RESEARCH

Instrumental prepositions and case: Contexts of occurrence and alternations with datives

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We will argue that instrumentals are the mirror image of dative/genitive obliques. We propose that both sets of adpositions/cases are elementary predicates, expressing a zonal inclusion (part-whole/possession relation); instrumentals reverse the direction of the relation with respect to datives/genitives. Our claim is that *with*-type morphemes provide very elementary means of attaching extra participants (themes, initiators, etc.) to events (VP or vP predicates) – with specialized interpretations derived by pragmatic enrichment (contextual, encyclopedic) at the C-I interface. We will extend our proposal to account for the observation that the instrumentals can be employed cross-linguistically in triadic verb constructions alternating with datives and we will broaden our discussion to account for dative/instrumental syncretism (eventually including DOM objects), arguing that the inclusion predicate (⊆) corresponding to 'to' or dative case and its reverse (⊇), corresponding to 'with' or instrumental case, may reduce to an even more primitive content capable of conveying inclusion in either direction. Finally, we will address ergative alignments, showing that languages may attach external arguments/agents either as possessors (⊆) or as causers (⊇) of a given event/state, yielding the two most widespread patterns of syncretism of the ergative morpheme, that is with either instrumentals or genitives/datives.

Keywords: oblique; instrumental; dative; genitive; argument alternations; syncretism; Italian

1 Core proposal and outline

Genitive, dative and instrumental are the most likely obliques to appear in any given languages. Blake (2001) proposes the implicational hierarchy in (1), such that cases on the right are progressively less likely to occur. Caha (2009) modifies Blake's hierarchy (not taking ergative into account) as in (2) – where the interesting property is the fact that locative can be seen to interlope at various points in the hierarchy rather than ranking at any precise point in it (possible syncretisms are the deciding factor in Caha's hierarchy, conceived of as an f-sequence in the Nanosyntactic framework).

(1)   Blake (2001: 156)
        NOMINATIVE > ACCUSATIVE / ERGATIVE > GENITIVE > DATIVE > LOCATIVE > ABLATIVE/INSTRUMENTAL > OTHER

(2)   Caha (2009: 32)
        NOM > ACC > LOC1 > GEN/PART > LOC2 > DAT > LOC3 > INS/COM
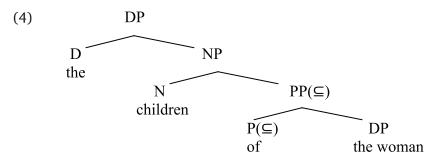
One way to approach the general question as to the nature of case is to ask why case systems cross-linguistically take the form in (1)–(2). We adopt without discussion the approach of Chomsky (2001) to direct cases, viewed as reflexes of an Agree operation whose goal is the DP to which the case attaches and whose probe is a phase head (v for

accusative and C-T for nominative). Our adoption of the standard Chomskyan approach to case and agreement implies rejection of alternative approaches where direct cases are computed by a dedicated (dependent case) algorithm and/or Agree/case are demoted to the PF/externalization component (Marantz 2000; Bobaljik 2008; Baker & Vinokurova 2010). In other words, Agree and case are core syntactic phenomena, and (1)–(2) must have a syntactic explanation. Furthermore, direct case is a reflection of Agree. Therefore our real targets are oblique cases.

   We take our bearings from a spate of recent works by Manzini & Savoia (2011), Manzini et al. (2015), Manzini & Franco (2016) – which deal with the genitive/dative oblique(s). Their basic idea can be grasped by reference to data like (3). In (3b), the *'s* genitive ending or the *of* preposition introduces a possession relation between the argument it selects, namely *the woman* (the possessor), and the head of the DP, namely *(the) children* (the possessum). The same possession relation holds in (3a) between the dative *John* and the theme of the ditransitive verb *the book*.

(3)   a.   I gave the books **to** John
         b.   The woman's children/the children **of** the woman

The literature quoted uses the label (⊆) for the possession relation instantiated by the Preposition *to* in (3a) or the genitive inflection in (3b). They take the content of (⊆) to be what Belvin & den Dikken (1997: 170) call zonal inclusion: "Entities have various zones associated with them, such that an object/eventuality may be included in a zone associated with an entity without being physically contained in that entity". The fundamental content of possession, hence of genitive/dative inflectional case or prepositions (*of, to*) is part/whole. Formally, in (3b), (⊆) takes as its internal argument its sister DP (the possessor) and as its external argument the sister to its projection (the possessum) – and says that 'the children' is in the domain of inclusion of 'the woman', as in (4). In (3a) the primitive content of the *to* preposition is again the (⊆) relation introduced for genitives in (4); P(⊆) takes as its internal argument its sister DP 'John' (the possessor) and as its external argument the sister to its projection, i.e. the theme of the verb 'the books' (the possessum) (cf. Section 4).

(4)   DP
              _____
            D   NP
           the   _____
                        N   PP(⊆)
                     children   _____
                                   P(⊆)   DP
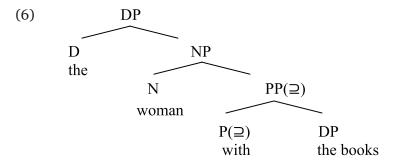   of   the woman

The part-whole (⊆) proposal for genitives and datives needs to be further articulated in order to account for the fact that formally identically genitive/dative DPs display different interpretive behaviours – as well as for the fact that cross-linguistically, syntactico-semantic differences may result in different lexicalization pattern. Manzini et al. (2015) and Manzini & Franco (2016) address these issues with respect to datives with ditransitive verbs, with unergative verbs, as experiencer subjects, as DOM objects and as oblique (ergative) subjects.[1]

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[1] A comparably detailed discussion of genitives is certainly to be desired. One issue concerns eventive nouns. The problem is that the genitive in this instance lexicalizes the internal or external argument of the eventive

If what precedes is on the right track, we expect it to have consequences for the other oblique most likely to occur as a case inflection, namely what we will refer to here as the instrumental; in English the core lexicalization of the instrumental is by the preposition *with*. Our starting point is the observation by Levinson (2011) that possession relations may be realized also by *with*, as in (5). The relation in (5) is reversed with respect to that in (4), since the preposition *with* embeds the possessum, while the possessor is the head of the DP.[2]

(5)   The woman **with** the children/the books

We aim at showing that instrumental inflections/adpositions denote the reverse relation with respect to genitives or datives, by which the possessum, rather than the possessor is in the oblique case. For instrumentals we will therefore adopt the ($\supseteq$) content and label here, as indicated in (6). What (6) says is that the complement of *with* is the possessum (a part) of the possessor (the whole) 'the woman'.

(6)

DP
├── D
│   the
└── NP
     ├── N
     │   woman
     └── PP($\supseteq$)
          ├── P($\supseteq$)
          │   with
          └── DP
               the books

Going back to the hierarchy of oblique cases in (1)–(2), we aim at showing that the fundamental obliques of natural languages are a system of elementary predicates attaching arguments to the verbal spine as possessing/including other constituents (dative/genitive) – or as entertaining the reverse relation with them (instrumental). In other words, building on Manzini & Savoia (2011), Manzini & Franco (2016), the fundamental oblique system (genitive-dative-instrumental) has a common core consisting of part/whole content, deployed in order to enrich the argumental structure supported by verbal projections (via Chomsky's Agree, deriving direct case).

Datives and instrumentals are singled out at least by another typologically relevant behaviour, namely the possibility of being encoded via verbal applicative morphology.

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noun, as in (i), with a stricter relation to it than possessors have. We connect this with the ability of the dative to lexicalize sentential (DOM) internal arguments and (ergative) external arguments (Section 5).

(i) I witnessed his theft of the picture.

Other relevant issues include the fact that English *'s* genitives and *of* PPs are not synonymous, the latter being restricted to relational Ns (Barker 2011) – though Adger's (2013: 69) remark that "the semantic relationality inheres in the preposition, not the nominal" (contra Barker) goes in the direction advocated here. In other words slightly different restrictions may be imposed on the basic genitive content of the two elements (cf. Boneh & Sichel 2010 for Palestinian Arabic; Manzini & Franco 2016: 211).

[2] As before, issues arise in regard to deverbal nominalizations. Since the logic of the present argument is that genitive complements of nominalizations are connected to the head noun by the same elementary inclusion predicate as possessors (fn. 1), we predict that the relation could be reversed by the use of *with*. Given examples like (i), we predict the possibility of (ii).

(i)   The foreign recognition/ occupation/destruction of new Balkan states during the 90's.
(ii) The new Balkan states with foreign recognition/occupation/??destruction during the 90's.

The prediction seems to have a mixed outcome. An anonymous reviewer suggests that the prediction fails on the basis of the *destruction* example – but this does not seem quite right. In fact examples like (iii) seem to improve (ii).

(iii) The only city with a recorded/well-documented destruction by fire…

An important stream of literature beginning with Pylkkänen (2008) has theorized the universality of the Appl category in the verbal spine, associating oblique arguments with such projections. Appl projections are avoided here in that they do not seem to respond to the actual morphosyntactic organization of languages, where the 'applicative' content is not introduced by verbal morphology, but rather by a preposition (or eventually by a nominal inflection, in languages using case morphemes).

Possession, as in (6), is only one of a range of meanings associated with English *with* (see Stolz et al. 2006). The basic meaning includes the comitative in (7a), ambiguous in that *Mary* can join the speaker in choosing John or *Mary* can join *John* in being chosen by the speaker. A similar ambiguity holds in instrument *vs.* possession sentences of the type in (7b) (as is well known in psycholinguistics; Frazier & Fodor 1978); only the subject-oriented reading can refer to an instrument. (7c) illustrates the causer meaning of *with* (i.e. 'this stuff causes anything to get clean') and (7d) the manner reading.

(7)   a.   I chose John **with** Mary
        b.   The boy saw the girl **with** the binoculars
        c.   Anything gets clean **with** this stuff
        d.   John did it **with** ease (easily)

Two main questions arise which will be dealt in Section 2 and 3. First, we need to consider whether the content that we have imputed to *with*/the instrumental case in (6) is compatible at all with the environments in (7). The content is very elementary, but it is a content nevertheless; this creates potential problems that do not arise as long as empty functional heads (Appl or other) are manipulated. More importantly, we need to consider whether the content we have imputed to instrumental case/Ps does have a predictive value, with respect to the various configurations/interpretations introduced in (7).

In Section 4 and 5, we will consider the other main aspect of our core proposal – namely the reverse content of instrumental and dative. We will support this hypothesis with argumental alternations involving the structures *V-XP-toYP* vs. *V-YP-withXP*. Conversely we shall consider environments where the dative and the instrumental oblique freely alternate, in particular as introducers of DOM objects and of ergative external arguments. In this second half of the article we adopt a broad cross-linguistic focus, arguing that our proposal holds for different languages and language families.

2 Instruments, causers, comitatives

In this section we focus on English *with* and Italian *con* (cf. also Spanish) and we explore the basic meaning (instrument, causer, comitative) associated with these elements. There is a rich formal literature on the structure of syntactic verbal predicates and of the events they denote, which bears on notions of instrument, cause, comitative, agent. If our core hypothesis as to the nature of instrumental case/Ps is to be supported, we need to show that it is compatible with the range of meanings these elements display and it is sufficient to determine the relevant readings, at least when taken together with the properties of verbal predicates with which instrumental case/Ps merge.

2.1 Some Voice/v literature

The formal literature on instruments, causers, and comitatives does not so much focus on the contribution made by the instrumental case/Preposition as on the contribution made by the semantic structuring of the event, as reflected by the syntactic categories V, *v*, Voice. In this section we will present the work by Alexiadou et al. (2006; 2015), Alexiadou & Anagnostopoulou (2009), Alexiadou & Schäfer (2006), Schäfer (2012) and Alexiadou (2014) as a particularly relevant example of this literature; other relevant references will

be introduced in the course of the discussion. An important terminological point is that we keep the label 'instrumental' for certain morphological cases or lexical elements, e.g. *with*, that express relations including instrument, but also causer, comitative, etc. Vice versa we will refer to 'instrument' as one of the meaning of the instrumental.

Alexiadou et al. (2006; 2015: 29–31) take as their starting point the fact that in English, causatives license all types of external arguments, namely agents, causers and instruments, as in (8a-d). In the passive, PPs denoting agents, instruments, and causers are also licit, as in (8a', c').

(8) a. John broke the vase.
     b. The earthquake broke the vase.
     c. Will's banging shattered the window.
     d. A stone broke the window.
     a'. The window was broken **by** John/**by** the storm/**with** a stone.
     c'. The window was shattered **by** Will's banging.

Crucially, in anticausatives, agents and instruments are not licensed, but causers are, though not when they are introduced by the preposition *by*, as in (9).

(9) a. *The window broke **by** John/**with** a stone.
     b. *The window broke **by** the storm/**by** Will's banging.
     c. The window cracked/broke **from** the pressure.

In order to account for the surprising data in (9c), Alexiadou et al. propose that agents and causers are licensed by two distinct functional heads, Voice and v (Harley 2013; Legate 2014), as in (10). Voice introduces the external argument and bears features relating to agentivity; prepositions related to agents and instruments are licensed by Voice. *v* introduces a causal relation between a causing event and the resultant state denoted by its complement; prepositions related to causers are licensed by *v*. Agent/instrument PPs are found only with transitives and passives – but unaccusatives still co-occur with causer PPs.

(10) (Alexiadou 2014, modified)
      [$_{\text{VoiceP}}$ (agent PP/instrument PP)   [$_{vP}$ (causer PP)   [$_{\text{Root(/ResultP)}}$

The structure in (10) applies to change-of-state verbs, i.e. verbs characterized by vCAUSE (Folli & Harley 2005). Importantly, Schäfer (2012: 171) argues that: "There are no semantically annotated little v-heads, and specifically no vCAUS […] This would mean that the verbal head introducing a simple unbounded event is combined with a secondary resultative predicate [...] The causative relation between events is neither lexically nor syntactically represented, but it is read off of the complex event structure post-syntactically at the Conceptual-Intentional Interface (CI-interface; Chomsky 1995)." Schäfer also draws a parallel with Higginbotham's (2000) notion of a telic pair.

Alexiadou & Anagnostopoulou (2009) and Schäfer (2012: 162) explicitly address the question that interests us here, namely how instrumental case/Ps relate to the causative/result interpretation just outlined. They consider the possibility that "not vCAUS but the prepositions themselves are responsible for the thematic licensing of these causers. This would lead to the expectation that these prepositions have a causative meaning even in contexts where vCAUS is arguably not present. If, however, causers are thematically licensed by vCAUS, we predict that the prepositions have a different meaning where this head is not available (e.g. in noun phrases or in unergatives)." The answer then is that Greek *apo* 'from/by' phrases within nouns are interpreted as "sources, materials/content,

partitives", but not as agents, which is a meaning restricted to passives. Similarly, *me* 'with' phrases are only "manners, contents, comitatives" in DPs, though they are interpreted as causers or instruments when they combine with anticausatives and passives, respectively. As a difficulty, they note that *apo* PPs with the interpretation of causers are unexpectedly found with unergatives (cf. Roussou & Tsimpli 2007); they conclude that they must not be causers after all, but originators.

Leaving aside other issues (to which we will return), certain questions are not quite formulated and certainly not explicitly answered. How is the lexical content of P connected to those interpretive contents? Is the contribution of the P (or its eventual case counterpart) void – and if it isn't void, what is it exactly? How does it exactly interact with the verbal structure in (10)? The implication of the literature just reviewed is that the question is trivial. Thus one may consider that given a realizational conception of the lexicon of the type assumed by Distributed Morphology, certain abstract clusters of features may be realized by certain phonological strings – with syncretisms simply treated in terms of underspecification/Impoverishment and other morphological readjustments.

We however take a conservative view under which the lexicon precedes syntax, and in fact projects it, in keeping with the minimalist postulate of Inclusiveness (Chomsky 1995). Correspondingly, the question how the lexical items involved, including prepositions/cases interact with one another under syntactic Merge (effectively projecting syntactic structures) becomes interesting, and in fact crucial.

2.2 Causers

As we saw in Section 2.1, Alexiadou et al. (2006; 2015) argue that causers are allowed with unaccusatives. The same point is illustrated in some detail for English by Deal (2009). Deal proposes a fine-grained classification of unaccusatives, drawing a parallel between the occurrence of causers and that of *there* insertion. She argues that there is an inverse correlation between the two phenomena. 'Change of state unaccusatives' which admit an instrument/causer, as in (11a), do not allow an expletive, as in (11a'); the reverse is true with 'plain unaccusatives' (11b, b'). Deal also distinguishes between a transitivity and an external argument layer in the structure of verbal predicates. The crucial difference is between *v*'s with a CAUS specification, including inchoative unaccusatives, and those unaccusatives that simply have default *v*; the former but not the latter are able to combine with causers. For Schäfer (2012) and Alexiadou et al. (2015), the CAUS specification is unnecessary, in that it derives from *v* selecting a result state.

(11)   a.   The ice cream melted **from** the heat
        a'. *There melted some ice cream in the heat
        b. *The portrait hung **from** the stapling
        b'. There hung a portrait **from** the wall

In Deal's examples in (11) and in those provided by Alexiadou et al. causers in English are introduced by the preposition *from*, though the latter authors systematically exemplify a causer interpretation for Greek *me* 'with'. Another language where the same P that introduces the possession contexts (Section 1) also introduces causers is Italian. (12) establishes that Italian *con* 'with' indeed has the possession meaning.
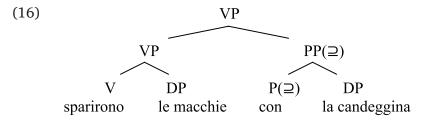
(12)   La ragazza **con** gli occhi blu.
        'The girl with the blue eyes.'

The examples in (13a)–(15a) allow *con* causers, involving both inanimate objects and eventive nouns; in this, *con* parallels the specialized causer (and purpose) preposition of Italian

per 'for'. By contrast, the range of *da* 'by, from' seems limited, roughly to eventive contents including natural phenomena (wind, sun, heat, etc.) and mental states (fear, joy, etc.). That a causer interpretation of the *con* phrase is involved is indicated by the comparison with (13b)–(15b), where the causer is turned into the subject of a transitive causative sentence.[3]

(13) a. Le macchie sparirono/andarono via **con**/**per** la candeggina/lo
          strofinio/***dalla** candeggina/??**dal** (gran) strofinio.
          'The stains disappeared/went away with/for the bleach/the
          scrounging/*from the bleach/from the (energic) rubbing.'
      b. La candeggina/lo strofinio mandò via/cancellò le macchie.
          'The bleach/the rubbing sent away/erased the stains.'

(14) a. Le persiane sbattono **col** vento/**per** il vento/**dal** (gran) vento.
          'The shutters bang with the wind/for the wind/from the (strong) wind.'
      b. Il vento sbatteva le persiane.
          'The wind banged the shutters.'

(15) a. Il pericolo di conflitto aumentò **con**/**per** il golpe/la crisi /***dal** golpe/***dalla** crisi.
          'The danger of a confrontation increased with/for the coup/the crisis/*from
          the decree/*from the crisis.'
      b. Il golpe/la crisi aumentò il pericolo di conflitto.
          'The coup/the crisis increased the danger of a confrontation.'

Alexiadou et al. (2006; 2015) and Deal (2009) propose that causers are attached to v, which they construe as a transitivity (causation) node, not introducing the external argument. In present terms, adopting a two-tiered v-V structure, the analysis of the predicate in, say, (13a) must be something like (16), where following Chomsky (1995), we assume that in the absence of an external argument, there is no v layer of structure. As for the interpretation, recall that in the Applicative literature (Pylkkänen 2008: 13), instrumentals are high Appls. In this literature, two different possible sites for the occurrence of Applicatives are posited. Low Appl heads appear in a small clause configuration, where they establish a relation between the theme and the goal of a ditransitive verb (see also Section 4). High Appls heads appear in an intermediate position between VP and v and express a relation between the oblique argument in their Spec and the VP event. Adopting this latter idea, the P($\supseteq$) relator in (16) attached VP-externally takes as its external argument an elementary event, namely VP. Its internal argument is of course its DP complement.

(16)

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                          VP
                 ┌────────┴────────┐
                VP               PP(⊇)
            ┌────┴────┐        ┌────┴────┐
            V        DP       P(⊇)       DP
        sparirono  le macchie  con   la candeggina
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[3] The unaccusative verbs in (13a) are not lexically related to the transitive verbs in (13b) – unlike the minimal pairs transitive-unaccusative in (14)–(15). The comparison is still useful to illustrate the causer status of the *con* adjuncts in (13a), which can indeed be turned into (transitive) subjects with semantically related predicates.
Sentences involving an animate *con*-adjunct like (i) are also grammatical in Italian. However the status of the *con*-phrase as causer is unclear. Thus in (i), con does not freely alternate with *per* unlike in (13a)–(15a). We tentatively characterize the *con*-phrase in (i) as a (neutral) event participant (Yamada 2010, cf. Section 2.4).

(i) Le macchie sparirono **con**/??**per** un buon dermatologo.
     'The stains disappeared with/??for a good dermatologist.'

From the present viewpoint, the question is whether the desired interpretation, namely that 'the bleach' is the causer of the event of 'the stains disappearing' is compatible with the semantic content introduced by (16), namely that the DP argument 'the bleach' is 'included by' the VP event. Given the weakness of the relation (⊇), this would seem not to be problematic. Rather the crucial question is whether the mere fact of being included in the event is sufficient to yield causer status for the DP complement of P(⊇).

One potential fact about causer interpretation that the representation in (16) cannot capture, in the absence of further enrichments, is that causation applies only in structures embedding a result (Schäfer 2012) or a vCAUSE – since this property is not structurally represented at all. In fact, we believe the generalization to be too strong. To see this point, consider causative modifiers of transitive events. These establish a causation chain between the DP complement of *with/con* P and an embedded vP event which may in turn be causative. In practice, only causers that are themselves eventive can be found in such contexts; that causers are involved is shown by the fact that they can be turned into subjects of the causative verb *fare* 'make' in (17b-c). It is not only causative predicates that allow causers as in (17a), but also experiencer/stative predicates, as in (18a).[4]

(17)   a.   Il governo aumenta le tasse **con**/**per** la crisi/?**dalla** (gran) crisi.
              'The government increases the taxes with/for the crisis/from the crisis.'
        b.   La crisi fa aumentare le tasse al governo.
              'The crisis makes the government increase the taxes.'
        c.   La crisi fa sì che il governo aumenti le tasse.
              'The crisis brings it about that the government increases the taxes.'

(18)   a.   Gli italiani temono gli extracomunitari **con**/**per**/*****da** ogni nuovo atto terroristico.
              'Italians fear non-EU citizens with/for/*from every new terrorist act.'
        b.   Ogni nuovo atto terroristico fa temere gli extracomunitari agli italiani.
              'Every new terrorist act makes Italians fear non-EU citizens.'
        c.   Ogni nuovo atto terroristico fa sì che gli italiani temano gli extracomunitari.
              'Every new terrorist brings it about that Italian fear non-EU citizens.'

From the facts that precede, we draw much weaker conclusions than the current literature – that seem to us however to model the facts adequately, and which are in any event what we predict on the basis of the elementary content overtly associated with instrumental cases/Ps. The (⊇) relation between the *con* phrase and the VP event in (16) yields inclusion in an event/concomitance with it. Specifically causers attach to saturated predicates, whether unaccusatives, as in (16) or transitive predicates, as in (17)–(18). For the latter, the relevant structure is (19), where causers, taking the whole caused event in their scope, attach to vP.

(19)   [[[_{vP} Il governo CAUS [_{VP} aumenta le tasse]] **con**/**per** la crisi]

If the discussion that precedes is on the right track, (16) and (19) are best paraphrased as the first line of (16')/(19') – which is all they say literally. Causation is a deductive step, of the type that would normally apply to conjunctive statements of the type in (16')/(19').

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[4] The examples in (17a), (18a) and those in (17b-c), (18b-c) are not lexically related; rather the (b-c) examples are meant to show that *con/per*-phrases in the (a) examples introduce *bona fide* causers, which can be turned into causative subjects using a causative periphrasis.
A reviewer also suggests that causers are not allowed with verbs like *love*. At least in Italian, (i) admits *per*-causers, though it is true is that the *con*-phrase in (i) only admits of a possession reading (e.g. Mary in possession of blue contact lenses). Thus the possession reading covers the causer one, forcing the use of the more specialized *per*. This issue remains to be explored.

(i)   Gianni amava Maria **per**/#**con**/*****da** gli occhi blu – **per**/#**con**/*****da** vari motivi.
       'John loved/hit Mary for/with/from (her) blue eyes – for/with/from several reasons.'

(16')   The stains disappeared and the bleach was part of their disappearance.
→ The bleach must have caused the stains' disappearance.

(19')   The government raised taxes and the crisis was part of its acting to raise them.
→ The crisis must have caused the government's acting.

Thus, we are suggesting an extremely weak characterization of the causer interpretation. We will come back to it as we introduce the other basic interpretations of *with/con*.

2.3 Instruments

In the functionalist literature, instruments are viewed as entities in a chain of causal events. As stated in Naess (2008: 99): "An instrument is […] involved in two separate, though connected, instances of causation: the agent's causing movement or change in the instrument, and the instrument triggering an effect on the patient […] It is this intermediate role in a causal chain that gives the instrument the properties of being 'a Patient and a Causer at the same time'". Baker (1992: 28) has a similar conception of instruments since he assumes that "semantically, the instrument is a kind of intermediate agent-theme. If I cut the bread with a knife, then I act on the knife, such that the knife changes location. The knife thereby acts on the bread such that the bread goes into a new state".

According to Marantz (1984: 246), in sentences like *Elmer unlocked the porcupine cage with a key* "a key is an intermediary agent in the act of unlocking the porcupine cage; Elmer does something to the key, the key does something to the cage, and the cage unlocks". On the other hand, in sentences like *Elmer examined the inscription with the magnifying glass*, "the magnifying glass is an indispensable tool in Elmer's examination of the inscription, but it is not an intermediary agent in the examination". Similarly, Alexiadou & Schäfer (2006) argue that the subject position cannot be associated with instruments but only with 'instrument causers' (instruments conceived as acting on their own, once the agent has applied/introduced them), as in (20b). Alexiadou et al. (2006), following Kamp & Rossdeutscher (1994), judge sentences like 'the scalpel cured the patient' to be ill-formed. They are in fact grammatical and also perfectly interpretable (traditionally recognized as instances of the rhetorical figure of metonymy); for instance in admiring a famous surgeon's scalpel at an exhibition one may felicitously utter (20c). Thus the distinction that the authors make between 'instruments' and 'instrument causers' is not linguistically relevant, though it remains highly relevant from a conceptual viewpoint.[5]

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[5] A reviewer suggests that 'The fork ate the salad' is a clear example of ungrammaticality. But the oddness of this example is mainly due to the fact that verbs like eat (or drink) must select external arguments capable of ingesting substances. 'This fork picks salad leaves especially well' is acceptable. This is because the fork is indeed an instrument for picking; similarly for the example in (i), retrieved from *Google Books*, in which a non-ingestive verb is used (cf. also Benjamin Bruening's *Linguistics Commentary Blog* (URL: https://lingcomm.blogspot.it/2010/12/agent-causer-and-instrument-subjects.html). These are facts in the conceptual domain, not in the linguistic one. In (ii) we provide an Italian example, which again ought to be acceptable in English as well.

(i)   Rachel's fork scoops two pieces of chicken. (*Hiding Out*, Jonathan Massinger, 2007)
(ii) Le armi da fuoco mietono (molte) vittime innocenti.
      'Firearms take (many) innocent victims.'

Our reviewer further observes that our example 'This fork picks salad leaves especially well' involves a generic/dispositional statement, cf. 'especially well', as well as contrastive focus via the demonstrative 'this'. The improvement triggered by focus on instrument subjects is discussed in Alexiadou & Schäfer (2006). However, based on Schlesinger's (1989) taxonomy, Alexiadou & Schäfer (2006: 45) state that this kind of focus improvement is with tools only (of the *key* type), arguing that secondary tools (of the *fork*, *rag* type) in subject position should lead to ungrammaticality also when focussed constituents are involved. The examples and discussion above seem to show that it is not easy to set apart tool and secondary tools, also basing on focalization diagnostics.

(20)   a.   The doctor saved many patients **with** the camomile/this scalpel.
        b.   The camomile saved many patients.
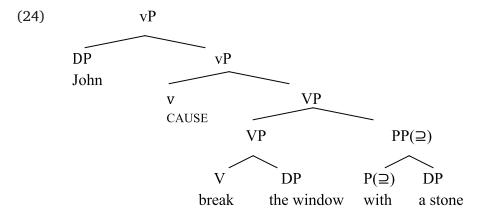   c.   This scalpel saved many patients.

Pylkkänen (2008) argues that instruments are essentially high Appls, like benefactive datives, as opposed to low Appls like goal datives. Pylkkänen (2008: 131–132) further argues against the presence of an underlying cause in unaccusatives, based (among others) on the diagnostics that instrument modifiers cannot combine with English unaccusatives, as in (21). Similarly, for Bruening (2012), instruments pattern with *by*-phrases (and external-argument–oriented comitatives), in being allowed with passives but not with unaccusatives, as in (22).

(21)   a.   John broke the window **with** a stone.
        b.   The window was broken **with** a stone.
        c.   *The window broke **with** a stone.

(22)   a.   *The ship sank **with** a torpedo.
        b.   *The ship sank **by** a saboteur.
        c.   *The ship sank **with** a henchman.

As we already saw, Alexiadou et al. adopt a three tiered predicate, including a VP projection, a *v*P projection associated with causation, and a Voice projection introducing the external argument. In these terms instruments are associated with a Voice projection (with external arguments) as in the structure in (10). For Bruening (2012: 26–27) instruments select for a Voice projection, not yet saturated by the agent, where Voice plays the same role as the *v* projection of Chomsky (1995) as part of a two-tiered Voice-V structure. Bruening proposes that "*She hit the metal with a hammer* would be a set of hitting events where she is the Initiator and the metal is hit, and she uses a hammer to hit the metal" so that "the event of the verb [e] has to include an event [e'] of using the complement of *with* as a part", as partially schematized in (23).

(23)   (Bruening 2012: 27)
        … $\exists e' \leq e$ [using (e', x) & Initiator (e', y)]

Suppose we follow the Appl literature in assuming that instruments correspond to high Appls, generated in an intermediate layer between VP and *v*P. Based on the discussion of *with*, we propose of course that the instrument relation can be reduced to a relation ($\supseteq$). This yields a structure of the type in (24), where P($\supseteq$) takes as its internal argument the DP instrument, while its external argument is the VP event.

(24)

In other words, in (24) the (⊇) relation holds between 'a stone' and the event of 'the window breaking', saying literally that this event includes 'a stone'. At this point, one problem is whether the shared VP-adjunction structure in (16) and (24) and the shared concomitance interpretation can be shown to yield two differentiated causer and instrument meaning. Recall that in Section 2.2 we argued that causative adjuncts can be predicated of any event – not only causative/telic events (whether transitive, i.e. involving an external argument or unaccusative), but also stative/non-telic events (psychological states, etc.). Instruments on the contrary have a good claim to be associated only with causative events. Thus in (25), 'a book/a book reading' cannot be the instrument of John hating Mary, though it can be the instrument of his hurting Mary (either physically or emotionally).

(25)   John hurt/*hated Mary with a book/a book reading

Instruments are exclusively defined in the presence of an external argument introduced by vP, as opposed to a causer.[6] Nothing prevents an external argument to be an inanimate entity when an instrument – either a machine (26) or a tool (27) – is involved in the event.[7]

(26)   Una torpediniara distrusse la nave con un missile.
         'A torpedo boat destroyed the ship with a missile.'

(27)   (Retrieved from Google)
         Il coltello ha ferito la ragazza con la sua lama di 23 centimetri.
         'The knife has hurt the girl with its blade of 23cm.'

Let us try to maintain the core idea that a very weak relation of inclusion in the event, hence concomitance, is introduced by *with/con*. Instruments are inanimate objects of P(⊇) included in a caused event. In other words, the general interpretation of (24) is that the object of P(⊇) is a concomitant of the VP result state as in the first line of (24'). However the VP event is in turn embedded under a causation predicate; in this context, it is interpreted with the inanimate object playing the role of 'instrument of' the external argument (the initiator of the event) in vP. In other words we are proposing to revert to a characterization of instruments of the type proposed by Naess and Baker, as quoted at the beginning of this Section: an initiator triggers a causative event in which an inanimate arguments plays a subordinate causation (i.e. instrument) role.

(24')   John caused a broken window and this result involved a stone.
          → John caused a stone to cause the result of a broken window.

Before we return to the comparison of causers and instruments, we will consider the third major context in which *with/con* are found, namely comitatives.

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[6] We leave examples like the ones represented in (i), where an unaccusative predicate seems to include an instrument (specifically, a machine) for future researches. Tentatively, we may assume, following Alexiadou & Schäfer (2006), that machines are somewhat more similar to natural forces (causers).

(i)   a. Gianni è arrivato con la macchina.
         'Gianni arrived with the car/by the car.'
      b. L'aereo è decollato con un motore solo.
         'The plane took off with a sole engine.'

An anonymous reviewer points out that also unergatives can license an instrument (e.g. *fly with a plane*). Following Hale & Keyser (1993), we assume that unergatives involve a v (CAUSE) node.

[7] Conversely it is not normally possible for an animate being to be construed as an instrument of another animate agent, so that '*John hurt Mary with Peter*' has a comitative interpretation (Section 2.4), but not an instrument-like one. As noted for (20) above, examples like (26)–(27) involve (metonymical) part-whole relations.

2.4 Comitatives

Comitatives have had a certain amount of discussion in the formal literature. Zhang (2006) distinguishes what she terms 'symmetrical' comitatives, including those selected by the verb (e.g. *collide* in (28a)) and 'asymmetrical' comitatives. For symmetrical comitatives, Zhang proposes the same structure as Kayne (1994) assigns to coordination, namely [DP$_1$ [$_{X'}$ with DP$_2$]]. Asymmetrical comitatives are generated as [DP$_1$ [$_{PP}$ with DP$_2$]]. Movement then takes place from the edge of this conjunct or adjunct structure, stranding the comitative.

Yamada (2010) introduces a tripartition of comitative sentences, as illustrated in (28). In (28a) the comitative is selected by the verb (Type 1, in his typology); in (28b) it is not selected but alternates with a coordination (Type 2) while "the third type of the comitative phrase does not receive a thematic role from the main predicate […] Instead, the Type 3 comitative phrase […] is interpreted as an event participant that is present in the event described by the rest of the sentence", as in (28c).

(28) a. Stan collided with Kyle.   Type 1
      b. Stan built a raft with Kyle.   Type 2
          (= "Stan and Kyle built a raft.")
      c. (Yamada 2010: 161)
          Shelly cooked with her baby.   Type 3

Yamada (2010: 164) proposes that the Type 2 comitative (28b) is a "plural argument former". This comitative "semantically, not syntactically via movement operation, forms a plural argument that consists of the comitative NP and the subject NP" (or of the object NP in instances of object-oriented comitatives). Thus for subject-oriented comitatives the relevant function "take[s] an individual argument *x*, an intransitive predicate *P*, and another individual argument *y* and return[s] an event property. The two individual arguments are fed into the individual argument slot of *P* as one plural argument {x,y}". By contrast "participant comitatives" (Type 3) are rendered as in (29).

(29) (Yamada 2010: 163)
      λe. cook(e) & Agt(Shelly)(e) & Participant(baby)(e)

Bruening (2012), in adopting the semantic analysis of Yamada for plural forming subject-oriented comitatives, stresses that they are in fact oriented towards an external argument. Therefore they are compatible with transitive verbs (30a), with passives (30c), but not with unaccusatives – though an object (internal argument) related comitative remains possible as in (30b). Bruening's (2012) conclusion is that comitatives attach to what Kratzer (1996) calls the Voice layer of the predicate hosting the external argument, i.e. the equivalent of v in Chomsky's (1995) terms.

(30) a. The saboteur sank the ship with a henchman.
      b. The ship sank *with a henchman/ with its accompanying gunboat.
      c. This ship should be sunk with a henchman.

Hence, for Bruening (2012) plural-forming, subject-oriented comitatives are structurally identical to instruments. On the other hand, we saw in Section 2.3 that instruments require causative contexts. It seems to us that this is not true of comitatives. The examples in (31)–(32), involving subject-oriented and object-oriented comitatives, admit of a conjunctive reading. On a par with causative examples like (28b), example (31a) yields a distributive reading – i.e. each Italian likes a glass of wine.

(31) a. I love/drink a glass of wine at lunch **with** millions other Italians.
      b. I am unhappy about this **with** many colleagues.

(32) a. John hates violence **with** ignorance and prejudice.
      b. Mary knew/greeted the President **with** his wife.

In discussing causers we have allowed causative *with/con* phrases to attach either to VP or to vP. It is tempting to attribute the possibility of both subject and object-oriented readings (i.e. readings oriented to the internal and external argument) to the existence of this structural ambiguity. This implies pairing up a subject-oriented comitative like (28b) with the structure in (33a); (33b) provides the structure for the object-oriented comitative in (32b).

(33) a. [$_{vP}$ [$_{vP}$ Stan   [$_{VP}$ built a raft]] **with** Kyle]
      b. [$_{vP}$ Mary   [$_{VP}$ [$_{VP}$ greeted the president] **with** his wife]]

In (33a), P($\supseteq$) takes as its internal argument the comitative *Kyle* and as its external argument the vP event. Therefore we predict again an interpretation under which Kyle is included in/part of the event of Stan's building the raft (or causing the result of 'a built raft'). There are at least two obvious problems with this proposal. We have so far assumed that being included in an event establishes a concomitance relation translating to a causal link – but here concomitance does not translate to causation. What is more, even if we derive the lack of a causal implication, we additionally need to establish that the comitative becomes a co-agent of the caused event. We would like to argue that both of these difficulties can be overcome in terms of the very elementary ontology we have set up so far. Recall that the instrument interpretation results when the two arguments of P($\supseteq$) are an inanimate DP and a caused VP; the causer reading arises when the two arguments of P($\supseteq$) are an inanimate DP and a non-caused VP or a vP. Quite straightforwardly in (33), the object of P($\supseteq$) is human, blocking causer and instrument reading.

   This however does not tell us how the comitative, pluralizing reading comes about. Recall that according to the discussion in Section 2.2 and 2.3, the basic relation defined by P($\supseteq$) is a concomitance relation, as schematized in (33'). In (33a') we take it that involvement of a human in the causation of an event by another human can be interpreted as their jointly causing the event. Something similar goes on in the plural forming reading of object oriented comitatives as in (33b').

(33') a. Stan caused the result of a built raft and Kyle was involved in this causation.
          → Stan and Kyle caused the result of a built raft.
       b. Mary caused the result of a greeted president and his wife was involved in this result.
          → Mary caused the result of a greeted president and his wife.

Having chosen examples with human referents in (33) means that we could factor away other interpretations. However with-adjuncts are rife with ambiguity. Specifically, while assuming that human referent cannot be downgraded to causers or instruments, inanimates can easily alternate between causers/instruments and comitatives. Thus how we interpret a sentence like (34) is a matter of contextual information; the elections and the decree may be published together – or the elections may be published by means of a decree. The only thing the syntax expresses is that decree and elections are concomitant.

(34)   The government announced the new elections with a decree on the economy.

2.5 Intermediate summary

We have proposed that prepositions such as *with* in English or *con* in Italian have an extremely impoverished meaning which simply allows an extra argument in a transitive or intransitive event to be introduced/included. Extra participants corresponding to animate referents yield a comitative interpretation – either what Yamada (2010) calls participant comitative, or a plural-forming interpretation. Thus the first cut in the range of *with/con* meanings corresponds to the distinction between volitional and non-volitional referents.

As for inanimates, the literature discussed throughout this Section is correct in emphasizing that different readings arise depending on the relation entertained by the adjunct PP with eventive layers including in particular causative and resultative constituents. The interesting environment is the one where the PP is attached to a resultative VP (in the terms of Schäfer 2012). The default interpretation here as in other contexts is that of causer, or comitative. However an inanimate participant embedded under an event of causation can be interpreted as an instrument.

With/con PPs can be attached to a VP or a vP predicate; they may be interpreted as generic participants, as plural forming comitatives, as causers, as instruments depending on a rather elementary ontology including the ranking of the event participants in the animacy hierarchy (human/non-human), and the causative/resultative nature of the event – as independently highlighted by the literature.

Summarizing, our claim is that *with*-type prepositions provide very elementary means of attaching extra participants (themes, initiators, etc.) to events[8] – with specialized interpretations (e.g. instrument) derived by pragmatic enrichment (contextual, encyclopedic) at the C-I interface. Another important context of occurrence of *with* phrases that we have mentioned in passing and not examined so far is that of manner phrases. Manner phrases consist of *with* embedding a DP which denotes a predicative content/property, as in (35).

(35)   a.   John solved the problem **with** ease.
       b.   John arrived **with** ease.
       c.   John likes students **with** ease.

The interesting property of manner DPs is that they are interpreted not as introducing an extra participant in the event (causer/instrument/companion) but as introducing a property of the event. Thus (35) says that 'the solving of the problem by John has the property of ease/being easy'. To the extent that this type of sentence is paraphrasable with a 'HAVE' sentence, it seems compatible with our core proposal that *with* predicates only inclusion (effectively the relation 'HAVE'). We will leave these contexts aside for future research.

3 Instrumental case: insights and open issues

It is relatively clear on the basis of both typological observations and of theoretical work on case morphology that, leaving aside the complicating factor of locatives (see below) the fundamental oblique cases are genitive/dative and instrumental. Assuming that direct cases are reflexes of agreement as Chomsky (2001) proposes, what is the nature of dative or instrumental? It is certainly correct to say that they are the counterpart of what in other languages surfaces as applicative morphology of the verb. But this answer does not really

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[8] It is worthy of mention that though any DP can support a coordination, comitatives are always interpreted in relation to direct arguments (internal, external). There are no oblique oriented comitatives (Stassen 2000). We do not share Zhang's (2006) judgments on *together/insieme* forcing the plural forming comitative reading. (i) is perfectly grammatical, though it cannot mean that 'the cat cooks'.

(i) Maria cucina sempre insieme con i suoi gatti.
    'Maria always cooks together with her cats.'

tell us what the share content of these elements is – not how it can be externalized as a nominal inflection.

The discussion in Section 1 and 2, when transported from the domain of PPs to that of cases, leads to the conclusion that the fundamental obliques of natural languages are a system of elementary operators attaching arguments to the verbal spine as possessing/ including other DPs or events/states – or as entertaining the reverse relation with them. Genitives and datives, i.e. English *of* and English *to* embed possessors/inclusors of other DPs (cf. low Appls) and of events/states (cf. high Appl). The widespread syncretism of genitive and dative (specifically in Indo-European languages; Manzini & Savoia 2011) is therefore due to their common content – and there is no reason to postulate, for instance, their contiguity on an f-sequence (contra Caha 2009).

Here, we have argued that the instrumental, or English *with*, is the reverse relation, in which a DP is introduced as possessed/included by a DP or a state/event. What the present proposal amounts to is that there is a generator cell, or a common denominator, with its part/whole characterization, in the fundamental oblique system (genitive-dative-instrumental) of many languages (cf. Section 5.2). The fundamental obliques provide ways of attaching extra participants in an event (i.e. arguments that have accessory causation roles).

Here, we will briefly review some descriptive issues that our proposal raises – or rather the specific way it cuts some classical problems. An obvious problem is that languages may choose different lexicalizations for the conceptual cluster associated with English *with* or Italian *con*. Latin is an interesting case in point, since it has a rich enough case system to include an instrumental (the so-called ablative), which lexicalizes instruments as in (36) and causers, as in (37) (Luraghi 2010: 47ff). By contrast, comitatives are lexicalized by *cum*, as in (38) – namely the preposition which gets extended in Romance languages like Italian to cover the old ablative as well.

(36)   a.   *Latin* (Caius Julius Caesar, *Gall.* 3,8,1)
            naves habent Veneti plurimas, **quibus** in Britanniam navigare consuerunt
            'The Veneti have many ships, with which they used to sail to Britain.'
       b.   *Latin* (T. Maccius Plautus, *Men.* 1001)
            quid ego **oculis** adspicio **meis**?
            'What do I behold with my eyes?'

(37)   a.   *Latin* (M. Tullius Cicero, *Cato* 28)
            orator metuo ne languescat **senectute**
            'The speaker I fear becomes weak with old age.'
       b.   *Latin* (Sallustius Crispus, *Catil,* 10,1)
            sed ubi **labore atque iustitia** res publica crevit […]
            'But when with/by labor and justice, the republic grew […].'

(38)   *Latin* (Tacitus, *Historiae*, 3,10)
       dum Antonius consultat, Varus **cum equitibus** prorupit
       'While Anthony holds consultations, Varus burst in with the cavalrymen.'

Suppose we associate the instrumental case in Latin with the (⊇) content. We must then assume that the preposition *cum*, while possibly including the same content specification, is associated with further restrictions yielding the comitative interpretation. On the basis of the discussion in Section 2.4 (cf. fn. 8), we suggest that this restriction is the same expressed by *together* in English (*insieme* in Italian, etc.). Thus *together with/insieme con* are exclusively comitative. The relevant restriction, though we did not formulate it explicitly,

seems to be a set forming one (Yamada 2010) – i.e. when applied to an elementary event, it says that the object of the (complex) comitative P is interpreted as forming a set with the (direct) arguments of the verbal head.

A different question that arises in connection with our discussion of causers (Section 2.3) is that the same general relation, say causation, may have more than one lexicalization in a given language. Though Italian *con* can express cause, there is no doubt that causation is also expressed, by a different preposition, namely *per*.[9] The closest rendering of *per* in English is *for*, which expresses both purpose (*They do it for financial gain*) and causation (*He died for the want of food*), as Italian *per* does. It would seem that *per* relates two events, perhaps through the same basic ($\supseteq$) operator that we have postulated so far for *con*. Yet it imposes a further restriction – roughly that the two events e, e' must be part of a causal chain (CAUS). Thus either the object of *per*, e', causes the main event e (causative reading) – or e causes e' (purpose reading).

Hence, we assume that prepositional system, in languages with or without inflectional obliques, provides restrictions of basic contents such as ($\supseteq$). This is particularly evident precisely in the Latin example in (38), where at least two structural layers characterize the comitative *cum equitibus* 'with the cavalrymen'. The deepest layer is oblique case (here the ablative), hence ($\supseteq$) in present terms, simply introducing the additional argument/participant. The comitative relation is then introduced by the P layer.

(39) $[_P$ cum $[_{K(\supseteq)}$ $[_N$ equiti-] bus]]]

As mentioned at the outset, locatives are left out of the present discussion, which shares the descriptive conclusions of Caha (2009) as to their rather special status in the case hierarchy. Nevertheless something must be said about them, to the extent that location is often (though not necessarily) externalized via the same prepositions/cases introducing what we have assumed to be the fundamental obliques. According to Manzini & Savoia (2011) locatives can be lexicalized by genitive/datives (as in Albanian) to the extent that they really are a subtype of the latter case(s). In other words a locative amounts to an elementary predicate ($\subseteq$) restricted by location.[10] Latin is a language where locative case can be lexicalized by either genitive (I, II class) or dative (III, IV, V class and plural) with names of cities and small islands; an example of genitive of location is in (40). The idea of Manzini & Savoia is that 'the army' or the event of 'enrolling the army' is included by 'Rome'; locative is just the name of the all-purpose oblique when it applies to a location and is therefore locatively restricted.

(40)   *Latin* (Titus Livius 6,28,5)
         dum conscribitur Romae exercitus
         'While the army is enrolled in Rome.'

The Latin ablative (despite the name) cannot express motion-from except by being embedded under a preposition, *ab* 'from', *ex* 'out of', or *dē*, 'down from'. Therefore there is even

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[9] We shall return to *da* 'by/from' below. An anonymous reviewer proffers English as a language where instrumentals and comitatives are lexicalized by *with*, but causers require *from*. We believe this not to be an adequate description of the facts. Instrument causers are certainly lexicalized by *with* in English as well as in *colors disappear/fade with bleach*. Moreover, in English as well it is certainly possible to say *temporary jobs tend to increase with the crisis* where the link between an unstable job market and the crisis is interpreted as causal (Google searches return several real examples).

[10] An anonymous reviewer suggests that the oblique cases that appear in locative expressions are usually datives/genitives and not comitatives/instrumentals, namely s/he assumes that in locatives only ($\subseteq$) is possible. Actually, the content ($\supseteq$) is widely attested in the expression of locatives. For instance, in Oriya (Indo-Aryan) there is an inflectional morpheme *-re* covering both allative/locative and instrumental meanings. In Malagasy comitatives, instrumentals and locatives (in/at/to) are all rendered by the same *àmin'* morpheme (cf. Stolz et al. 2006).

less of a basis for claiming that the locative reading is somehow primitive. Recall on the other hand that Alexiadou & Anagnostopoulou (2009) argue that within DPs prepositions like *from* (Greek *apo*) maintain a purely locative meaning. The implication could be that the locative meaning is somehow primitive while eventive interpretations (e.g. causative) are contextually determined.

We take the opposite position with respect to this issue. We see no reason why spatial meanings should be primitive with respect to meanings connected to relations between events or between events and their participants, suggesting that it is in fact spatial relations that may be conceived as specialization of all-purpose relations ('contains'/'is part of') when a location is involved.

The preposition *with/con* considered in Section 2 has the interesting property of expressing no spatial relation at all (cf. Levinson 2011) – as does the preposition *of/di* considered in Section 1. The Italian Preposition *da*, which does have locative meaning, makes a particularly interesting case study. In Romance, the lexicalization of P varies according to whether its object, i.e. the Ground in a Figure-Ground configuration (Svenonius 2006), is a high-ranked or low-ranked referent (Fábregas 2015 on Spanish). In Italian, with inanimate referents, state and motion-to are lexicalized by *a* 'at, to' or *in*, as in (41a), and motion from is lexicalized by *da*, as in (41b). However in (41c) it can be seen that state, motion-to and motion-from with human referents are all lexicalized by the *da* preposition.

(41) a. Sono/vado   **in/a**   casa.
          I.am/I.go   at/to   home
          'I am at home/in the house'/'I go home/into the house.'
      b. Vengo   **da**   casa.
          I.come   from   home
          'I come from home.'
      c. Sono/vado/esco   **dal**   parrucchiere.
          I.am/I.go/I come.out   DA.the   hairdresser
          'I am at/I go to/I come from the hairdresser.'

What remains true is that *da*, which we have seen in Section 2 introduces causers (and also is the specialized preposition for demoted agents in Italian), overlaps with locative of some kind or other. Crucially however directionality and other specifications of location that are spatially salient are missing from its core denotation – or its compatibility with the different locative predicates in (41c) could not be explained. Given the ability for *da* to play any locative role with human referents, the natural conclusion is that locative meaning derives neither from the intrinsic (locative) content of *da*, not of course from that of its complement (a human referent) – but from the locative nature of the stative/directional predicate.

4 Argument alternations involving the instrumental

4.1 Dative/instrumental alternations

Argument alternations involve an apparently triadic verb, which maintains the same association of an argument (the subject), but can express either of its other two arguments as its object, with the third usually expressed as an oblique (Levin 1993). Examples in English are the 'spray-load' alternation in (42), the 'image impression' alternation in (43) and the *with/against* alternation in (44) (Fillmore 1970; Jackendoff 1976; Hale & Keyser 1993, among others).

(42) a. John sprayed the paint on the wall.
      b. John sprayed the wall **with** paint.

(43)   a.   John embroidered peonies on the jacket.
        b.   John embroidered the jacket **with** peonies.

(44)   a.   John hit the fence **with** a stick.
        b.   John hit a stick against the fence.

In English, the prepositions that alternate with instrumental *with* to introduce the oblique argument in the constructions presented above are locative prepositions (e.g. *on, against*). Nevertheless, there are also instances in which the instrumental morpheme alternates with the dative oblique *to*, as in (45), though only with a handful of verbs (*present, provide, supply, entrust, credit*, etc.; Levin 1993). The alternation is also found in Romance; a possible example is Italian *rifornire* 'supply' in (46). It is these alternations that form the focus of the present study.

(45)   a.   He presented the museum **with** his pictures.
        b.   He presented his pictures **to** the museum.

(46)   a.   Il sangue ha rifornito le cellule **con** l'ossigeno.
              'The blood has supplied the cells with the oxygen.'
        b.   Il sangue ha rifornito l'ossigeno **alle** cellule.
              'The blood has supplied the oxygen to the cells.'

In Persian, the dative preposition is *be* (47a), normally employed with goal arguments while the instrumental (and comitative, cf. 47c) preposition is *ba* (47b).

(47)   *Persian*
        a.   Sæfæ-ro   **be**   mæn   dad.
              record-DOM   to   me   gave
              'S/he gave the record to me.'
        b.   Pænjere-ro   **ba**   ajor   šikæst.
              window-DOM   with   brick   broke
              'She broke the window with a brick.'
        c.   **Ba**   reza   ræft-æm   Tehran.
              with   Reza   went-1SG   Tehran
              'I went to Tehran with Reza.'

In Persian many of the alternations illustrated in (42)–(46) are rendered by a dative/instrumental interchange: dative *be* alternates with instrumental/comitative *ba* in a wide range of triadic constructions, as illustrated in (48)–(50).

(48)   *Persian*
        a.   Pesar   sang-ro   **be**   sag   zad.
              boy   stone-DOM   to   dog   hit.PST.3SG
              'The boy hit the dog with the stone.'
        b.   Pesar   sag-ro   **ba**   sang   zad.
              boy   dog-DOM   with   stone   hit.PST.3SG
              'The boy hit the dog with the stone.'

(49)   a.   Pomad-ro   **be**   dastash   malid.
              cream-DOM   to   her/his.hand   spread.PST.3SG
              'S/he spread the cream on her/his hand.'
        b.   Dastash-ro   **ba**   pomade   malid.
              her/his.hand-DOM   with   cream   spread.PST.3SG
              'S/he spread her/his hand with the cream.'

(50)   a.   Chakkosh-ra **be**   divar   koobidam.
             nail-DOM   to   wall   stick.PST.1SG
             'I stick the nail on the wall.'
       b.   Divar-ro   **ba**   chakkosh   koobidam.
             wall-DOM   with   nail   stick.PST.1SG
             'I stick the nail on the wall.'

Also in Croatian, the dative (51a) can alternate with the instrumental (51b) (Zovko-Dinkovic 2007: 65).

(51)   *Croatian* (Zovko-Dinkovic 2007)
       a.   Lena je   poslužila   gost-**ima**   čaj   i   keks-e.
             Lena AUX   served   guest-DAT.PL   tea.ACC   and   biscuit-ACC.PL
             'Lena served tea and biscuits to the guests.'
       b.   Lena je   poslužila   gost-e   čaj-**em**   i   keks-**ima.**
             Lena AUX   served   guest-ACC.PL   tea-INS   and   biscuit-INST.PL
             'Lena served the guests (with) tea and biscuits.'

In West Greenlandic (Fortescue 1984: 88–89), an argument in the allative (dative) case in (52a) alternates with the instrumental –*mik* in (52b). (52a) matches the English *to*-dative pattern; (52b) can be compared to the English type '*He presented Niisi with money*'.[11]

(52)   *West Greenlandic* (Fortescue 1984)
       a.   Aningaasa-t   Niisi-**mut**   tunniup-pai.
             money-PL   Niisi-ALL   give-3SG.3PL
             'He gave the money to N.'
       b.   Niisi   aningaasa-**mik**   tuni-vaa.
             Niisi   money-INST   give.3SG.3SG
             'He gave money to N.'

In many Austronesian languages 'give' verbs present only the case array of English (45a), i.e. *'present X with Y'*. (53) is from Chamorro. (54) is from the Mandak language of Papua New Guinea.

(53)   *Chamorro* (Topping 1973: 241)
       Ha   na'i   i   patgon **ni**   leche.
       he.ERG give   ABS   child   INST   milk
       'He gave the milk to the child.'

(54)   *Mandak* (Blansitt 1984: 141)
       di   ga   raba   i   **mi**   la-mani.
       they   PST   give   him   INST   the-money
       'They gave him the money.'

4.2 Reverse goals

Beginning with Kayne (1984), ditransitive verbs of the type illustrated in (45b) are assumed to take a predication as their complement; the content of this predication is a possession relation between the direct object (the possessum) and the dative (the possessor). We

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[11] It has been suggested in the literature (Spreng 2012) that case marking in Greenlandic languages is conditioned by aspect shifts (as in ergative *vs.* antipassive alignment split). Nevertheless, Johns & Kucerova (to appear) argue that the role of aspect is secondary and that alternations relate to information structure issues.

argue that in the Persian alternations in (48b)–(50b), the predication is reversed – so that is the accusative direct object that possesses the instrumental. Ditransitive alternations of the type seen in Section 4.1 reproduce the basic alternation between 'of' and 'with' complements within the DP, as analysed in (4) and (6).

In many theoretical works, the head of the predication postulated by Kayne for English double object constructions is an abstract version of the verb 'HAVE'. For Harley (2002) the head of the predication in an English Dative Shift sentence is an abstract preposition P$_{\text{HAVE}}$, as in (55b); for Beck & Johnson (2004), the head of the predication is an abstract verb HAVE, as in (55c) – though Pesetsky (1995) limits himself to an abstract characterization of the predicate head as G, cf. (55a).

(55)   a. …give Sue [$_G$ a letter]   (Pesetsky 1995)
          b. …CAUSE [$_{PP}$ Mary [P$_{\text{HAVE}}$ a letter]]   (Harley 2002)
          c. …send [$_{\text{HAVEP}}$ Satoshi [$_{\text{HAVE'}}$ HAVE the guide]]   (Beck & Johnson 2004)

In the tradition of studies in (55), the alternation between Dative Shift and DP-to-DP structures is not shaped derivationally, but rather as an alternation between two distinct base structures.[12] For Pesetsky (1995) the DP-to-DP structure remains the same as in (55a), only the predicate head changes to *to*, as in (56a). The same is true for Harley (2002) who takes English *to* to be a P$_{\text{LOC}}$ as in (56b). Beck & Johnson (2004) follow Larson (1988) in adopting a variant of the same fundamental structure where the DP and to-DP complements occupy the Spec and sister position of V respectively (56c).

(56)   a. …give a letter [PP to Sue]   (Pesetsky 1995)
          b. …CAUSE [PP a letter [[P $_{\text{LOC}}$ to] Mary]]   (Harley 2002)
          c. …[VP the guide [V' send to Satoshi]]   (Beck & Johnson 2004)

In present terms, the primitive content of the *to* preposition is part-whole – to be more precise the ($\subseteq$) relation introduced for genitives in (4). In the structure in (57) for (45b), P($\subseteq$) takes as its internal argument its sister DP (the possessor) and as its external argument the sister to its projection, i.e. the theme (the possessum).[13]

---

[12] The lexical alternation view of Dative Shift is not universally held (Maling 2001; Rappoport Hovav & Levin 2008, among others). Freeze (1992) identifies the DP-to-DP structure as the base structure (cf. Hudson 1992) and construes it as a locative structure. For Freeze, Dative Shift depends on what we may call locative inversion or possessor raising (cf. Kayne 1994).

[13] In Romance (Giorgi 1986) the theme DP and the goal DP are structurally symmetric in DP-*to*-DP contexts. Thus, the theme (possessum) can bind (inside) the goal (possessor), or vice versa the goal (possessor) can bind (inside) the theme (possessum). The same pattern seems to holds with DP-*with*-DP contexts in Italian, as in (i)–(ii).

(i)   Ho associato ogni invitato a/con la propria foto.
      'I associated each guest to/with his students.'
(ii)   Ho associato la propria foto a/con ogni invitato.
      'I associated his picture to/with each guest.'

A separate issue concerns the application of this kind of tests to the English [DP[to DP]] structures, standardly assumed to be 'asymmetric' contra what happens in Romance (Larson 1988). Actually, the quantifier binding facts reported by Larson (1988: 338), are not completely clear-cut, as shown in (iii), leaving some room to believe that English *to* and Romance *a* may have the same status (cf. Manzini & Franco 2016).
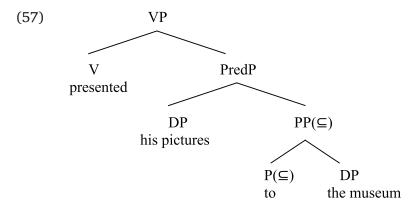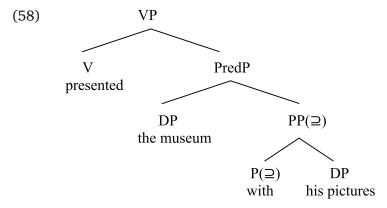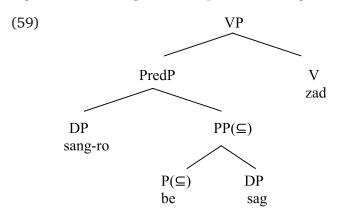
(iii) ?I gave/sent his paycheck to every worker.

(57)

```
                    VP
            ┌───────┴───────┐
            V             PredP
        presented    ┌─────┴─────┐
                    DP          PP(⊆)
                 his pictures  ┌───┴───┐
                            P(⊆)       DP
                             to      the museum
```

The silent P_{HAVE} /HAVE head assumed for Dative Shift in (55) is the covert counterpart of 'with', if we follow Levinson's (2011) suggestion on Icelandic *með*. Indeed the *with* preposition can be overtly seen in English (45a). For (45a), we propose the structure in (58), paralleling (6). As before, we notate the relation expressed by *with* as (⊇), assuming that the possessum is the complement of P and the possessor its external argument.

(58)

```
                    VP
            ┌───────┴───────┐
            V             PredP
        presented    ┌─────┴─────┐
                    DP          PP(⊇)
                 the museum   ┌───┴───┐
                            P(⊇)       DP
                            with     his pictures
```
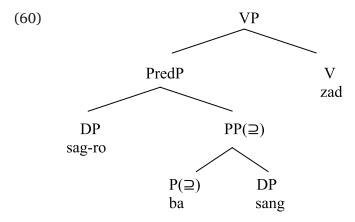
In Section 4.1 we exemplified the presence of *with*/instrumental morphemes in triadic structures cross-linguistically. In most instances the transfer from (46)–(47) is straightforward,[14] for instance for Persian in (48)–(50). In structure (59) for (48a), P(⊆), instantiated by *be*, the dative preposition, takes as its internal argument its sister DP (*sag* 'dog') and as its external argument the sister to its projection (*sang* 'stone'). The reverse pattern represented in (60) for (48b) shows a P(⊇) elementary predicate, morphologically realized as the instrumental/comitative *ba*, taking as its internal argument the possessum (*sang*) and as its subject the possessor (*sag*).[15]

(59)

```
                        VP
                ┌───────┴───────┐
              PredP             V
        ┌───────┴───────┐      zad
       DP             PP(⊆)
     sang-ro      ┌────┴────┐
                P(⊆)        DP
                 be         sag
```

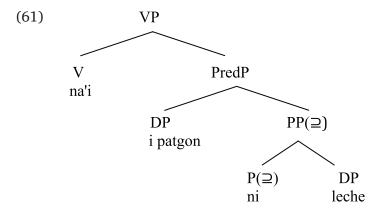[14] In the approach of Hale & Keyser (1993) (cf. Mateu 2002; Zubizarreta & Oh 2007), locative alternations also have a PredP/PP projection low in the structure of the VP, in which the two internal arguments of the alternation originate.

[15] Despite the fact that Persian is a verb final language, the direct object appears in a higher position, preceding the indirect object. This property is shared by various languages (Hindi, German, Turkish, etc.; Folli et al. 2005).

(60)

```
                          VP
                    ┌──────┴──────┐
                 PredP            V
            ┌──────┴──────┐       zad
           DP           PP(⊇)
          sag-ro       ┌──┴──┐
                     P(⊇)    DP
                      ba     sang
```

Nothing prevents a language from instantiating only one of the two alternating patterns – specifically the 'with'-pattern. This is what happens in Chamorro, which encodes 'give' structures by means of the P(⊇) relation only, as shown in (61) for (53).

(61)

```
              VP
        ┌──────┴──────┐
        V           PredP
       na'i     ┌─────┴─────┐
               DP          PP(⊇)
             i patgon    ┌───┴───┐
                       P(⊇)     DP
                        ni      leche
```

4.3 Genitives in the VP

In Section 1 we have seen that within DPs, instrumentals/comitatives alternate with genitives in lexicalizing the relation between possessor and possessum. In a widespread pattern in Romance (Haspelmath & Michaelis 2008), the genitive preposition *di/de* 'of' introduces the same relation as 'with' in the VP, rather than its reverse. Thus in Italian example (46a), repeated below as (62b) *con* 'with' can be replaced by *di* 'of', as in (62c).[16] The alternation in (63) is similar in this respect.[17] This pattern is unexpected, considering the DP data in Section 1. While in the DP, the genitive and the instrumental introduce opposite inclusion/possession relations, in (62)–(63) they seem to introduce the same relation. Hence, the genitive adposition seems to work in the VP as a mirror image of its DP counterpart.[18]

---

[16] Another Italian verb matching the behavior of *rifornire*, at least with animate 'possessors' is *spalmare* ('spread') (e.g. *ho spalmato la crema **a** mia suocera,* lit.'I spread the cream to my mother-in-law'; vs. *ho spalmato mia suocera **di** crema/**con** la crema,* lit.'I spread my mother-in-law of cream/with the cream').

[17] It has been argued that there is a difference in meaning concerning the two types of sentences, because only 'load the truck with hay' would express the idea that the truck is completely filled. This is known as the holistic effect (Anderson 1971). Nevertheless, as argued in Rappoport Hovav & Levin (1998) and Mateu (2002) the holistic effect may be seen as an epiphenomenon of the fact that the verb in the relevant contexts expresses a change of state sub-event. Alternatively, an anonymous reviewer argues that the holistic effect arises as the result of attaching the PP headed by *con* to a completive projection between v and V. Also, the definite restriction of *di* possessums assumed in the literature for the (c) examples (Damonte 2005) may be questioned, as in (i).

   (i)   Il sangue ha rifornito le cellule **dell**'ossigeno necessario.
        Blood supplied the cells of.the required oxygen.

[18] The so-called 'clear' verbs in English (Levin 1993: 124) work along similar lines, since the (un)possessum (i.e. the cleared thing) is either the direct object as in (ia) or is preceded by an *of* preposition, as in (ib).

   (i)   a. John cleared the dishes from the table.
         b. John cleared the table of the dishes.

(62)   a.   Il sangue ha rifornito l'ossigeno **alle** cellule.
            'The blood has supplied the oxygen to the cells.'
       b.   Il sangue ha rifornito le cellule **con** l'ossigeno.
            'The blood has supplied the cells with the oxygen.'
       c.   Il sangue ha rifornito le cellule **di** ossigeno.
            'The blood has supplied the cells of oxygen.'

(63)   a.   Ha caricato il fieno **sul** camion.
            'S/he.has loaded the hay onto the truck.'
       b.   Ha caricato il camion **con** il fieno.
            'S/he.has loaded the truck with the hay.'
       c.   Ha caricato il camion **di** fieno.
            'S/he.has loaded the truck of hay.'

Italian examples of the form in (62a-b) reproduce the structure detailed in (57)–(58) for English ditransitives, as shown in (64a) and (64b) respectively. In relation to English (4), we further proposed a structure for *of* phrases within DPs, which we reproduce in (65) for the Italian example *il bicchiere di Gianni* 'the glass of John'.

(64)   a.   [$_{VP}$ rifornito   [$_{PredP}$ l'ossigeno   [$_{PP(\subseteq)}$ **alle** cellule]]]
       b.   [$_{VP}$ rifornito   [$_{PredP}$ le cellule   [$_{PP(\supseteq)}$ **con** l'ossigeno]]]

(65)   [$_{DP}$ il bicchiere   [$_{PP(\subseteq)}$ **di** Gianni]]

In (64a) and (65) dative *a* 'to' and genitive *di* 'of' are seen to have the same relational content, introducing a possessor. This makes it particularly easy to account for the widespread dative/genitive syncretism (cf. Section 3).[19]

    Now, in the alternations in (62)–(63), *di* 'of' appears to have the same distribution as *con* 'with' – while on the basis of what precedes 'with' should be introducing the opposite relation, as in (64b). One possible analysis that comes to mind is that in fact *of/di* is a pure syntactic device devoid of any interpretive content – however elementary. This is by far the most popular analysis in approaching *of* phrases within the DP – starting with Chomsky's (1981) rule of *of*-Insertion. 'Of' would act as a syntactic repair, allowing for case assignment to the object of an N which would otherwise be caseless. One family of proposals takes the repair to be a matter of PF. For instance, Richards (2010) proposes that *of*-Insertion avoids a potential N-N local identity, working as a morphosyntactic counterpart of the phonological OCP.

    Another family of proposals takes *of* to parallel the copula (Hoekstra 1999; den Dikken 2006). Den Dikken (2006: Ch. 5) investigates DP-*of*-DP phrases of the type in (66a). According to him, *a jewel* in (66) originates as the predicate of a small clause complement, as in (67a). The predicate nominal can stay in its base position, leading to sequences like (66b). But the predicate may also invert with its subject, as in (67b), raising to the specifier position of a small-clause external functional head F lexicalized by the *of* nominal copula – and yielding (66a).
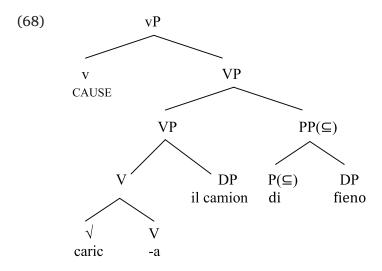
(66)   a.   a jewel of an island
       b.   an island as/like a jewel

---

[19] The languages where dative is lexically different from genitive (including English *of* and *to*, Italian *di* 'of' and *a* 'to', etc.) display contextual sensitivity in the realization of the ($\subseteq$) category (externalized as dative 'to' when attached to sentential projections, as in (64a), and as genitive 'of' when attached to nominal categories, as in (65)).

(67)   a.   [$_{RP}$ [$_{XP}$ subject] [relator [$_{YP}$ predicate]]]
        b.   [$_{FP}$ [predicate]$_j$ [$_{F0}$ relator$_i$ [$_{RP}$ [subject] [$_{R0}$ t$_i$ t$_j$]]]]

It seems to us that theories relying on a non-contentive construal of *of* face empirical problems, specifically when applied to the verbal contexts that are of interest here. Saying that *of* repairs lack of case or is a means for identity avoidance is not applicable to verbal contexts. As for Den Dikken's proposal, we would have to find a predication of which *of* is the copula. Clearly there is neither a direct nor an inverse copular relation between 'the oxygen' and 'the cells' in (62). We provisionally conclude that there are no clear grounds for abandoning the stance that we adopted so far, namely that *of* is endowed with a predicative content, however elementary.

   One possibility is that *di* in (62)–(63) establishes a relation between its complement, e.g. 'hay' in (63c), and the event depicted by the verb, i.e. 'load'. According to the classical theory of transitive predicates put forth by Hale & Keyser (1993), the latter result from the incorporation of a nominal/stative component into a transitivizing light verb-like component. In Chomsky's (1995) formalization, this corresponds to the two-tiered organization normally assumed for transitive predicates, where V has a stative content and *v* introduces a causative or other transitivizing event. Thus 'load' is roughly 'make a load' and 'load the hay on the truck' is 'make a load of hay on the truck'. These paraphrases provide an intuitive introduction to the analysis we propose for the *di* 'of' complement in (62)–(63). While 'of' apparently substitutes for 'with' in Italian, 'with' denotes that 'the truck has/contains the hay'; 'of' denotes something else, namely a relation with 'load'. In structure (68) for (63c), the (⊆) relation holds of the DP complement of *di* 'of' and of the stative (nominal-like) inner component of the predicate, meaning that the whole 'hay' encompasses 'load' as one of its parts – indeed as in the construction 'a load of hay'.

(68)

One may also consider the relevant relation between 'load' and 'hay' as being closer to a copula or identity, in the manner suggested by den Dikken, than to the part/whole relation suggested here – in other words 'the load = the hay'. In fact, the 'sub-set' content we suggested for *of* already contemplates the possibility of an identity, in other words ⊂ / =.

5 Instrumentals as DOM and ergatives

5.1 Instrumentals (and datives) as DOM

In Kristang (Malacca Creole Portuguese), instrumentals and comitatives are both expressed by the morpheme *ku*, as shown in (69) (Stolz et al. 2006: 31). The same morpheme *ku* introduces DOM objects, ranked high on the animacy hierarchy (Aissen 2003, among others),

as in (70). Furthermore, the *ku* morpheme enters dative structures, as in (71), where it introduces the goal.

(69)   *Kristang* (Baxter 1988: 115–162 *passim*)
    a. Eli ja   kotrá aké   kandri **ku**   faka.
        he   PFV   cut   that   meat   INSTR   knife
        'He cut the meat with a knife.'
    b. Yo   sa   papa   ta   bai   mar   **ku**   yo   sa   kanyóng.
        I   GEN   father PROG go   sea   COM   I   GEN   elder-brother
        'My father is going fishing with my elder brother.'

(70)   a. Eli   ja   dali   **ku**   John.
        he   PERF   hit   DOM   John
        'He hit John.'
    b. Aké   tempu   sa   jenti   midu   **ku**   deus.
        that time   GEN   people fear   DOM   God
        'People of those times fear God.'

(71)   Eli   ja   da   **ku**   Rita   aké   pesi.
    3SG   PFV   give GOAL   Rita   that   fish
    'He gave the fish to Rita.

The lexical coincidence of goal datives and DOM objects, as in (70)–(71), is unsurprising. In Romance languages, both goal and DOM arguments are normally introduced by the dative preposition *a* 'to'. Here we illustrate a Southern Italian (Apulian) dialect; DOM is displayed in (72), the goal dative in (73). However the further syncretism with instrumental/comitative is lacking.

(72)   *Canosa di Puglia* (Manzini & Savoia 2005: §4.9.1)
    sɔ   vvistə **a**   kkur   ɔmə/ n ɔmə
    I.am   seen   to   that   man/a man
    'I saw that man/a man.'

(73)   da-nn-illə   **a**   jiddə
    give-him-it   to   him
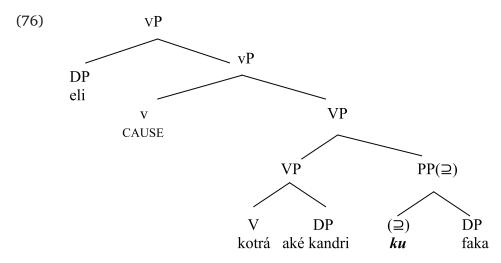   'Give it to him.'

Manzini & Franco (2016) argue that the syncretism of goal dative and DOM depends on a shared syntactic structure. Specifically, highly ranked object DPs, require for their embedding the same (⊆) predicate introducing goals. They propose that in DOM structures the two arguments of P(⊆) are the object DP, for instance 'that man' in (72) and an eventive constituent. Recall that according to Hale & Keyser (1993), Chomsky (1995), transitive predicates result from the incorporation of an elementary state/ event into a transitivizing predicate *v* (CAUSE). Within such a framework, informally, (72) can be rendered as 'He had a sight of that man'. Formally, Manzini & Franco postulate structures of the type in (74a), where 'that man' is lexicalized as possessor-of the seeing/sight sub-event. Indefinite/inanimate complements are embedded in a canonical transitive structure comprising a nominative agent and an accusative theme, as in structure (74b). In (74b), 'see' behaves as a single predicate, its complementation structure displaying no sensitivity to the presence of sub-events/states in it.
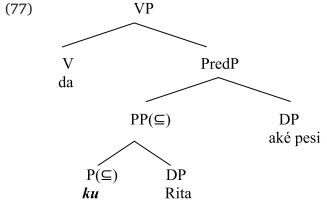
(74)   a. [$_{vP}$ CAUSE/HAVE [$_{VP}$ vvistə [$_{PP(⊆)}$ a [$_{DP}$ kkur ɔmə]]]]
    b. [$_{VP}$ vvistə [$_{DP}$ n ɔmə]]

Therefore for Manzini & Franco languages with DOM datives are those where an argument with highly ranked referential properties must have a role at least as high as that of 'possessor' (of the event), as schematized in (75).

(75) $[_{VP} \dots [*(P_{rep}/K_{ase}(\subseteq)) \text{ DP}] \dots]$ where DP is definite or animate

These conclusions can be applied to the Kristang data in (70)–(71), where both goal and DOM arguments are introduced by *ku*. The problem is that the same *ku* element lexicalizes instrumentals as well, as in (69) – where in present terms datives/DOMs are $(\subseteq)$ relators, while instrumentals/comitatives are their reverse, namely $(\supseteq)$. We hypothesize that Kristang does not differentiate between the two specular 'inclusion' relations, resorting to an all purpose oblique, spanning from genitives/DOM/goals to instrumentals/comitatives (cf. Section 3). We schematize the proposal for Kristang in structures (76)–(77), for (69a) and (71) respectively. These structures prospect a lexical entry for *ku* where this element is associated with both $(\subseteq)$ and $(\supseteq)$ content.

(76)

```
                vP
         _____/_____
        /              \
      DP               vP
      eli        _____/_____
                /              \
               v               VP
             CAUSE       _____/_____
                        /              \
                      VP               PP(⊇)
                   __/\__           __/\__
                  /      \         /      \
                 V       DP      (⊇)      DP
               kotrá  aké kandri  ku      faka
```

(77)

```
              VP
        _____/_____
       /              \
      V              PredP
      da        _____/_____
               /              \
            PP(⊆)             DP
          __/\__            aké pesi
         /      \
       P(⊆)     DP
        ku      Rita
```

5.2 The dative/instrumental syncretism

Prepositional systems of the Kristang type are not isolated. Some of the data for Southern Italian dialects in Manzini and Savoia (2005: §4.9.1) confirm a tendency towards the syncretism of datives with instrumentals. In *Canosa di Puglia*, which we used in (72)–(73) to illustrate the standard Romance DOM/goal syncretism, the *kə* preposition introduces instrumentals in (78b) and comitatives in (78c), but also benefactives in (78a), i.e. what Pylkkänen (2008) calls high Appls, turning up as datives elsewhere in Romance. The same is true in other neighbouring varieties, like *Accettura* in (79); note that the only natural reading of (79a) is indeed benefactive.

(78) *Canosa di Puglia*

    a. u   sɔ   fattə **kə**   jiddə

        it   am   made with him

        'I made it for him.'

    b. u sɔ   fattə **kə**   u   martiddə

        it am made with the   hammer

        'I made it with the hammer.'

    c. ɔ ʃʃeutə **kə**   kkurə

        I went with him

        'I went with him.'

(79) *Accettura* (Lucania)

    a. kostə jɛ   **kə**   ttɛ

        this   is   with you

        'This is for you.'

    b. l   addʒə fattə **kə**   kkostə

        it   have   made with this

        'I made it with this.'

    c. addʒə camə:tə   **a**   jeddə/ u kə:nə

        have   called   to   him/the dog

        'I called him/ your son.'

The data in (78)–(79) are strengthened by the observation that in other varieties of the same area, the same syncretism of benefactives (high Appls) and instrumentals is lexicalized by the *pe* preposition which otherwise in Romance lexicalizes only benefactives (cf. the discussion of the Italian *per* in Section 3), as exemplified in (80).

(80) *Gravina in Puglia* (Rohlfs 1969: 212)

    a. l   aɟɟə fattə **pə**   jeddə

        it   have   made for   him.

        'I made it for him.'

    b. viənə   **pə**   mmi:kə

        come.IMP   for   me

        'Come with me.'

    c. l   aɟɟə fattə **p**   u   martiəddə

        it   have   done   for the hammer

        'I made it with the hammer.'

Leaving aside prepositional systems, the syncretism between dative and instrumental is widespread in case systems.[20]

   In evaluating the proposal we are putting forward, it should be kept in mind what the alternatives are. One leading alternative is having recourse to morphology-internal explanations of the type associated in generative grammar with Distributed Morphology. Within this framework, Calabrese (2008) is specifically interested in absolute syncretism, i.e. in the fact that certain cases/case oppositions are missing altogether in some languages. Calabrese assumes that functional categories are represented by abstract feature

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[20] Actually, an anonymous reviewer wonders whether the dative/instrumental syncretism extends beyond the languages described here. Just to give some examples, the same morpheme expresses the dative and the instrumental in practically all paradigms in Old English (Caha 2009: 272–273); in Ancient Greek the same case morpheme is used in the instrumental function (when combined with inanimate nouns), and with the dative function (when combined with animate nouns) (Luraghi 2003); in Jakarta Indonesian the morpheme *sama* introduces datives/instrumentals/comitative (Clements 2009: 64).

clusters in syntax, realized by actual exponents only at PF interface. His key proposal is that there is a markedness hierarchy of cases (technically of the feature clusters corresponding to them), not unlike the descriptive hierarchies introduced in (1)–(2). Crucially, lower cases in the hierarchy are more likely to be blocked. If they are, the corresponding feature cluster cannot surface at PF, but must be readjusted by the morphological component (including the key rule of Impoverishment) yielding surface syncretism.

In the Cartographic stream of studies, extended to morphology by Nanosyntax, Caha (2009) assumes that the Case hierarchy is represented in UG by a hierarchy of syntactic Case heads. As implied by the discussion surrounding (2), Caha assumes that this syntactic hierarchy explains the attested patterns of syncretism, in that only contiguous heads can be realized by the same forms, given an *ABA constraint (cf. Bobaljik 2012; Franco 2013).

Now, the argument has been made more than once (Kayne 2010: 171; Manzini & Savoia 2011) that the morphological rules of DM, and especially Impoverishment, are powerful enough to generate essentially any lexical string from any underlying syntactic structure. Calabrese's markedness hierarchies are an attempt at restricting this overgeneration – but note that the desired restriction is obtained not via some internal necessity, but via external stipulation. In other words the markedness hierarchy is not generated by internal principles, but corresponds simply to the UG encoding of typological implicational scales, of the type introduced in (1). Much the same can be said of the nanosyntactic encoding of the Case hierarchy by Caha (2009). Caha's hierarchy does not so much derive predictions about syncretism, as it precompiles them in the computational system of UG. In a nutshell, markedness or functional hierarchies are an interesting response to non-accidental syncretism patterns – since contiguity in lexicalization is made to depend on contiguity in the hierarchy. However they have the same problem as any extrinsic ordering device: is there any internal reason for the ordering?

We find it striking that these approaches, while manipulating in ingenious ways the notion of markedness hierarchy, leave the traditional cases, and the traditional notion of case itself, unanalyzed. Here on the contrary we approached obliques (inflectional or prepositional) keeping Chomsky's (2001) conclusions on the non-primitive nature of case firmly in mind. Oblique case is simply the name given to elementary predicative content ('includes'/'is included by') when realized inflectionally on a noun. Correspondingly, there is no externally imposed hierarchy ordering the relevant primitives, but rather a conceptual network determined by the primitive predicates we use and the relations they entertain with each other. Calabrese's markedness hierarchies, or nanosyntactic functional hierarchies are not necessary because syncretism depends essentially on natural class. Seen from this perspective, case hierarchies take on rather different contours. In essence they reduce to a binary split between direct case (reduced to the agreement system; Chomsky 2001) and oblique case, reducing to the part-whole operator. Other so-called cases are analysable into a case core (typically oblique) and some additional structure (as shown in Section 3), yielding something similar to the internally articulated PPs of Svenonius (2006) (cf. Garzonio & Rossi 2015).

5.3 The ergative as dative and as instrumental

Ergative constructions of Indo-Iranian languages are traditionally characterized as passive-like, involving a demoted agent bearing an instrumental inflection, as in classical Sanskrit (Cardona 1970; Bynon 2005). On the other hand an important stream of literature connects ergative structure with possession structures; for instance, Montaut (2004: 39) quotes Benveniste's (1966: 176–86) conclusion that "the Old Persian structure […] is

intrinsically possessive in its meaning, and is analogical with the periphrastic perfects in Latin (*mihi id factum*, me-DAT this done)". In fact, in Sanskrit, the expression of 'X did Y' oscillates between 'by-X done Y' and 'of-X Y done', with the agent in the instrumental case or in the genitive (for pronouns) and the participle agreeing in gender and number with the patient, as in (81).

(81) *Sanskrit*
mayā/mama   tat   kr̥tam
I.INSTR/I.GEN   this-NOM.N.SG   done-NOM.N.SG
'I did/have done that.'

The dative–ergative connection is still visible in many modern Indo-Aryan varieties.[21] For instance, in Harauti, a Rajasthani dialect, datives (82c), DOMs (82a) and ergative subjects (82b) are all lexicalized by the same *-nɛ* inflection (cf. Deo & Sharma 2006). The conclusion is that they must be identified at a deeper level is supported by the observation that DOMs and ergatives are in complementary distribution, as in (82a-b) – in other words either can be lexicalized, but not both. In other words an OCP-like identity avoidance seems to be at work here (see Mohanan 1994, for the Hindi *–ko* morpheme).

(82) *Harauti* (Stronski 2009: 243)
  a. tʃhoro sap̃-**n**ɛ   mɑr-j-o
      boy   snake.M.SG-DOM   hit.PST-PTCP.M.SG
      'A boy hit the snake.'
  b. tʃhorɑ-**n**ɛ   sap̃   i   mɑr-j-o
      boy-ERG   snake.M.SG   EMPH   hit.PST-PTCP.M.SG
      'A boy hit a/the snake.'
  c. muŋ   chora-**n**ɛ   photi   duŋgo
      I   boy-DAT   book   will.give
      'I will give the boy a book'.

Nevertheless, other Indo-Aryan varieties show an instrumental/ergative syncretism, for instance Central and Western Pahari (Stronsky 2009). This is shown in (83) for Kumauni (Central Pahari) and in (84) for Kului (Western Pahari). In both examples, the external argument bears the same inflection as the instrumental adjunct.

(83) *Kumauni* (Stronski 2009: 247)
tə   wi-**l**   jorɛ-**l**   svɔʈɛ-**l**   mɑrɔ
then he-ERG   power-INST   stick-INST   beat.PST-PTCP.M.SG
'Then he beat (her) vehemently with a stick.'

(84) *Kului* (Stronski 2009: 248)
maʃʈar-**ẽ**   hɔtʰ-**ẽ**   ʃohr-u   zuk-u
teacher-ERG   hand-INST   boy-M.SG   beat.PST-PTCP-M.SG
'The teacher beat a boy with his hand.'

On ergative case, current generative research follows two directions. On the one hand, ergative is treated as an inherent case (Woolford 1997; Coon 2013). On the other hand, early generative attempts at unifying the ergative/absolutive alignment with the nominative/accusative one (the Obligatory Case Parameter; Bobaljik 1993) are being revived
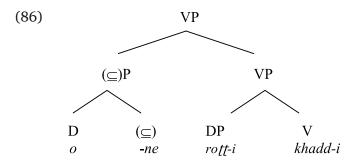
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[21] Evidence presented by Butt & Ahmed (2011) shows that the origin of the ergative morpheme is to be sought diachronically in the *–ne* dative still preserved in some Indo-Aryan languages.

under the umbrella of dependent case (Marantz 2000; Baker & Vinokurova 2010, among others). Here we take the view that ergative case is an oblique, essentially a contextual differentiation of one of the two fundamental obliques (($\subseteq$); ($\supseteq$)) of natural languages. The morphological evidence favours this conclusion, to the extent that subjects in ergativity splits bear the same case as genitive complements of nouns, dative arguments of verbs, instrumental adjuncts. Now, although the genitive has sometimes been taken to be a structural case (especially Alexiadou 2001), datives and instrumentals are normally taken to be inherent cases.[22] If so, the dependent case algorithm cannot be involved in any general way in ergative alignments, since the algorithm only works by excluding inherent cases (datives, instrumentals, etc.). An analysis of ergative case that takes it to be (essentially) a dative is provided by Manzini et al. (2015) – based on a large set of empirical evidence and syntactic tests – in terms compatible with the present discussion. They consider the Indo-Aryan language Punjabi, as exemplified in (85).

(85)   *Punjabi* (Manzini et al. 2015)
        o-**ne**   roʈʈ-i   kadd-i
        s/he-ERG   bread-F.SG   eaten-F.SG
        'S/he ate the bread.'

Though the ergative case in this language has the specialized –*ne* ending, different from dative/DOM –*nu*, they argue that the ergative case instantiates a ($\subseteq$) category, as in structure (86). The internal argument and the past participle agree in nominal class (the inflection –*i* feminine, singular).

(86)

```
                            VP
                 _____|_____
                |                       |
             (⊆)P                      VP
          ____|____              _____|_____
         |         |            |               |
         D        (⊆)          DP               V
         o        -ne         roʈʈ-i          khadd-i
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The interpretation of such a structure is that the external argument 's/he' is introduced as including (possessing/locating) the event/property represented by the VP 'eaten the bread'. An important component of the proposal in (86) is the idea that in split ergative languages like Punjabi, the ergative perfect corresponds to a more elementary organization of the predicate than the nominative progressive. Thus the perfect projects only a VP rather than a vP/AspP as the progressive does. Only progressive makes a position available for the insertion of the external argument on the main verbal spine; in perfects external arguments must be inserted as possessors/inclusors. The structural complexity account of perfectivity splits has been consistently explored in recent generative work, though with different formal outcomes; for Baker & Atlamaz (2013) ergatives are passive-like, for Coon (2013) the nominative alignment involves a bi-clausal structure, for Nash (2014) the ergative has a vP layer, but lacks the Voice/Event layer.

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[22] In the Panoan languages (Amazonia) the ergative, the genitive and the instrumental are all expressed by the same morphology (Fleck 2010). Thus in the Matses example in (i) all three are expressed by means of the same –*n* inflection.

(i)   *Matses* (Fleck 2010: 36)
      [dada   iksa]-**n** [tumi-**n**   opa]-Ø kues-o-ṣh   kueste-**n**
      man   bad-ERG Tumi-GEN   dog-ABS hit-PST-3SG   stick-INST
      'the bad man hit Tumi's dog with a stick'

A second component of the proposal in (86) is more directly relevant here, namely the idea that ergativity relates to possession structures, as briefly evoked at the beginning of this section. Within the generative literature, Alexiadou (2001: 172–173) concludes that "nominalizations and ergative patterns […] are reflections of the same structure: one that involves a single theme argument that appears as sister of the lexical root, and an adjunct type of phrase that introduces the agent". For Johns (1992: 68) "similarities in case and agreement between transitive clauses and possessive phrases is a long-standing issue in Eskimo linguistics […] the case assigned to the specifier (possessor) of a possessed noun is the relative case, the same case that is assigned to the actor in the transitive construction". In the terms of Manzini et al. (2015), the unavailability of transitivizing/aspectual projections along the sentential spine means that an extra argument can only be added to the VP elementary predicate in (86) via an oblique case, itself an elementary predicate, establishing a relation between its DP complement and the VP event/state.

At this point, we are in a position to consider the languages – for instance Central/Western Pahari in (83)–(84) – that display the instrumental/ergative syncretism. Given our characterization of the instrumental oblique as the reverse ($\supseteq$) of the dative ($\subseteq$), it is tempting to simply assume the structure (87), for the example in (84) (following the insight of Chomsky 1995 nothing prevents multiple adjunction to a given constituent). In other words, the perfect predicate is construed as an elementary VP projection with stative interpretation. Since further transitivizing/aspectual projections are lacking, the external argument DP is by means of an oblique case, introducing a relation between the DP itself and the VP state/event.[23]

(87)

The question arises as to how both the ($\supseteq$) relation in (86) and its reverse ($\subseteq$) in (87) can possibly come to embody the oblique subject. In considering a number of occurrences of the two fundamental obliques ($\supseteq$) and ($\subseteq$) inside DPs (Section 1) and inside VPs (notably in ditransitive alternations; Section 4.1) we have seen that they reverse the relations between their respective arguments (*the blue eyes of the girl* vs. *the girl with the blue eyes*). This forces us to maintain that the relations introduced by the dative/ergative in (86) and by the instrumental/ergative in (87) are indeed different. There is therefore no interpretive equivalence between (86) and (87). At the same time the complex/state event being depicted may very well be the same. The comparison with DP-internal syntax is once again telling (cf. Alexiadou 2001); thus *an article by Chomsky* and *an article of Chomsky's* may depict the same complex object – though of course *by* keeps its causer/agent denotation

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[23] The content expressed by (87) could be roughly paraphrased by something like 'the boy beaten with the hands by the teacher.'

and *of* its possessor denotation. Either of the two fundamental obliques of any language, i.e. dative/genitive or instrumental, may be called upon to attach an extra argument to a stative predicate – as a possessor of that state or as a causer of that state. The syntaxes are distinct – which does not prevent them from converging towards the depiction of the same state of affairs.

6 Conclusions

We have argued that instrumentals are the mirror image of dative/genitive obliques. We have proposed that both sets of adpositions/cases are elementary predicates, expressing a zonal inclusion (part-whole/possession relation); instrumentals reverse the direction of the relation with respect to datives/genitives.

Our claim is that *with*-type morphemes provide very elementary means of attaching extra participants (themes, initiators, etc.) to events (VP or vP predicates) – with specialized interpretations derived by pragmatic enrichment (contextual, encyclopedic) at the C-I interface.

We have extended our proposal to account for the observation that the instrumentals can be employed cross-linguistically in triadic verb constructions alternating with datives and we have broaden our discussion to account for dative/instrumental syncretism (eventually including DOM objects), arguing that the inclusion predicate ($\subseteq$) corresponding to 'to' or dative case and its reverse ($\supseteq$), corresponding to 'with'/instrumental case, may reduce to an even more primitive content capable of conveying inclusion in either direction.

Finally, we have addressed ergative alignments, showing that languages may attach external arguments/agents either as possessors ($\subseteq$) or as causers ($\supseteq$) of a given event/state, yielding the two most widespread patterns of syncretism of the ergative morpheme, that is with either instrumentals or genitives/datives.

Abbreviations

ABS = absolutive, ACC = accusative, ALL = allative, AUX = auxiliary, COM = comitative, DAT = dative, DOM = Differential Object Marking, ERG = ergative, F = feminine, GEN = genitive, INST = instrumental, M = masculine, N = neuter, NOM = nominative, PFV = perfective, PL = plural, PROG = progressive, PST = past, PTCP = past participle, SG = singular, UG = Universal Grammar.

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Competing interests

The authors have no competing interests to declare.

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