were killed by accident/unintentionally.

If entailments of intentionality are introduced templatically by functional heads such as *v*DO or Voice, as held by, e.g. Folli and Harley (2005, 2007), and not by roots, in sentences such as the one in (21) it should be possible to have a presupposition where the intentionality associated with the subject is not entailed on the lowest structural attachment site of *again*, i.e. when *again* has in its scope the real-world details related to the state the root names. This is because such theories of event structure assume that entailments of intentionality are introduced templatically, and not by roots. However, as I note in Ausensi (to appeara), such a prediction is not borne out for √MURDER-type roots, as shown in (21), as they always introduce entailments of intentionality regardless of the structural height of *again*'s attachment site. In other words, what (21) shows is that entailments of intentionality cannot be severed from √MURDER-type roots. This contrasts with roots such as √KILL since such a class of roots does not introduce any entailment of intentionality, and therefore it allows presuppositions in which the intentionality associated with the subject is not entailed on the lowest structural attachment site of *again*, as shown in (22).

Following Ausensi (to appeara), I argue that the difference regarding the type of causation entailed by the two classes of lexical causative verbs result from the different semantics of the roots from which lexical causative verbs are derived. I adopt the denotation proposed in Ausensi (to appeara) for the roots of lexical causative verbs encoding a manner of action and a result state, i.e. √MURDER, √SLAY, √MASSACRE, √SLAUGHTER and √ASSASSINATE.

(23) ⟦√MURDER⟧= $\lambda x \lambda s[dead'(x, s) \wedge \exists e' \exists v[cause'(v, e') \wedge become'(e', s) \wedge \forall v'[cause'(v', e') \rightarrow intentional'(v')]]]$

Such a denotation predicates a state, i.e. *dead*, of an argument, but it also specifies that it must have a cause, and that such a cause must be of a certain type, in this case an intentional-type action, which relates to performing an action intentionally with the sole purpose of bringing about the result state *dead* of a patient. In contrast, the denotation for the roots of lexical causative verbs of the √KILL sort, as defined in (45), also predicates the same state of a unique argument, but it crucially does not specify anything about the cause.

(24) ⟦√KILL⟧= $\lambda x \lambda s[dead'(x, s) \wedge \exists e' \exists v[cause'(v, e') \wedge become'(e', s)]]$

I argue thus that lexical causative verbs derived from roots restricting the type of cause to a specific action necessarily entail direct causation, which follows if such roots require that such a specific action bring about the state named by the root. In contrast, lexical causative verbs derived from roots of the √KILL sort are unspecified for the type of causation since such roots name a state but crucially do not require that it be brought about by any specific action. In other words, roots of the √KILL sort are unspecified for the type of causation allowed since such roots just require that the state *be caused*, either directly or indirectly.

In this respect, it is worth noting manner verbs in resultative constructions in which the manner of action encoded by the verb brings about the state denoted by the result phrase (cf. *He shot them dead*). Levin (pear) argues (see also Simpson 1983; Goldberg 1995; Levin and Rappaport Hovav 1995; Jackendoff 1997) that resultative constructions require the causal relation to be direct, as shown in (25).

(25)　a. John kicked the door open.
　　　　　OK John's foot makes contact with the door causing it to open.
　　　　　# John kicked a ball which hits the door causing it to open
　　　b. John pushed the door open.
　　　　　OK John pushed on the door causing it to open.
　　　　　# John pushes a button which sets a mechanism in operation that opens the door.
　　　　　(from Levin to appear)

This is relevant for the present purposes since lexical causative verbs resemble resultative constructions in the sense that a manner of action is performed in order to bring about a result state. Whereas in resultative constructions manner and result components are expressed by two different predicates, i.e. the main verb and the result phrase respectively, in lexical causative verbs of the *murder* sort both components are expressed by a single predicate. Thus, the pattern in (25) is predicted under the present account since intermediate entities are argued to be disallowed in causal chains in which it is entailed that a result state is brought about by a (specific) manner of action (e.g. *cause the door to open by kicking it*).

4　Conclusion

In the present paper, I have argued that lexical causative verbs do not constitute a uniform class but need to be split into two classes depending on whether they entail direct causation or not. In this respect, I have proposed that lexical causative verbs encoding just a result state, i.e. canonical result verbs, are unspecified for the type of causation allowed. Thus, this type of lexical causative verbs allow intermediate entities between the causer and final causee. In contrast, lexical causative verbs encoding both a manner and a result, i.e. manner-result encoding verbs, necessarily entail direct causation, and therefore disallow intermediate to intervene in the causal chain.

The present account predicts then that verbs derived from roots restricting the type of cause to a specific action necessarily entail direct causation, whereas those verbs derived from roots that do not restrict the type of cause to a specific action are unspecified for the type of causation. Thus, I have provided novel evidence that further supports the existence of the manner-result verb class, since canonical result and manner-result verbs further differ in the type of causation permitted.

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