Water Proof Fire Stations?
Conceptual schemata and cognitive operations involved in compound formation

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In the following text, we intend to present a simple, but in our eyes still powerful description and characterization of nominal compound formation. This analysis will be carried out on frame-schematic and construction-grammatical grounds, on the one hand. On the other hand, it rides on assumptions about cognitive processing long since known within cognitive linguistics (thanks to R. Langacker and L. Talmy). However, since the actual elaboration of this analysis implies certain amendments to recent analyses of compounds in terms of 'blending' or 'conceptual integration' (Turner & Fauconnier 1995, Fauconnier & Turner 2002, Coulson 2001, Sweetser 1999), we will have to spell out our critique of the latter approach. This will be done in the final section of the article where we will display the restrictions we believe the application of 'blending'-theory on grammar should be submitted to.

The first section of the present paper will very roughly sum up two classical approaches in the analysis of nominal compounds; we will comment on their inadequacies, and how these have been assessed by Fauconnier & Turner; next, and all as roughly, we will sketch out the way nominal compounds are traditionally

analyzed in terms of conceptual integration, and finally we will identify one of the major drawbacks of this approach: viz., its limited descriptive import.

In the next section, we develop our own general characterization. Initially, we will simply propose alternative analyses of compounds recruited as epitomes of non-compositionality. On these grounds, we propose a non-trivial and non-standard *compositional* theory likely to capture the general way in which semantic parts of a compound *configure into a semantic whole*. Once the schematic scaffolding of compounds has been established, we will proceed to a summary survey of how this scaffolding is actually instantiated or processed cognitively: our approach therefore has a double scope: it aims at characterizing both the semantics of compounds and the way the semantics is cognitively accessed.

Eventually, we will expose our critique of what could be called the 'blending'-analysis of compounds. This critique of course lends itself to misunderstanding. It could be considered a disapproval of 'conceptual integration' *tout court*. We therefore stress that we are indeed quite sympathetic to the theory of conceptual integration (in our eyes, conceptual integration is an evident, plain cognitive fact). All of us have actually worked on conceptual integration, written about it, and even participated actively in its propagation in our own and other countries. What drives our critique is rather the wish to limit the applicational range of 'blending'-theory in order to avoid the trivialization of both the theory and the objects it applies to.

1. Compounds and Compositionality

Nominal compounds are particularly intriguing phenomena for at least two reasons: (1) As linguistic *forms* they combine two or more linguistic parts into one semantic *whole*; yet, they do so without there being any grammatical marks expressing *what* their relation is, and *how* it obtains. Otto Jespersen remarked this already in 1924: "Compound nouns state two terms, but say nothing of the way in which the relation between them is to be understood: *home life*, life at home, *home letters*, letters from

home, *home journey*, journey (to) home … etc." (Jespersen 1924: 310). (2) Linguists have very early observed that a defining property of compounds is that the global meaning of the compounded whole *exceeds* the semantic sum of its component terms or is *irreducible* to their signification taken separately. Consider for example Kruisinga: "A compound may therefore be defined as a combination of two words forming a unit which is not identical with the combined forms or meanings of its elements" (Kruisinga 1911: XX). Again, Jespersen made a similar remark: " … we may perhaps say that we have a compound if the meaning of the whole cannot be logically deduced from the meaning of the elements separately" (Jespersen 1954: XX).

For these reasons, compounds have been particularly studied linguistic phenomena. They seem indeed to epitomize the problem of *linguistic composition* as such: by virtue of what rules or principles do significations combine into semantic wholes that are not simply the result of an addition of their respective components?

Numerous explanatory approaches have of course been attempted. They all seem to share, however, one general idea that they traditionally unfold along two rather different, but still *compositional* lines. The common idea is that the surplus semantic value, as it were, of compounds stems from their principle of combination, so that the meaning of a nominal compound (in shorthand *XY*) can be laid down according to the signification of *X*, the signification of *Y*, *and* the principle according to which *X* is related to *Y*. Now, the explanatory approaches divide into two dominant trends. There are, roughly speaking, a *generative* approach, which tries to find general principles for how compounds can be generated from underlying sentences, and a *classificatory* approach, which tries to present a finite list of semantic principles underlying the combination of lexical entities within compunds.

As an example of the latter A. Hatcher (1960) could be mentioned. In her book, Hatcher proposes that most *XY*-compounds describe one of the following four

relations between *X* and *Y*: *X* is contained in *Y*, *Y* is contained in *X*, *X* is the source of *Y*, and finally, *Y* is the source of *X*. For instance, 'cathouse' and 'house cat' exemplify the two first relations, whereas 'sugar cane' and 'cane sugar' illustrate the latter two. However, the problem is that there is no unique way of determining what class a given compound belongs to: in the case of 'sugar cane,' one may say both that sugar is contained in the cane and that the cane is the source of sugar. Yet, an even more serious drawback is that most compounds cannot reasonably be classified according to the proposed principles. Just to take one example, mentioned in L. Bauer (1978), it does not make sense to say that fire is the source of the alarm in 'fire alarm,' especially if the alarm is never activated.

As to the generative approach, representative examples are legion. In this view (cf. for instance R. Lees (1960)), *deletion* is considered as one of the major operations used to produce a compound from a syntactic deep structure; that is to say, compounds ride on 'deleted' sentences or compressed forms of such. This theory is nevertheless flawed because there is no way to systematically retrieve a unique verb (or to 'hit' the right sentence): a 'milkman' can be 'a man who sells milk' or 'a man who delivers milk,' 'a man who is made out of milk cartons,' 'a man who drinks (a lot of) milk,' etc. There is no unique underlying case structure either, since 'police dog' can be a dog used by the police or a dog that serves the police. The impossibility of retrieving a unique underlying sentence was considered a main flaw in this tradition, mainly because an expression at the level of language was supposed to code for a unique content at the level of pragmatics. Another, and perhaps more difficult problem is that it is easy to find compounds that are not readily correlated with an underlying sentence; for example, it seems quite unclear what sentence 'rain forest' should be derived from, because it is not simply 'a forest in which it rains.'

Although these attempts to find a general procedure for constructing compounds in English fail, they are interesting because, in failing, they make two aspects of language very clear: for the first, that an expression at the level of

language *underspecifies* its referent, and precisely for that reason it has a potential for activating very different conceptual meanings (according to speaker's intentions and contextual set-up); for the second, that any attempt to define a combinatorial rule in terms stemming exclusively from the linguistic system as such (*qua* self-contained formal system) is doomed to fall below.

Recently, various cognitive linguists—such as G. Fauconnier, M. Turner, S. Coulson, and in a cognate, but a bit different vein E. Sweetser, just to mention a few—have drawn rather radical consequences from this state of affair and proposed a complete reorientation of the study of compounds (as well as other linguistic data). Their point is that the difficulty in laying down principles of composition governing noun-noun (or adjective-noun, etc.) combinations is not contingent; it is essential to the extent that such combinations are *not* (or not exhaustively) compositional. Fauconnier & Turner, for instance, have quite emphatically challenged compositionality along the above lines. In order to sketch their argument, we will start spelling out the basic tenets of the standard compositional claim:

(1)   The meaning of a complex expression is a function of the meaning of its component elements and the syntactic rule that governs their combination.

(2)   In compounds, the first element's function is to modify the second element's semantics (by qualifying or specifying it in some respect).

(3)   Each element is considered as an invariant semantic building block. When one element is qualified by another, only some of its *features* are modified, highlighted, or some new feature is added to it. The element as a whole remains semantically invariant.

(4)   Allegedly, compounds are ruled by a functional logic of compositionality that allows strong prediction of semantic behavior. (According to this postulate, the same word cannot mean substantially different things in different constructions).

This is, obviously, a very simplistic and schematic account for a classical compositional theory.[1] It entails a mere coupling of the semantics of two lexical entities + a compositional rule governing their functional relation. Stated in such terms, it is, indeed, very easy to provide convincing counterexamples that undeniably call into question (3) and (4) in the above list, and thus call for an alternative account for the way in which meaning is constituted in composite expressions.

Whether this entails entire rejection of the claims (1) and (2) is still an open issue. Now, the first important element of Fauconnier & Turner's argument is that there exists overwhelming empirical evidence for the fact that the semantic behavior of compounds *is not predictable*, and that this evidence is neither exotic nor far-fetched. If we consider the by now familiar examples *child-safe* vs. *shark-safe*, we immediately see that the element 'safe' does not remain semantically invariant through the compounds, and, thus, that its semantic behavior *is not predictable*. Indeed, ''safe' takes on two 'contrary' significations in these constructions: in 'child-safe' it reads 'safe *for* somebody,' in 'shark-safe' it reads 'safe *against* somebody.' The same goes for another example we will submit to more detailed analysis in a while: *fire station* vs. *police station* (in a police station there is necessarily police, in a fire station there is not (necessarily) fire). Such evidence is more than enough to call into question the existence of any 'simpleminded,' 'straightforward,' 'standard' logic of compositionality. This is, of course, so much more irrefutable that one and the same composite expression, as Fauconnier &

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[1] Not unreasonably, Sweetser 1999 calls it "simpleminded." We are here rendering the contents of a compositional theory such as it is accounted for in Turner & Fauconnier 1995, Fauconnier & Turner 2002, and Sweetser 1999; i.e. without any reference to any specific author or article. It is difficult to say whether nowadays any scholar at all champions this thesis in its core version. It is often, for quite intriguing reasons, called a Fregean theory of compositionality, even by Fregeans themselves. Yet such a theory does not exist in Frege's writings. Frege does have a compositional theory for *extensional* contents—or a truth value-calculus— but for essential reasons none for *intensional* contents. In semantics our object is the latter.

Turner, Sweetser and others have observed, can take on many different and entirely novel significations in varying contexts.

Now, a major point, according to Fauconnier & Turner, is indeed that the overall meaning of such expressions *is underdetermined* as to the linguistic or semantic cues provided by the lexical entities. In other words, their meaning principally exceeds the sum of their respective parts. Phrased in standard blending terminology, this reads: if we consider the isolated elements of the compound as *mental input-spaces* (say, 'shark' Input 1 and 'safe' Input 2), then the *blended space,* into which these are *integrated*, contains structure and possible inferences that do not exist as such in the input spaces or that could not be obtained simply by adding the structures or features present in the respective input spaces.

Thus, meaning is not a result of a logical rule of composition inherent to language (or 'language of thought'), regardless of both cognition and context, but a result of an online integration of minimal linguistic cues provided by the input-spaces, and the frames delivered by the context in which the expression actually occurs. It is a result of a cognitive activity encompassing not only the semantic features involved, but also the whole phenomenological setting of these features.

Although we are in general rather sympathetic to the many-space model of conceptual integration and do acknowledge the reality of this overall device for cognitive processing, we are nevertheless quite critical towards its application on the particular case of compounds. Our skepticism is twofold: first, it concerns the *descriptive purport* of compound-analysis in terms of conceptual integration (or blending)—we will deal with this immediately below; next, it is motivated by the fact that Fauconnier & Turner (as well as others) in our eyes underestimate an essential property of language (painstakingly developed by cognitive semantics), namely that the latter is not only a formal system that combines syntactical forms linearly (as the traditional, post-Fregean, compositional theory would have it), but also (and primarily) a symbolic means to express genuine *significations* (thoughts, cognitive representations, etc.): as such, it disposes of semantic forms of

composition or configuration (frames, scripts, schemata) that serve a *semantic* binding-function. These are indeed more than mere 'space-building' minimal linguistic cues, rather they contribute frames with genuine configurational structure that does not only display a 'default' prototypical signification, but also require specific (yet not for that sake predictable) types of integration with and completion by other types of signification. Since there are no viable *standard* compositional rules, we believe that the only way to explain why cognitive processing of compound-semantics goes on so easily, automatically, and unnoticed is that it is strongly *guided* by such frame- or schema-semantic structure. To explain or diagram this in terms of 'conceptual integration' without systematically going into frame-semantic details is for sure not enough: the many-space model of conceptual integration ('blending') defines a *cognitive processing routine*, it is not itself a description of either the *object being processed* (in this case the linguistic phenomenon: compounds) or the kind of contents expressed by the object (frames, schemata).

1.1 The descriptive purport of compound analysis in terms of 'blending'
The compositional theory criticized by Fauconnier & Turner is of course wrong. The evidence provided against it is irrevocably convincing. 'Child-safe' vs. 'shark-safe' or 'gun wound' vs. 'hand wound' show, beyond all possible doubt, that such meaning construals are not ruled by any fixed, once-and-for-all-laid-down formal rule, and that the lexical entities involved are not invariant building blocks assembled by some algorithmic mortar. A theory claiming this fails in characterizing plain linguistic data. Now, two questions remain: (1) how is the *difference* between the respective usages to be described; and (2) what motivates the use of the *same* lexical element in contrasting expressions? As far as we have read, Fauconnier & Turner do not give any satisfying answer to the first question, and do not really raise the second. In other words, instead of answering and raising these, in a linguistic framework, crucial questions, Fauconnier & Turner diagram the way the

cognitive system constructs the *specific* meaning of *each* of these expressions. What the many-space model (and 'blending') shows is that specific meaning *emerges* or is constituted in the blend by means of conceptual integration. It diagrams a *dynamic, cognitive process* of meaning-construal; it does not describe a *linguistic phenomenon* (that is to say the *object* that in the first place triggers the cognitive processing). We simply do not learn what in fact, structurally, makes out the difference between expressions like 'child-safe' vs. 'shark-safe.' We only learn that the difference emerges in the blend. And finally we do not learn why on earth the same lexical entity, 'safe,' is used in both cases. Even a fairly non-compositionally minded linguist might be disappointed to learn that the difference between 'child-safe' and 'shark-safe' "emerges" in the blend without further diagrammed specifications. His objection, we imagine, might follow these lines: if your examples immediately show the inadequacy of a straightforward logic of compositionality, then the semantic difference between your otherwise parallel composite expressions makes out a real point; then, there is a real point in submitting these differences to thorough examination and not simply making them emerge in the blend, since this comes as close as can be to begging the question. We consider such an objection as quite justified.

2. Stating our case

To give a concise idea of the theoretical assumptions that guide our analyses here, we will simply quote a passage from E. Sweetser (1999). Her article is indeed devoted to compounds (in a large sense, that is to say including adjectival modifications of nouns). According to Sweetser, lexical entities do contribute meaning, and crucially so. She considers, just as we will do, lexical entities as invoking mental spaces containing "frame and active zone structure." Furthermore, she deals with the relation between Noun and Adjective in A-N-constructions in terms particularly similar to those used in our analysis of nominal compounds; i.e.

she pays thorough attention both to the *frame-semantics* involved—asymmetrically contributed by one of the compounded terms—and to the *functional relations* between the relevant input spaces, namely the fact that by virtue of the construction one term specifies or, as Sweetser has it, "elaborates" the frame contributed by the other. Here is her general claim:

> What are the general rules about how to put A[djective]-N[oun] meanings in English? Following Langacker's treatment of modification as elaboration of active zones, we can say that the noun referentially *profiles* some entity as a member of the appropriate (non-classical) category, while the adjective *elaborates* some *active zone* of the entity profiled by the noun. […] But 'active zone' in my expanded sense may include things not mentioned in most previous work: not only parts or aspects of the entity itself, but parts or aspects of the frames associated with it in the complex context of the particular utterance … (Sweetser 1999: 147)

Note, that the above is a very strong (non-standard) compositional thesis: it explicitly considers the relation between input spaces as being governed by "general rules." What we propose now is simply to state these rules.

In the following, we will present an analysis in the vein of Sweetser's. Our main intention is to provide a sound semantic description of some standard examples ('shark-/children-safe,' 'fire/police station,' 'hand/gun wound,') on frame-schematic grounds, that both *motivates* the use of identical lexical entities in contrasting expressions and *elucidates* the differences between these expressions, while making explicit the semantic contribution of the terms involved. Before proceeding to this analysis—which we consider a genuine piece of cognitive semantics, grounded on insights elaborated by Lakoff (1987, 1988), Langacker (1987, 1991), Talmy (2000), and Sweetser (1999)—we will in a rather flat-footed way present our main claims.

2.1 Fundamental rules governing semantic configuration (compound formation)

(1) As linguistic phenomena, compounds are *asymmetric*. In *XY*-compounds, *X* and *Y* do not contribute meaning in the same way. In English, Danish, German, Dutch, and other languages (but not in Romance languages), the *X*-term serves as a 'predicate' for *Y*; i.e., *XY* is a construction that prompts the hearer to fit the meaning of *X* into a 'slot' or a 'zone' in a schematic frame evoked by *Y*. On the semantic level, we therefore always have that *X* can be read as a predicate for *Y*: *X* specifies *Y* in some respect.[2]

(2) Compounds are therefore *constructions* in A. Goldberg's sense (1995). The *form* itself has a meaning independently of what terms instantiate it. In the present case, the point is that *whatever* appears in *Y*'s place displays *ipso facto* the general focus of attention or the overall semantic frame to be elaborated; and *whatever* appears in *X*'s place, appears by virtue of this form as linked to this frame and as elaborating it in some respect.[3]

(3) This rule is strongly compositional because it imposes a configurational principle that is invariant through all possible, empirical instantiations of the *XY*-construction, and fundamentally independent of however *X* and *Y* are construed separately. Yet, there is absolutely no reason why this relation

[2] This is of course manifested by a wealth of inversed compound pairs, such as houseboat vs. boathouse and machine coffee vs. coffee machine, cane sugar vs. sugar cane, etc. In Romance language, the relation is for well-known reasons inversed, so that 'wagon-lit' or 'cochecama' do not mean, say, 'a four-wheeled bed,' but a vehicle with beds in it. The epitome of this difference is probably the French word for 'walkie-talkie': *talkie-walkie*—what else?

[3] Though the issue is interesting, we cannot go into more details here. Let us simply stress an important difference between our present conception of construction and Goldberg's. In both cases, semantic import is assigned to the construction as such, however, we will not define the compound construction in argument-structure terms, but in phenomenological terms. We consider it, in other words, as a linguistic counterpart to a basic feature of experience in general and of perception in particular: whenever our attention is intentionally oriented towards an object (be it concrete, abstract, cultural, or natural), this object is always apprehended in a specific way, relatively to determinate properties; the whole range of its qualitative, physical, purposeful, or cultural properties are not instantiated *tota simul*. Thus, the linguistic form of compounds simply reflects the basic organizational or structural feature of experience in general. In Talmyan terms (2000: vol. I, chapter 4), we can say that a frame displays a structural landscape likely to be accessed in many different ways, yet "attention" can only be "distributed" on one aspect of it at a time.

should be simple and predictive. Indeed, this is not a rigid building block conception of compounds, because the frame evoked by *Y* is fluid and dynamic:[4] it may comport several qualitative dimensions, and it may be dependent, often in a complicated way, on entrenched schemata, on-going discourse, contextual meaning, and implied information.

(4) The way in which the *X*-term specifies the *Y*-term is amenable to two intertwined types of theoretical description: *(a)* relatively to the general schema displayed by *Y* and thus to the position or element in the schema instantiated by *X*; *(b)* and relatively to the way the integration of *X* in *Y* is cognitively processed in each empirical case.

2.2 Case studies

We will now corroborate these assumptions with a sample of case studies. The choice of examples is not random. We have simply overtaken examples used as evidence for non-compositional analyses of meaning construal in compounds. Before setting out, we want to emphasize that like most cognitive linguists we do not consider these examples as 'exotic,' 'non-standard' or 'farfetched.' They do not call for more *ad hoc* hypotheses than 'prototypical' compounds and are, thus, plain linguistic data and as such good illustrations of what we like to consider a 'schematic, predicative logic.'

Example 1: Fire station vs. Railway station

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[4] Cf. Langacker's term "quality space" (*W*) and the subsequent idea of its being constituted by several "subregions" (*W'*) (Langacker 1991: 74). We consider these subregions as the constitutive moments of the script or frame underlying the semantics of the lexical entities. Accordingly, preeminence can be given to one of the quality-dimensions defining the schematic "quality space." Thus, 'pills' can be defined with respect to the quality 'substance' ('vitamine-pills'), the quality 'function 1' (cause something: 'sleeping pills'), or 'function 2' (prevent from something: 'nerve pills').

In view of the preceding remarks, we will consider for instance 'fire' and 'railway' as different qualifications of the phenomenon referred to: the station. So fire- and railway stations are, in this respect, simply a 'fire-like' station, and a 'railway-like' station, respectively. However, 'fire' and 'railway' taken separately are not nouns of the same kind: fire refers to a naturally occurring phenomenon, while 'railway' is a technical device, a human-made means of transportation. Moreover, 'station' does not have a simple signification; rather, it refers to a more comprehensive script, scenario, or narrative. A station is generally a human-made stationary device, localized somewhere, and supposed at all or most times to serve some purpose. It is the material incarnation of a competence, most often of a social or political nature. Now, this implies that its purpose can be described exhaustively only in a whole narrative script: a station is equipped with some personnel, some machinery, and some energy supply in order to be able to undertake some function, supporting certain developments and preventing others. Therefore, this narrative, purposive definition of a station entails that a specific type of station is characterized by a series of properties: its purpose (negatively: to prevent something; positively: to further something else), its machinery, its personnel, etc. This, in turn, implies that the narrative molecule may be prompted by various words: the denomination chosen may refer to the station's localization, to its equipment, to its machinery, to its purpose, etc. This gives us a small script-based taxonomy of station types: a 'border station' refers to localization, 'police station' to personnel, 'railway station' to machinery, 'fire station' (negatively) to purpose, 'gas station' (positively) to purpose, etc.—all these denominations being metonymies in relation to the specific version of the overall station-script. Thus, a police station could all as well have been called a 'criminality station,' an 'anti-criminality station,' a 'law-and-order station,' a 'handcuff station,' etc. – and, indeed, these expressions will be possible slang expressions for that phenomenon, and, in any case, they would be immediately understandable for the average speaker when placed in a suitable context. In fact, if the hearer knows the referent of station, then there is a priori a *non-linguistic*

categorization that ensures that if the compound fits the non-linguistic understanding of the referent, it will be understood. We can add the hypothesis that the denomination chosen in the single case may be motivated by what appears most salient about the nature of the station in question. The danger of fire gives rise to a salient and stable iconical representation, the much more abstract danger of criminality not so. The personnel in a police station constitute a salient image in their uniforms and their constant presence in traffic and urban life; the personnel of a fire station (hopefully) staying inside the station not so.

Of course, this notion of 'saliency' is sensitive to context and culture. Thus, the other way around, the same composite noun may very well refer to different types of stations, depending on the 'slot' chosen in the station scenery. In Paleolithic times, a 'fire station' could have been a public place where fire was kept burning in order for people to get an ember from there if their fire went out (an institution as the Temple of Vestalines in ancient Rome seems to have had this function); a 'fire station' might be a Middle Age department under central inquisition ready to hurry out to cremate any witches or heretics likely to show up; a 'fire station' might in Babylonia culture be a station equipped with personnel having predominantly fire signs in their horoscopes, and so on. But in each case, the narrative station script would motivate different construals.

Example 2: 'Children-safe' vs. 'Shark-safe'

Analysis in terms of 'blending' seems to presuppose that the component term 'safe' has only a very vague semantics—since it is likely to undergo rather important changes from one expression to another (from, say, 'shark-safe' to 'children-safe' to 'dolphin safe'). Its signification is thus 'fixed' on line or *ad hoc* according to the type of conceptual integration fulfilled. This presupposition is inadequate to the extent that it identifies 'distinct semantics' with 'mono-valent,' 'invariant' signification (laid down, once and for all, in a dictionary).

We claim that 'safe' has a distinct, canonically bi-valent signification, represented by a *schema*. We claim, next, that this schema is very primitive, very fundamental, and indeed deeply *embodied* (no animal would survive without mastering this basic biological diagram). We claim, further, that thanks to this schematic conception of semantics, it is possible to defend a predicate-subject analysis of compounds on non-simpleminded compositional grounds. And we claim, finally, that it is possible to provide a very simple description of the actual difference between the values of 'safe' in 'shark-safe' and 'children-safe.'

The canonical frame of 'safe' implies a schematic set-up consisting of a partition of two zones; i.e., one zone delimited by a real or, more often, a virtual qualitative frontier within which one cannot be attained by external sources of danger or an intruder, and another zone in which such sources of danger are localized.

The point is simply that each zone, and in certain cases the frontier itself, constitutes a potential "active zone" (Langacker, again), likely to be activated in any instantiation of the frame 'safety.' This schematic device provides a very simple explanation of both the difference between 'child safe,' 'shark-safe,' as well as (in another grammatical form) 'safe distance,' and the reason why 'safe' is used in all these cases. It also proves that the 'integration' of the terms is highly constrained by the frame contributed by only one of them (Y), and that the other term (X) takes on an actual meaning only in so far as it instantiates a constitutive aspect of Y.

In 'shark-safe' preeminence is prototypically given to external sources of danger, 'Zone 2' is instantiated as active zone. In 'child-safe' preeminence is given to the internal domain of stability, 'Zone 1' is activated and 'Slot 1' specifies the nature of the entities being in safety. Obviously, the same holds for 'dolphin-safe.'

In an expression like 'dog safe transport' it is the border that is profiled by the compound. On can of course add new frames yielding all sorts of new meanings of 'safe' but we consider the diagram as a representation of its default schematic meaning.

Our analysis is surely compositional in so far as it claims that the semantics of the lexical entities involved plays a crucial role, motivates the very use of the relevant lexical entities, and, what is most important, *constrains* the on-line construal of the overall signification. It thus helps us determining the nature of the relation between the correlated lexical entities, and provides a sound basis for accurate and adequate linguistic description (elucidation of differences, motivation of similarities).

In other words, we claim that there exists such a thing as a 'schematic algorithm' underlying the meaning-construal of compounds.[5] Note, however, that the linguistic tools used in our analysis do not stem from any of those theoretical traditions cognitive linguists usually stigmatize as "objectivist." We refer to the semantics of the lexical entities in (Langackerian) terms of "qualitative regions" in some domain, provided with highly schematic properties, and likely to be instantiated in a manifold of ways. Thus, the schematic constraints on meaning-construal (*which,* we stress, *is exactly the factor that enables easy, automatic, and unnoticed performances of meaning-construal by offering the overall interpretive template*) are not unequivocal, one-dimensional, and predictive. Nothing in the schema of 'safety' allows for prediction of signification since the schema is itself pluri-dimensional. The exact signification is consequently not deducible from the schema itself, but depends on the recognition of what zone is activated in the schema and how it is activated with respect to the whole schema. Therefore,

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[5] We use "schematic algorithm" in a sense close to G. Lakoff's, cf.: "One of the reasons that schemas have become popular within the cognitive sciences is that they can be represented as symbolic structures and manipulated algorithmically" (Lakoff 1988: 135-136). As Lakoff often emphasizes, these schemas are, meaningful; one of the classical tasks of cognitive semantics is the one that consists in characterizing the meaningfulness of such schemata.

meaning-construal is reducible to neither simpleminded compositional algorithmics nor to mere cognitive processing, even when phrased in terms of blending. Obviously, in 'safe'-cases, meaning is stabilized according to the recognition of *speaker's* intentions, and according to phenomenological patterns recognized in the referent scenes. The recognition of phenomenological patterns in the referent scenes provides the cues that allow an adequate activation of the schematic zones.[6]

Example 3: 'Gun wound vs. 'Hand wound'

Just like the above, the present example has been explicitly used to call into question the compositional character of meaning construal in compounds. In our eyes, it can be suitably analyzed in analogy with 'safe.' It is, indeed, a rather clear-cut example of schematic compositionality. 'Wound' is not a "minimal linguistic cue." It is, on the contrary and for obvious reasons (attending to the importance of bodily integrity), highly and remarkably framed, perhaps even narratively framed (every wound is a trace of an event having a history). A wound has a location; it is a priori framed as a discontinuity in some entity; it is not an intrinsic part of the latter's mode of manifestation; it thus renders the spot on which it occurs highly salient. Correlatively to its discontinuous character, a wound is framed as having an extrinsic origin or cause. The point is here, once again, that the frame of 'wound' unfolds two slots, one for the causal-instrumental origin and one for the location. Again, the schema underlying the semantics of 'wound' constrains the functional role played by the first element of the compound. In other words, 'hand' in 'hand wound' fills in the slot 'location' (or rarely, unless context calls for it, the location 'instrument'), and 'gun' fills in the slot 'instrument.'

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[6] Cognitive linguists often make a point out of the unpredictability of composite constructions. The real point, however, is to know why *de jure* unpredictable frames are instantiated in *de facto* determinate ways? Polysemy is a property of language as such (language is schematic, in other words), it is not, however, a distinctive feature of intentional, everyday language use, unless jokes are on the agenda. It does not seem satisfactory to say that this is simply what is provided by the blend.

Similarly for 'gun repair' and 'hand repair.' 'Repair' has an inbuilt schema that includes an agent and a broken object; and thus two possible instantiations of the schema, one focusing on the object as in 'gun repair,' another focusing on the agent (or by metonymy, the instrument) as in 'hand repair.'

This fact appears very clearly whenever the relevant expressions are translated into more analytical languages as, e.g., French. In French, 'gun wound' is 'blessure *de* revolver,' whereas 'hand wound' is 'blessure *à* la main;' literally: 'a wound *from* a gun' vs. 'a wound *at* a hand.'

In general, we can say that, given a general frame displayed by the *Y*-term, it is a contingent matter of choice what element of the schema a given language highlights. In the case of 'wound,' the schema displays a micro-narrative scenario consisting of a *location* and a *origin*; the latter is itself likely to be instantiated in several ways as, say, *instrument*, *act*, *agent*, or *circumstances*. In Danish, e.g., 'gun wound' is translated into *skudsår* (litt. 'shot wound'); that is, Danish prefers to highlight the act rather than the instrument (this is of course possible because 'shot' evokes the instrument and conversely the instrument evokes the act). This difference between Danish and English supports the argument that there is a Talmyan *window of attention effect* in the compound: 'skudsår' has a window to the act and the result and gaps the instrument and the agent, whereas 'gun wound' has a window to the instrument and gaps the act and the agent. Remark that in English, one can also speak of a 'bullet wound,' which just shows that these frames can be further decomposed: the agent acts on an instrument which acts on another instrument, etc. We return to this in Section 2.4.

Example 4: 'House rat' vs. 'Mall rat'—Literal and figurative use
Up to now, our analysis has remained rather similar to Sweetser's frame-semantic account in her 1999-article. There is nevertheless a remarkable difference in our approaches that we will develop in some detail here. According to our hypothesis, the semantics of compounds is strongly constrained by their very linguistic form. If,

as we hold, the *Y*-term contributes the overall frame, then it guides meaning by supplying with a flexible array of possible significations to be specified by the *X*-term. The *X*-term is therefore from the outset strongly linked to the *Y*-term, and takes on a signification only in so far as it specifies something pertaining to *Y*. Consequently, we do *not* consider the *X*-term as evoking an *autonomous* mental space; rather, we consider it a 'satellite'-space to the conceptual space of *Y*. To put it plainly: in the case of compounds, we do not consider meaning construal as *automatically* relying on blending. Of course, one may call the outcome of such cognitive constructions for blends; however, we prefer to reserve this notion for more complicated semantic phenomena (among these, other types of compounds) whose structure cannot be suitably analyzed without the kind of mappings we find in blend-constructions proper.

It is on this point our analysis differs from Sweetser's (and *a fortiori* from Fauconnier & Turner's). Sweetser seems tacitly to assume that the *same* cognitive processing of compounds is at stake in all cases so that there is no major difference between the processing of compounds where, e.g., *Y* is a metaphor and compounds where it is not a metaphor. In the classical 'blend'-understanding of such cases, it seems as if this is a mere question of different online integrations of mental spaces activated by the *same* cognitive process, whereas in our conception the access to the underlying meaning relies on or may rely on *different* cognitive processes, depending on whether or not there is integration within one mental space.

Let us illustrate our point by contrasting two examples: 'house rat' vs. 'mall rat.' In our examination we will focus on two closely connected criterial properties of blends according to the theory of conceptual integration: is it possible to 'unpack' the blend into two or more consistent mental spaces, and are there genuine mappings between these mental spaces?

'House rat' does indeed seem to provide nice, clear-cut mappings between full-fledged mental spaces. According to standard analysis, we would have an Input Space 1, cued by 'house,' and an Input Space 2, cued by 'rat.' Now, among other

things, houses are conceptually framed as places in which different beings live. Rats, on the other hand, are as animals, of course, framed as having a habitat. 'House' then maps onto the habitat of rats, and 'rat' onto the habitants of houses. QED.

Obviously, this account is fallacious. Firstly, it does not explain why our compound is construed as primarily concerning 'rats' and not 'houses' (say, as 'rathouse'). That is to say, it misses the fact that the 'mental spaces' in case do not have the same 'weight' and do not assume the same function. 'Rat' contributes the (encyclopedic) frame, 'house' specifies it. Secondly, and for this very reason, it misses the fact, that even though 'house' maps onto 'habitat' in the rat-frame, 'rat' *does not* in a symmetric way map onto 'habitant' in the house-frame: rats are not the true/exclusive/genuine habitants of houses in our default sense of 'house;' they happen to be or have their habitat in restricted parts of it, but they do not 'live' there in our sense. (Notice that this would be the case for 'rathouse,' just as in 'doghouse'). Once again, we consider that predications of this sort are suitably analyzed in non-blending terms, within the framework of a schematic logic of predication according to which the relation between the component elements should be determined in terms of specification of schematic positions within one frame.

Let us now look at an example that contrasts 'house rat,' namely 'mall rat.' Since 'mall' is framed as a place, the analysis of 'mall rat' should apparently be the same as for 'house rat.' Yet, this is not the meaning of the expression, which refers to teenagers hanging out in a mall. In this case, the understanding of the meaning does require *unpacking* of the single elements, a clear indication of blending. What would motivate this unpacking? Phenomenologically speaking, of course the communicational situation and the identification of speaker's intention (the fact that he is actually not speaking of real rats). Our understanding of this compound is thus that it involves two genuine input spaces, which represent full scenarios as opposed to conceptual schemata with only one scenario and positions to be specified. In the present example, Input Space 1 is a specific scenario, a mental space in

Fauconnier's sense, which can be described as 'teenagers hanging around in a mall,' and which has an experiential counterpart. Similarly, Input Space 2 is a 'rat'-space, including the prototypical habitat of rats, prototypical rat-behavior, and diverse folk-knowledge and folk-assessments of rats. The main feature of the relation between these input spaces is of course that the element 'teenagers' is mapped onto 'rats.' However, it is not precise enough to say that teenagers are substituted by rats, because it is the whole structure of Input Space 1—or of the perceived scenario in the real phenomenological space—that is mapped onto the conceived space 2. There is a pattern of behavior in the teenager space that can map onto a pattern of behavior in the rat-space. The expression is therefore a prototypical blend with mappings across genuinely organized spaces and with resulting emergent significations: the parasitic character of the teenagers.

Our position may seem unsatisfying in one, quite critical respect. One of the standard reasons why theory of conceptual integration has been so appreciated is that it applies homogenously to a wealth of phenomena hitherto considered as substantially different. Instead, we reintroduce differences by saying that certain compounds, like 'mall rat' and 'land yacht,' ride on blending, while others, like 'house rat' and 'fingernail,' do not. Granted the scientific community's natural preferences for explanatory 'simplicity,' we will have to justify our stance in some more detail.[7]

Our claim is that linguistics is a three-layered business. The first layer is the linguistic level proper; the second layer is the level of conceptualization or conceptual structure (such at it has been systematically (and admirably) described by cognitive linguistics), and the third layer is the experiential level on which conceptualization applies. Thus, a linguistic expression *evokes* a conceptualization through which it *signifies* an actual experience, be it physical, social, or mental. At

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[7] In passing, we will just remark that theoretical simplicity is only a virtue if it actually captures (the hitherto ignored) simplicity of its object; otherwise it is simplification.

first glance, it seems difficult to distinguish between perception end conception—between our experience of the world and our conceptualization of it—since what is perceptually accessible is already conceptualized (cf. Talmy (2000), in which he introduces the notion of *ception* in order to cover the continuum ranging from "perception" to "conception"). However, if it is true that our mental contents are not simply passive reflections of external states of affair, but are rather the result of conceptual ways of accessing them from specific perspectives, it is all as true that they depend on there being something to be 'perspectivized' in the first place. That is, nobody can state, say, 'parallelism' without expressing some point of view—a is parallel to b, or vice-versa, etc.—but neither can anyone express a point-of-view in this respect without there being experienced parallelism. Conceptualization is in this sense constrained by actually experienced patterns. Now, applying this to integration, we state the following hypothesis: what is experienced as perceptually integrated is also conceptually integrated. For instance, to take a classical example, the dependency relation between color and extension, or—a case more in point—the part-whole relation between a nail and a finger are such integrated experiences, which we then claim are also integrated in our conceptual representation of finger and nail, cf. Langacker (2001). It is, as it were, an analytical experiential fact that a nail evokes as its immediate scope a finger or a toe (whereas the same thing does not hold for rats and malls). Whatever the neural mechanisms are for perceptual integration (binding), it seems reasonable to assume that they yield an integrated space at the conceptual level as well. In the case of 'mall rat,' there is at the experiential level an integrated correlation between the mall and the teenagers, at least for the language producer sitting in the mall. This correlation could have yielded something like 'mall youngsters,' but we see here the necessity to make a distinction between the perceptual and conceptual level because the language user might wish to evoke additional frames and schemas and blend them into the already integrated scenario. This might be done with the purpose to yield a tighter integration of the experienced phenomenon or, as in the case of 'mall rats,' to yield

a specific evaluating or pejorative imagery that would be difficult to render without recruiting other spaces.[8]

To summarize the difference between 'fingernail' and 'mall rat,' we can say that in the first case we have an integrated experience that is also integrated at the conceptual level, i.e. it is not conceived of as consisting of two separate mental spaces In the last case we also have an integrated experience as the base for the linguistic expression, but here additional frames are activated in order to produce a specific meaning, and so the expression is based on an integration of two different conceptual spaces. In short: *if an expression evokes two different conceptual spaces at the level of conceptualization, we have a case of blending; if it doesn't, we don't.* We will discuss other aspects of this problem in Section 3.

2.3 Partial conclusions

Here are our partial conclusions: the combination of significations in compounds is governed by a twofold configurational rule: (1) a constructional rule, by virtue of which the relation between *X* and *Y* is pre-formatted to the effect that whatever *X* is, it is construed as specifying an aspect of *Y*; (2) a frame-schematic rule, that follows directly from (1); since *Y* contributes the frame, it also displays the semantic conditions under which *X* is meant to combine with *Y*— the principle of semantic configuration is therefore infolded in *Y*: whatever *X* is, it is so within *Y*.

Two advantages follow from this understanding. The first concerns online construal of blends: such construal is considerably facilitated by this double aspect

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[8] One might add that the phenomenon of compounds is strongly related to categorization at the subordinate level. In the prototypical cases subcategorization is probably a question of selecting a salient feature inside an already existing category rather than combining two separate and independently existing categories. For instance, in an 'armchair' it is the characteristic body position that is the salient feature. 'Arm' stands in a metonymic relation to this position and is used to categorize this type of furniture. From our point of view 'house rat' follows this logic, whereas 'mall rat' is not a question of categorization but of expression of an attitude.

since the cognizer knows beforehand the structural relation between *X* and *Y*. He does not need to recruit two full-fledged frames for *X* and *Y* and *trial-and-error* his way through the wealth of possible mappings between these mental spaces. On the contrary, lots of default frame-aspects of *X* are dismissed from the outset since only those are relevant that fit or map onto the default aspects of *Y*, the only frame elaborated in the construal. In other words, *X* and *Y* combine within the restricted scope of *one* frame, and thus *one* mental space. The second advantage concerns the linguistic description of such phenomena: granted that a major theoretical task consists in providing adequate descriptions, our point proves quite useful. The task of describing compounds consists in unfolding the frame of the *Y*-element (either its prototypical default-frame, or the one it has been endowed with in a speech-interactional situation), and in showing what 'zone,' 'slot,' or 'element' of it *X* specifies. Therefore, our approach contributes both a principled characterization of compounds *qua* constructions and an analytical tool to cope with single cases.

Now, a major issue is whether or not further general characteristics are retrievable. It may, indeed, seem a bit too 'ad-hoc-like' to simply claim that compounds are *X*-term-specifications of *Y*-frames. One might wish to know whether or not a *contentual*, and not simply a *formal-constructional* characterization of compounds could be provided, that is to say whether or not the *Y*-frames and the *X*-specifications involved in compounds are amenable to some sort of classification or typologization. Our guess is that classification of compounds in terms of what frames they involve and how they elaborate them is coextensive with classification of how frame structure is expressed by language in general (hence the difficulties of the classificatory approach). On the other hand, we do believe that there is a both heuristic and ontological point in looking for and pointing out some prevailing types of frames and types of *X*-specifications. Recurrent features, invariances, structural stability, periodically re-occurring phenomena, cyclic processes, and stable events just characterize the world, our bodies and minds, and the symbolic systems through which we express ourselves (however complex we and the world are). We of course

do not believe that for *a priori* reasons any given compound is unequivocally classifiable according to one and only one category (this is the classificatory fallacy). Rather, we claim that the *X*-term prototypically tends to specify certain, and very limited, aspects of *Y*-frames (origin, form, substance, purpose, time, space, and few others). Correlatively, we claim that certain types of frames are more preeminent than others. Leaving aside—at least explicitly—the issue concerning what types of matter *X*-terms specify, we will in the following deal with one type of frame that, as far as we can see, is pervasive, and extremely richly exploited by nominal compounds: viz. the event-frame, and behind it the overarching *narrative frame*.

In the following sub-section we will present what we understand by event-frame and hereafter show in what ways it can be instantiated cognitively. This will allow us both to characterize cognitive processing (on the grounds of already established evidence) and to show how one simple frame instantiated by different types of cognitive computation can give rise to a wealth of in appearance substantially different types of compounds.

2.4 Types of cognitive construal of blends

There exists a considerable amount of compounds that display and elaborate on *event frames*. Hereby we understand frames that schematically express or imply an act of some sort and therefore imply an agent, a result, an object/patient, and an instrument. In such compounds, the general, 'vague' frame is displayed by the *Y*-term (itself profiling one component element of the frame). The general frame is in itself underdetermined and likely to be specifically instantiated in many different ways. The *X*-term, then, specifies it is some respect. The main function of *X* is therefore to instantiate *Y* specifically with respect to the frame. This entails that the compound makes it possible for the speaker (and for the hearer) to focus on *one aspect* of the frame while at the same time representing the *whole* frame as such. In

Langackerian wording, we can say that the *XY profiles* aspects of the event, whereas the event frame (contributed by *Y*) as such is the *base* for this profile.

In the following, we will discuss two types of event frames and the very pervasive teleological frame for purpose-oriented action. These frames do of course not exhaust the list of event frames. The analysis of them simply serves the double purpose of justifying the internal frame-schematic unity of compounds *and* of showing the *different kinds of cognitive operations* they can be submitted to. A good description of compounds riding on event frames should therefore integrate observations about the different ways in which they are accessed cognitively. The different cognitive mechanisms we will examine are not specifically tied to language production, but serve general purposes useful for the cognizer.

The two event frames we will deal with are ones that as a minimum contain:
(1) an *agent*, an *act*, a *result* (*goal*), and a possible *object/patient*.
(2) an *agent*, an *act*, an *instrument*, an *object*, and a *result*
Our claim is now simply that given such frames, focus (or window of attention) can be placed on different constituent elements of the frames, yielding different aspects of one and the same base frame.

2.4.1 Agent → Act → Patient → Result

In the following, $(act)_n$ refers to a nominal representation of the act. Consider 'hunt' or 'hunting,' both of which evoke the whole frame: there is an agent, there is a patient, and there is a goal, but they are not very rich in imagery; this can be achieved by integrating with the object/patient as in 'bear hunting' and 'treasure hunt,' which evoke very different images. It is a very general pattern that $(act)_n$ evokes a full scenario, especially a goal, but at the same time it is also somewhat schematic in its meaning, it lacks the full figurative content supplied by the object; object-$(act)_n$-compounds are therefore also a classification of the possible figurative specifications of $(act)_n$. It can be predicted that if $(act)_n$ loses any specification of a

goal, then the result must be mentioned, and so the integration must be achieved via the result, as for instance in 'fire-raising.' In the latter case, the verb is so schematic that it almost seems to be subordinated to the fire; however, the fact is that the fire is the result of a deliberate act that is the focus of attention, and this is the meaning the verb contributes. Therefore we can still justify that $(act)_n$ is the focus of attention and that the result in this case contributes the integration into an event frame.

Let us now look at cases in which the specifying factor is the agent with the act still as the focus of attention. Given the series agent $\rightarrow$ act $\rightarrow$ patient $\rightarrow$ result, it is clear that if there is a patient, then $(act)_n$ must window both the result and the act in order to be able to integrate the whole series. There is a wealth of nouns with this property. Consider 'bite;' it might refer to the act of biting as well as to the result, so in a compound like 'flea bite' we have a window to the agent, the act, and the result, and only the patient is gapped; yet, since the result requires a patient, it is implicitly represented. Conversely, if $(act)_n$ does not window a result, there can be no patient either, that is, we have an intransitive act as in 'sun rising,' 'volcano eruption,' etc.

Furthermore, suppose we focus on the result and specify it with the object or the agent. We then get examples that in the literature—for instance in A. Hatcher (1960)—are considered cases in which *X* is the source of *Y*. This would go for 'cigar smoke' and 'volcano ashes.' Yet, if someone says: 'how strange, I can smell cigar smoke in my office,' then clearly the speaker implies the existence of an agent that can be hold responsible for the misdemeanor. Instead of classifying according to a more abstract notion such as *source*, we suggest that there exist integrated experienced events as motivations for these compounds, which then conversely fully activate the corresponding event-frames.

Consider now cases where focus is on the agent. From the sequence above, we see that if *X* denotes the object/patient, we get a very well integrated frame. A common pattern is 'horse dealer,' 'chess player,' etc. In such examples, the *Y*-term

is already an integration of the act and the agent: 'deal-er,' so we have in fact an integration of agent, act, and object in the compound.

Is it possible to integrate the agent by means of the result (goal)? Well, a Danish chess player was characterized (unfairly) by one of his opponents as the 'smoke chess player.' As above, 'smoke' can be conceived as the result, but here we have in fact a case of blending of two different event frames. The result in a smoking frame is used to characterize the agent in the chess-playing frame, the point being that the agent wins his games, not by playing well, but by smoking (his opponents in their faces). This example is in many ways typical for how we conceive the problem: we have simple integrations internal in single frames, and then in some cases blending in the integrations across frames.

Compounds manifest all possible combinations of this frame's component elements, but given a specific event and a specific focus, one cannot use all elements as the specifying term. Which element that takes the place of X is determined by the structure of the event and the type of focus. For instance, if the focus is on the intentional act, the result will be the specifying principle. This is also the case if we have a pure schematic act, i.e. if $(act)_n$ has a schematic meaning with no goal implied. However, if $(act)_n$ implies a goal, then the object will contribute the figurative integration as in 'bear hunting;' if on the other hand, $(act)_n$ both implies the act and the result, then the agent will be the specifying factor, etc. In short, the logic of compounding within a single event frame is highly dependent on the type of verbal meaning activated by $(act)_n$.

2.4.2 Agent → act → instrument → object/patient → result/goal

Let us now look at a very productive frame in which we have an instrument, i.e. we have an "energy flow" diagram of the following sort: agent → act → instrument → object/patient → result/goal. According to the above principles, focus can be distributed over different component terms, and different component terms may

correlatively specify aspects of the profiled event. If we focus on the instrument, almost any element in the energy string can be used for integrating the instrument into an event frame. Take 'knife' as an example: 'butcher knife' takes the agent as the salient feature, this is a knife used *by* a butcher. 'Meat knife,' 'fish knife,' or 'bread knife' specify (as objects) 'knife' as en element of a scenery in which meat, fish, or bread are cut into smaller pieces. In the Danish compound *filleteringskniv* (litt. filleting knife), it is the act itself that specifies the frame as a predication of a special of processing fish. Also the result can integrate the instrument as in 'coffee machine' where 'coffee' refers to the final product of the process, or in 'sleeping pill,' etc.

If the object is the focus of attention, we have cases like 'beef cattle,' where the integrating term refers to the result. In this case it is only because of cultural knowledge that we are able to have a weak reference to the full event frame (cattle is a cultural object implying a *cultivating* act, and the beef is the result). In the Danish compound *slagtekvæg* (litt. 'slaughter cattle'), we have an example of integration with the act, although in this case it is a verb-noun compound. It is predictable that if there is focus on the object/patient, then the specifying term will mainly be $(act)_n$ or the purpose, certainly not the agent (the instrument does not seem to be suitable for specifying the object).

The act is a frequent focus of attention, and it can be integrated with the instrument, the object, and the result. In 'knife attack' and the Danish *ovnstegning* (roasting, litt. oven frying), it is the instrument that integrates the event and provides a richer imagery to $(act)_n$. In 'pig killing' it is the object and in 'cake baking' it is the result. Again, it is predictable that no integration with the agent can activate the whole frame unless in very contextual determined meanings. One can imagine a term like 'Smith baking,' meaning a special kind of baking that only Smith performs. But in general we can say that for Agent-$(act)_n$ compounds the instrument, the patient and the result is left unspecified as in 'peasant rising.'

2.4.3 The teleological frame of purpose-oriented action

A widely used event frame is the teleological frame of purpose-oriented action. We have already touched upon it above: it has the special merit that the 'circular' teleological structure (aiming at some purpose already present from the beginning) permits further 'roles' (or as we have it in Europe, 'actants') to be made explicit if necessary (e.g. instrument, anti-subject, raw material, result (in so far it differs from the intended result)). Thus, the teleological schema can be represented in a compound picking two salient points of the schema in question, referring to the one (Y) and characterizing it by means of the other (X)

This yields the overall structure: *X* refers to (part of) Y's function, production, use, purpose, etc.

Examples: 'house boat,' 'boat house,' 'war machine,' 'beer can,' 'can beer,' 'US army,' 'police station,' etc.

Compounds exploiting this frame probably constitute the most comprehensive category of all compounds, because the *X* of the construction refers to potentially any part or aspect of teleological processes, be it purpose ('sleeping pill'), raw material ('meat grinder,' 'salt mill,' 'lamb steak,' 'pig slaughter'), the process itself ('filleting knife,' 'slaughterhouse'), the agent for the process ('masterwork,' 'scout knife'), the tool used ('pancake,' 'gun wound,' also referring to energy source: 'water mill'), what should be fought (the anti-subject of the process: 'fire station,' 'error seeker,' 'insect poison'), recognition of the result ('prize question,' 'award winner').

Conversely, the *Y* may refer to any aspect of the process as well: purpose ('pill sleep'), raw material ('input-data'), the process itself ('pig slaughter'), the agent for the process ('cod fisherman,' 'award winner'), the tool used ('golf club'), the anti-subject ('monster fire'), the recognition of the result ('butcher award').

All in all, this points to the fact that *X* and *Y* may combine aspects of a teleological process freely. Behind this maybe surprising fact lies a detailed and well-ordered schema of teleological processes. Many authors have touched upon various aspects of such a schema. Consider, e.g., Lakoff's (1987) source-path-goal image schema as a basic structuring of all teleological (and hence functional) action, or Greimas' (1979) 'narrative schema' taking a narrative molecule of action to comprise the following actants: a Destinator defining the aim of the process and selecting an agent to perform it, a Subject performing the act, a Helper instructing the Subject and giving him some effective Tool, an Anti-Subject trying to prevent the act, an Object that the Subject is supposed to acquire as a result of the act, and finally a recognition awarding (or punishing) the Subject for the result of the act.

The apparent confusion, which may strike the eye when seeing the amount of possible combinations in this category, is highly reduced when we consider the fact that the schema of purposeful action is probably the most widespread schema of all in everyday cognition. Instantiations of this schema are pervasive in human culture, ranging from small, common sense actions and to the complicated chains of intentional actions performed by large sociological and politological institutions. In this case, thus, compounds have the effect of highlighting some aspect of a teleological process (the *Y*) with respect to some other aspect of the same process (the *X*). The apparent complexity in the construction is here counterweighed by the fact that both *X* and *Y* refer to the same underlying action schema. Thus, we can take one and the same *Y* (a mill), and make compound noun constructions referring to a whole series of schematic process slots: 'paper mill' (purpose), 'corn mill' (raw material), 'saw mill' (tool), 'water mill' (energy source), 'peasant mill' (agent), 'state mill' (destinator), 'grinding mill' (the process). The slots for anti-subject and recognition, respectively, seemingly have no natural use in this case, but we would immediately understand new compounds exploiting these slots: a purgatory description involving a sinner mill, or the recognition of especially able master mills would be perfectly understandable due to the underlying schema.

The core examples of 'fire station' and 'dolphin safe' analyzed earlier in the paper thus fit nicely into this description of the function schema, and we may outline a subtaxonomy of aspects highlighted as follows:

1) purpose

2) raw material

3) process itself

4) agent

      a) direct: subject

      b) indirect: destinator

5) tool used

6) object produced

7) anti-subject

8) result

9) recognition

Purpose, object, and result should be distinguished: the object produced (pills) may have several purposes (sleep, profit) and results not intended (poisoning, economic disaster, excessive profit...).

In general, specific processes may be described at whatever fine-grained level the organization of the process requires. Lots of elements may be recruited: intermediate products, parts of machinery, lines of command in the work force, different raw materials, distinctions between different purposes of the same process, unforeseen anti-subjects occurring, etc. Due to the (relatively) free combination of subcategories capturing aspects of this process, it gives rise to a number of subcategory combinations (in the vicinity of a hundred) that may seem confusing. They are nevertheless quite easy to process cognitively, because the particular compound prompts the canonical and simpler teleological schema as the

common background for the specific variations. This was indeed what we saw in the cases of 'X station' and 'X-safe.'

3.

There is something almost paradox about calling into question the application of blend-theory on the analysis of compounds. The latter seem, indeed, to be the perfect grammatical counterpart to conceptual integration of mental spaces. They combine two words, they do so without any grammatical marks specifying the combination, and they yield a meaning that cannot be retrieved from the component elements taken separately. In short, they are like linguistic epitomes of blends. What is more, since compounds are not only pervasive, but also invariant as to their form, it seems for the least plausible to infer that the cognitive processing device in charge of their construal is also invariant.

For different reasons, we believe that this conclusion is wrong. On the contrary, we claim for the first that when the signification of a composite term is elaborated within one and the same conceptual frame, blending is not involved. This view implies further that we call into question the general tendency towards considering the partial contents cued by the respective components of, say, compounds as elements to be processed in the *same* way, having invariantly the same semantic-conceptual status, and displaying no internal constituent structure.

As already mentioned, there is indeed something self-evident about dealing with compounds in terms of blending. When we hear, say, 'doghouse,' we do hear 'dog,' we do hear 'house,' and we do combine the two. Yet, this self-evidence is critically dependent on the very restricted theoretical viewpoint invariantly taken by blend-analysts. We call it the 'hearer's point of view', or the "problem-solving stance.' In fact, blend analyses consider meaning construal related to compounds from the exclusive point of view of a hearer experiencing such expressions, and

consider it, what is more, as an interpretive problem pertaining exclusively to the level of linguistic expression, that is as triggered by the mere fact that certain expressions are composite.

The shortcomings of this assumption become clear when, instead, we approach the issue from the point of view of the communicating person, assuming that what characterizes the *construal* of compounds also characterizes their *construction* (otherwise we would have to create two departments for semantics, one for reception, another for production of meaning). From the producer's point of view, it seems for the least awkward to say, first, that he localizes a distinct and experientially completely integrated item in the world he wants to communicate something about, say, a doghouse; and that, next, his cognitive system somehow recognizes that this item is linguistically expressed by a *complex* term; that, further, the cognitive system—despite the integrated character of the experienced object, and on grounds of the complexity of the linguistic expression—displays two disparate mental spaces ('dog'/'house'), and eventually 'runs the blend' in order, as it were, to know what it is speaking about.

Moreover, imagine now a conversation between an American and an Englishman, both dog-enthusiasts. They are keenly interested in the architecture of those small houses where dogs sleep at night and gnaw their bones during the day. These are called doghouses in American English, whereas in British English they are referred to as kennels. Should we infer from this that different types of mental processing are going on in their respective heads while they chat, one of them producing complex expressions and processing simple expressions, and vice-versa for the other?

The reason why blend-analyses are led astray in this way is most probably that their point of departure is the linguistic phenomenon and, thus, the in many cases entirely contingent fact that this phenomenon is a composite expression. They seem, wrongly, to infer from the complexity of the expression to the complexity of the underlying experience and conceptualization that the expression evokes. Our

point of departure is the opposite. In a standard cognitive linguistic way, we consider the linguistic level as grounded on an experiential level. We therefore consider that the semantic contents of an expression should be defined in terms of the cognitive representation the expression evokes. This is the reason why we distinguish between semantic contents that evoke clearly experientially integrated phenomena—independently of their linguistic expression—such as doghouses, birthdays, coffee machines, beer cans, police stations, strawberries, fingernails, and streetlamps, and contents (perhaps triggered by the very same words, but in other, metaphoric contexts) that in some way or another involve mappings between two different conceptual frames.[9]

In conclusion: In a large majority of cases, blending is not an adequate descriptive or explanatory tool, since compounds do not display equiponderant mental spaces to be combined. They are on the contrary *asymmetric* constructions, one term contributing the frame, the other specifying it. We have shown that crucial conceptual structure can be retrieved from the analysis of the *Y*-term, and that this structure can serve as a ground for sound descriptions of the different significations one and the same term can take on either in different settings or in different constructions. We have furthermore pointed to the fact that not only are blend-analyses descriptively poor as regards the semantic characteristics of the compounds analyzed, but they also tend to veil the existence of different types of cognitive operations effectuated on the frames in question.

This is why we prefer the present analytical framework; it provides accurate descriptions of single data; it adapts to general formal features of the linguistic

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[9] Taking integration at the experiential level into account would prevent people from making for the least hasty analyses. If compounds are 'blends' per definition, then 'fingernail' is to be construed on a par with 'mall rat,' even though 'nail' as its immediate predicational scope implies a finger. In fact, the expression would have been a shear tautology, if English had not made the distinction between 'finger' and 'toe.' This explains by the way why the parallel expression 'handfinger' does not exist in English, whereas it indeed exists in languages that do not draw this distinction, as in Spanish, *dedos del pie*, and even French, *doigts du pied*.

expression; it analyzes on both the conceptual level and the level of cognitive processing; it is valid for both production and interpretation of meaning; it captures the different meanings an expression can take on while motivating its use through contrasting expressions; and finally it approaches the phenomenon with respect to the experiential, speechact-interactional and intentional setting in which it occurs.

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