Chapter 6

Conceptual integration

In Chapter 5, it was concluded that a combination of the two approaches discussed there, namely the representational-derivation model and the network-activation model, which takes the strengths of each into account, whilst overcoming their specific inadequacies, is called for. In this chapter, I will propose that the theory of conceptual integration (also called (conceptual) blending) proposed by Fauconnier and Turner (2002) builds on the strengths of previous approaches, whilst also accounting for the creative and innovative online production and comprehension of the novel expressions that fall under the phenomenon of intercategorial polysemy. In this chapter, I will therefore first present an overview of the theory of conceptual integration, and then show how it can be applied to a representative set of English examples of intercategorial polysemy.

6.1 The mechanisms of conceptual integration

In their work *The Way We Think. Conceptual Blending and the Mind's Hidden Complexities* (henceforth TWWT), Fauconnier and Turner (2002) consolidate their own and their co-worker's research on conceptual integration (also called blending) (cf. also Fauconnier and Turner 1998 and 2003). I will use the term **conceptual integration** rather than **blending**, in this thesis as Faconnier and Turner (2002) do in TWWT. The following sections will largely draw on Fauconnier and Turner

(2002), but will occasionally rely on other sources as well. The theory of conceptual integration is complex and large-scale theory on cognitive processing. A full description and evaluation of this theory will therefore not be possible here. Rather, only those mechanisms and aspects of conceptual integration that will be necessary for the analysis of intercategorial polysemy will therefore be discussed here.

Coulson and Oakley (2000: 175) refer to conceptual integration as a "theory of online meaning construction" that combines dynamic cognitive models in a network of mental spaces that allows for the creative construction of meaning in a wide variety of domains. This process of the creative construction of meaning will be explained in the next sections. What is important to note here is that the theory of conceptual integration is not monolithic (i.e. it is variable and flexible) or only linguistic (i.e. it is a general cognitive theory, which is meant to account for a variety of both cognitive and linguistic phenomena). Some of the phenomena in the domain of language and grammar that are discussed in TWWT are:

- Nominal compounds, such as *boat house, house boat* and *jail bait*.
- Adjective − noun constructions, such as *angry man, black kettle, small elephant, fake gun* and *likely candidate*.
- Noun − adjective constructions, such as *child-safe, dolphin-safe* and *shark-safe*.
- Resultative clausal constructions, such as *She boiled the pan dry*.

- Recursive constructions of the form X *to be* Y *of* Z, as in *Ann is the boss of the daughter of Max*.
- Morphological blending constructions such as *Chunnel* (from *Channel Tunnel*).
- Caused motion constructions, as in *He sneezed the napkin off the table*.
- Fictive motion constructions, as in *The mountain range goes all the way from Mexico to Canada*.

Subsequent research by various scholars has added significantly to the range of both linguistic and non-linguistic phenomena accounted for by conceptual integration (cf. www.blending.stanford.edu). According to Fauconnier and Turner (2002: 143), polysemy is "a standard by-product of conceptual integration, but only noticed in a fraction of the cases". The main purpose of this chapter will be to ascertain whether conceptual integration as a theoretical model of online meaning construction can therefore account for both the interpretation and production of intercategorial polysemy.

In TWWT, Fauconnier and Turner (2002) present a series of linguistic phenomena (summarised in the list above). By showing how conceptual integration accounts for each of these examples, they gradually build up the theoretical mechanisms needed for the comprehensive theory of conceptual integration; from data to theory so to speak. In Section 6.1 I will, however, follow the opposite approach, by first

presenting the theoretical mechanisms and their interaction, and then applying the theory to specific examples of intercategorial polysemy (in Section 6.2) to establish the ability of the theory to account for these examples.

The overall mental operation of what is called conceptual integration or blending in TWWT, can for the purposes of this discussion, be broken down into three distinct phases, namely the activation phase, the matching phase, and the running-the-blend phase. It is however, very important to note that that these phases happen more or less concurrently, in parallel and at lightning speed, and with the various processes supporting and strengthening each other continuously.

In TWWT, Fauconnier and Turner (2002: 40) claim that “in the neural interpretation of the cognitive processes, mental spaces are sets of activated neuronal assemblies, and the [connections] between the elements correspond to coactivation bindings of a certain kind.” This claim is later reformulated as a hypothesis (Fauconnier and Turner 2002: 102) which clearly needs to be tested in neurological terms (cf. also Coulson and Oakley 2000: 182). The need to incorporate a neural perspective on the issues of conceptual integration, mental representation and linguistic creativity, has been alluded to before but falls outside the scope of this thesis.

Before I discuss each of the three phases of conceptual integration in detail, I would like to give a brief example of how blending takes place in an apparently

simple case of polysemy discussed in TWWT (Fauconnier and Turner 2002: 25-26). Consider the adjective *safe* in the following examples, said in a similar context:

(1) *The child is safe*.

(2) *The beach is safe*.

In these examples (taken from the discussion in Fauconnier and Turner 2002: 25) there does not appear to be a fixed meaning for the word *safe*. In (1) the child will not be harmed, and in (2) (being on) the beach will not be harmful (to the child) – it is not the beach in (2) that will not be harmed. *Safe* does not assign a fixed property to the NP (*the child* in (1) and *the beach* in (2)), but instead prompts us to activate scenarios of *danger* appropriate for the relevant noun phrases and the context. *Safe* activates an abstract frame of danger (or harm) with roles like victim, location, instrument and result, amongst others. In Section 6.1.1 the activation of these scenarios, or mental spaces, is discussed in detail. Modifying the noun with the danger scenario prompts us to integrate the abstract frame of *danger* (as a mental space), with an imaginary counterfactual event of *harm* to the child (as another mental space), where the roles of victim and location are assigned to the child and the beach respectively. (In Section 6.1.2 this matching of the elements between various mental spaces will be discussed in detail.) Instead of assigning a simple invariable property, the adjective is prompting the activation of various mental spaces with a specific situation of a child on a beach. The word *safe* implies a contrast (called ‘disanalogy’ in TWWT) between the imaginary counterfactual space (where the child is harmed) with the real situation, where the child is not in

danger. In Section 6.1.3 the ways in which this final blending takes place will be discussed in specific detail. The result of the process of conceptual integration is a so-called conceptual integration network (CIN), which consists of various input spaces, the matchings between them and the blended space. Meaning and understanding is meant to reside in the full CIN and not in any one part of it.

6.1.1 Activating mental spaces

Fauconnier and Turner (2002: 40) (drawing on earlier work on mental spaces, cf. Fauconnier 1988, 1994 and 1997) define **mental spaces** as "small conceptual packets constructed as we think and talk for purposes of local understanding and action". What this means is that knowledge frames that are latent in long-term memory are activated in working memory due to linguistic, physical or contextual prompts. This activation is temporally correlative to the moment and context of thinking, speaking and acting. These mental spaces that are activated as input spaces to the mental operation of conceptual integration are active in working memory, and are connected both to long-term schematic knowledge (called frames, such as the danger frame or the beach frame in the *safe* example), as well as to specific long-term knowledge (such as personal episodic memory). This knowledge is indicated in square boxes outside the CIN in the diagrammatic representations of blending.

According to TWWT, mental spaces are built up from many different sources:

- Conceptual frames like eating, drinking, buying and selling, including the

words and grammatical constructions that are typically associated with them.

- Real-world experiences, such as immediate physical experiences and perceptions, like seeing, hearing, smelling, etc.
- Linguistic input, such as the immediate discourse environment, for example, what is said to us, what we are reading, or what we are saying or thinking ourselves.
- Our personal emotional and bodily states, such as tiredness or arousal.
- Our personal life experiences and history.
- The surrounding culture.

Mental spaces are partial activations that take elements, structure and relations from frames in long-term knowledge. The activations are partial in that only what is relevant to an immediate context is activated. The notion of what is relevant knowledge, or not, in this partial activation of mental spaces will be discussed more specifically where the examples of intercategorial polysemy are discussed. For the purposes of the discussion here, the activation of mental spaces is prompted either by events or by linguistic expressions. It is important to note that the relevant mental spaces are activated virtually simultaneously. Numbering the input spaces in the various diagrams as IS_1 or IS_2 is merely to facilitate reference. The possibility of a random activation of memories or thoughts is not an issue for the purposes of this discussion. For example, in sentence (1) above, only the victim role in the

possible-danger-to-the-child frame is activated, whereas in sentence (2) both the victim and the location role is activated, even though the child is not explicitly mentioned, bearing in mind that sentence (2) is said in the same context where a child is swimming on the beach. Concurrently activated mental spaces do not have to be compatible, in fact, they can be, and often are contradictory and incompatible, as in counterfactual reasoning, where the purpose of the integration is to set up contradictory scenarios (for example, *If I were you, I would resign*). Mental spaces are interconnected, are constantly shifting and are modified dynamically and imaginatively as discourse and thought unfold to find optimal (i.e. the most meaningful and relevant) matches and integration. In this sense it is not strictly correct to separate the processes of activating mental space (under discussion here) and of matching the elements in the activated mental spaces (discussed in Section 6.1.2) – these processes are continually interacting, strengthening and supporting each other. The conceptual frames activated as mental spaces can be at various levels of abstraction or specificity. For example, a generic ‘action’ frame can be activated, or a frame of ‘swimming’ at a very schematic level, or a specific frame such as ‘regularly swimming with my friends and family at my local beach’.

A mental space can therefore consist of elements and relations that are activated simultaneously as a single integrated unit. Mental spaces can contain

- Scales, for example, beaches can be more or less safe.

- Force-dynamic structure, for example, the force of the waves may be dangerous to a toddler but not to a grown man.
- Image schemas, for example conceptualising the coast line as a *line* even though it is not straight, uninterrupted or static (e.g. it is continually changing with the tides).
- Vital roles and relations, such as in the *danger* frame there are relations between the victim and a possible threat or perpetrator, etc.

In the theory of conceptual integration, mental spaces and their various activations and connections are presented diagrammatically by circles and connecting lines as in Figure 6.1 and 6.2. It is important to note that these are a mere diagrammatic representation of complex and dynamic cognitive processes, and have no theoretical import in themselves. Once the relevant mental spaces have been activated, the elements in the mental spaces have to be linked to or matched with each other. This process will be discussed below.

In Figure 6.1 a diagrammatic representation of a conceptual integration is given. It is important to note that in cognitive terms, the various component processes of conceptual integration that are discussed here as if they are separate, are virtually concurrent activations and connections in working memory (i.e. there is no real sense in which the activations, correlations and projections are directional or sequential). However, in terms of understanding the theory, it is helpful to see the

process of conceptual integration as sequential and directional. It is also important to bear in mind that conceptual integration is a dynamic and continuous process, but for the purposes of explaining the theory, we have to take a snapshot of the process at a given time. The diagrams used here, and in the following figures, to illustrate the process are such static snapshots of a continuous, dynamic and ongoing process.

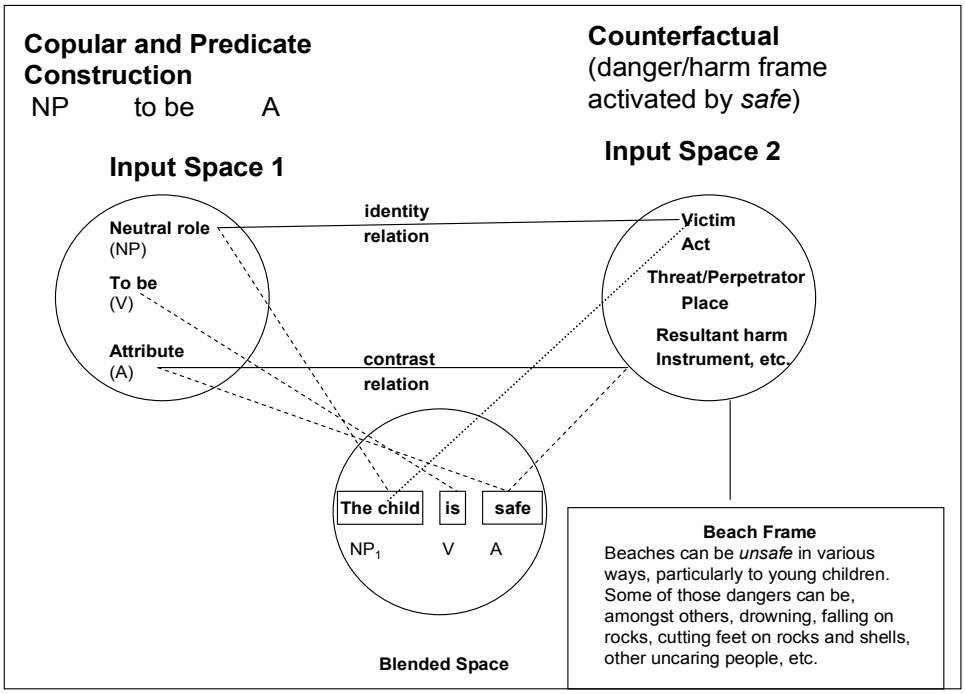

Figure 6.1 *The child is safe*

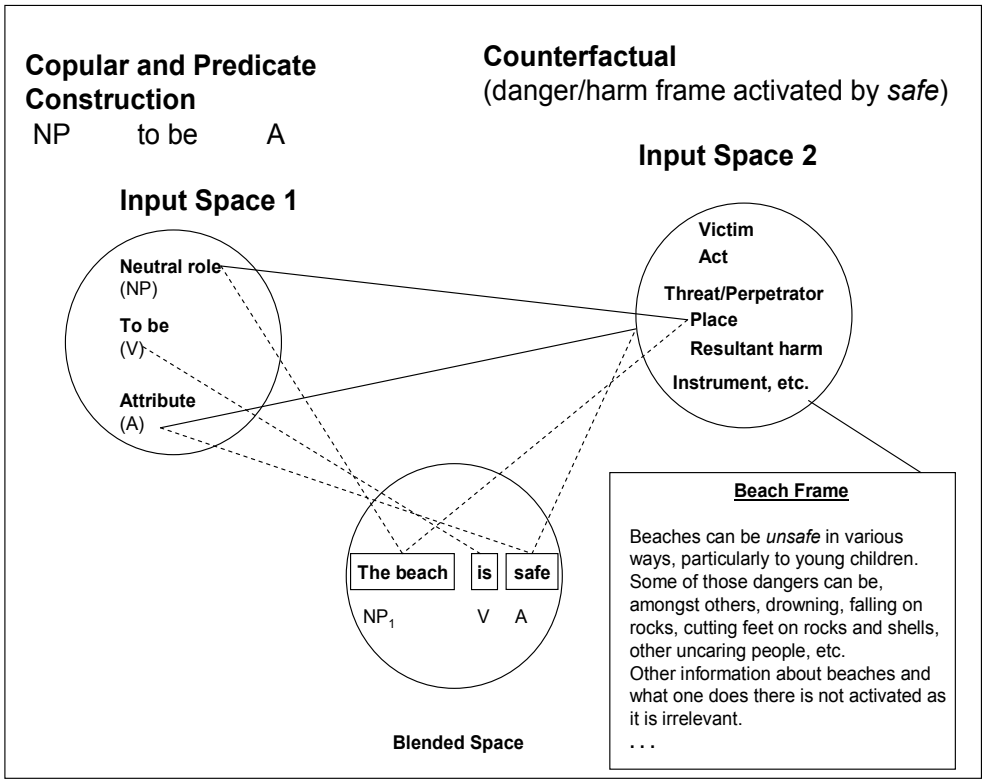

Figure 6.2 *The beach is safe*

6.1.2 Matching elements in the mental spaces

The mental spaces that have been activated in working memory (as described above) are called input spaces. These input spaces are connected to each other. The first kind of connection is between the input spaces where counterparts and matching elements in the input spaces are correlated with each other. For example, in the *safe* example, the child is correlated with its counterpart, the victim role, and the beach with its counterpart, the location role, in the *danger* frame. The second kind of connection is that a new mental space is created – called the

blended space − by the projection of elements and relations from the various input spaces. This projection is selective in that not all roles and relations from the input spaces are projected to the blended space. The various connections between the spaces in TWWT are at different times called, 'matching', 'linking', 'mapping', 'connection', 'correlation' and 'projection', and it is unclear whether Fauconnier and Turner (2002) regard these terms as synonyms and the processes involved therefore as the same basic kind of mental operation. I will refer to the connections between input spaces as *correlations* since the function of these connections is to correlate and harmonise the information in the various currently activated input spaces (indicated with solid lines in the diagrams). Correlations between matched entities can be of various kinds. For example, in Figure 6.1 the victim in IS_2 and the neutral NP in IS_1 are the same entity, referred to as *the child* – this correlation is therefore based on an identity relation. The danger frame, as a whole, in IS_2 stands in contrast to the attribute $safe_A$ in IS_1 and this is therefore a contrast relation. The second kind of connection (indicated with broken lines in the diagrams), I will refer to as *projections* since part of the function of these connections is to create or build a new input space, the blended space. Elements in the blended spaces are in boxes for clarity's sake. This differs from Fauconnier and Turner (2002) who use boxes in the blended space to indicate complex emergent structure. The concept 'emergent structure' will be discussed in Section 6.1.3.

Simultaneously with the setting up of the blended space, another abstract space is set up that tracks the general and abstract structure that the input spaces have in

common; Fauconnier and Turner (2002) call this the generic space. Since the generic space does not play any significant role in the analysis of intercategorial polysemy, nothing more will be said about it here, and the generic spaces will also not be represented in the diagrams here. It is standard practice in TWWT to only represent the most relevant aspects in the discussion of an expression in the accompanying diagram, and particularly the generic space is often omitted (cf. for example Figure 17.2 in Fauconnier and Turner 2002: 377). It might be an interesting theoretical issue to explore whether generic spaces are, in fact, necessary in all cases of blending, or whether there might be some kind of cognitive saving in the more simple cases of blending where there is no need for the tracking function of the generic space. Another aspect of the examples discussed in the following pages is that grammatical issues such as tense and agreement (e.g. the way in which BATSMAN becomes *he* in Figure 6.4) will not be attended to in this study. A conceptual integration network (CIN) therefore consists of at least four mental spaces, i.e. at least two input spaces, the generic space and the blended space. Multiple CINs, or megablends, can be formed in two different ways:

- There can be many more than only two input spaces. The CIN can therefore, be set up with three or more inputs spaces with various correlations between them.
- The blended space of one CIN can form an input space to another, more complex CIN to form a new blend.

According to TWWT there are various *types* of CINs, such as simplex networks, mirror networks, single-scope networks and double-scope networks. This classification of networks is not strictly relevant to the discussion here, except to say that most of the networks in the following discussion are mirror networks. Mirror networks are CINs where two of the input spaces have a similar structure, i.e. where the structure in one input space 'mirrors' the structure in another input space.

The correlations between the input spaces and the projections to the blended space in the CIN are not arbitrary or random (Fauconnier and Turner 2002: 29), but must be systematic and constrained. These constraints will be discussed in more detail in Section 6.1.3. Correlations and projections may be partial and selective but typically reinforce one another; as soon as there are some correlations and projections, it helps to create new opportunities for further correlation and projection. For example, in the *safe* example, it is natural to correlate a child with a victim role in a *danger* frame. The projections are also selective in that the idea of the ocean or the sea water is not projected into the perpetrator role. This is based on our background knowledge in the *danger* frame, namely that perpetrators of harm are usually knowing and deliberate agents, which in the beach scenario is not the case for the water. However, danger may involve more than human victims and perpetrators, e.g. natural threats and risks, such as the ocean itself in the beach frame.

An essential aspect of the cross-space connections for our purposes is what Fauconnier and Turner (2002: 141) call **word projection**. Word projection is the process whereby a word (like *safe* in Figure 6.1) that is associated with any one of the input spaces is projected onto another element in the blend where it can have new meaning. In principle, the notion of word projection as part of conceptual integration provides a basis for the extension of word meaning, and therefore for polysemy. According to Fauconnier and Turner (2002: 277), these meaning extensions "are not sloppy, but make precise and consistent reference possible …extending or modifying the use of a word is not a property of the word *per se* but a by-product of conceptual integration and the fact that words are projected from input spaces to the blend. … Polysemy …is a very common and standard by-product of conceptual blending, but noticed only rarely". The two CINs in Figure 6.1 and 6.2 show how *safe* has two different, but related polysemous senses. In Figure 6.1 *the child*/victim is projected onto NP_1 in the blend, whereas in Figure 6.2 *the beach*/place is projected onto NP_1 in the blend. In all other respects the two CINs are the same; it is this similarity but with the one difference in the projections which accounts for the polysemy of *safe* in (1) and (2) where it has two different, yet related senses.

6.1.3 Running the blend

As was seen in the previous sections, conceptual integration involves the establishment of a set of mental spaces with connections between them, including

the projection of conceptual structure to a new blended mental space. The conceptual structure in this new blended space can be achieved through three different processes, namely composition, completion and elaboration. The structure in the CIN that is the result of, or emerges, during this process of 'running the blend' is often referred to as **emergent structure** and is sometimes indicated by a large square block in the blended space. This emergent structure can be formal (e.g. in morphological and syntactic terms) or it can be semantic or conceptual. These structures are 'emergent' in that they are not strictly derived or derivable from the input spaces, but rely on the more complex and interactive processes of composition, completion and elaboration. Grady (2000: 335) argues that these conceptual terms "have their basis in fundamental aspects of cognition":

- *Composition*: Elements from the input spaces are projected to and composed in the blend providing new relations and connections from the input spaces. For example, in the *safe* example in (1) the victim role and the noun *the child* are both projected into the new blended space and are compressed into one and the same element, i.e. the child becomes the victim in a possible *danger* scenario (Figure 6.1).
- *Completion*: Existing knowledge from long-term memory is recruited to create meaningful structure in the blended space. For example, in the child on the beach scenario we can use existing knowledge (about beaches, the sea, swings and other possible dangers to a child on a beach) to add to the blended space (Figure 6.2).

- *Elaboration*: The blended space can be treated as a simulation of a real-life scenario that can be run or played out in an imaginative way so as to provide inferences, future results and consequences of the scenario in the blended space, which can then form the basis for future action or thought (Fauconnier and Turner 2002: 48). For example, after being told the pronouncement in sentence (2) that the beach is safe (as a swimming beach), a mother might think of reading a book instead of minding the child.

One of the main cognitive processes that are used during conceptual integration is called **compression**. Fauconnier and Turner (2000: 283) defines compression as "a phenomenon that allows human beings to simultaneously control long diffuse chains of logical reasoning and to grasp the global meanings of such chains". Coulson and Oakley (2000: 187) refer to compression (and the opposite process of decompression) as the stretching and tightening of relations between the various spaces in a CIN. A relation of identity is, for example, compressed when the child in the dangerous beach scenario is connected to the victim role in the *danger* frame. Fauconnier and Turner (2002: 92-102) suggest a number of canonical types of compression that routinely effect modifications in CINs, as in the given example where *the child* and the possible victim are identified as one and the same (Figure 6.1).

In terms of the emergent structure and meaning in the blend, it is important to note that any mental space can be modified at any moment, which has resulting

consequences for the overall CIN. Blends are usually novel and generated in the moment of thinking, speaking and interpreting in working memory, but they recruit entrenched mappings and frames from long-term memory. Blends themselves can become entrenched and give rise to long-term conceptual structures (Fauconnier and Turner 2002: 49).

Several optimality principles (or constraints) are suggested to constrain the mental operations at work in conceptual blending (cf. Fauconnier and Turner 2002: 324-325). Optimality principles are constraints that do not operate in an all-or-nothing fashion, but the various principles can either support each other or compete with each other; they can be satisfied to varying degrees or they balance each other out. They are therefore all formulated with the phrase “other things being equal…”. The relative weight of the various constraining principles is guided by the overall purpose of the blend (such as solving a problem, for example, working out if the beach is safe for the child).

For the purposes of the analysis of intercategorial polysemy, the most relevant constraint is the so-called *Unpacking Principle*, which is formulated as follows: Other things being equal, the expression in the blended space should prompt for the activation of the relevant and appropriate input spaces, including the appropriate grammatical constructions, and the connections (both projections and correlations) between them. The way in which the Unpacking Principle functions will become clear in the discussion of some of the individual expressions in Section

6.2. In this section, I briefly gave an overview of the theory of conceptual integration with particular focus on the theoretical mechanisms of the theory that are relevant for the analysis of intercategorial polysemy. The main purpose of the theory of conceptual integration is to account for the imaginative thought processes that allow humans to create novel concepts, also in terms of language, particularly also in terms of traditional **intracategorial** polysemy such as the *safe* examples discussed earlier (Fauconnier and Turner 2002 and 2003), and as such this theory is a strong candidate to account for **intercategorial** polysemy as an example of linguistic creativity. In the next section, the theory of conceptual integration will, therefore, be applied to a set of both conventional and novel examples of polysemous **intercategorial** pairs.

6.2 Intercategorial polysemy as blending

Apart from the general claims in TWWT, i.e. that conceptual integration can account for creative thought in general, and also, by means of word projection, for polysemy, Fauconnier and Turner (2002: 154) make strong and very specific claims about the relationship between grammatical constructions and the CINs that they prompt. Fauconnier and Turner (2002: 154) claim that "…grammar is a set of prompts for guiding us quite precisely in our use of imaginative mental operations." They claim that a specific and recurrent grammatical pattern or construction will prompt for identical mapping schemes that are composed in an identical way, "regardless of whether the ultimate meanings are flatly literal, poetically

metaphorical, scientifically analogical, surrealistically suggestive, or opaque." (Fauconnier and Turner 2002: 154). Variation in the lexical content, the overall context and purpose and the domain of application can change the overall CIN, creating variations in meaning, additional interpretations, and differing global insight, but the basic grammatical form or construction and mapping scheme are tied to each other (Fauconnier and Turner 2002: 158). In terms of the particular example under discussion in TWWT (as in *Ann is the daughter of his boss* in the grammatical pattern or construction XYZ), they claim that it is an "unavoidable prediction of the theory" that "any compound XYZ … should prompt for the same composed mapping scheme, regardless of the nouns in the expression" (Fauconnier and Turner 2002: 155). In other words, expressions like *Paul is the father of Eliza, Zeus is the father of Athena, fear is the father of violence, vanity is the quicksand of reason, causation is the cement of the universe* will prompt for the same mapping schemes as the *Ann*-expression given before because they have the same grammatical structure. This means that no additional mechanisms are necessary to account for the unusual or non-literal cases. They claim that blending is more accurate, more parsimonious and more general than the traditional explanations for compound XYZ constructions, with the additional bonus that metaphorical uses are explained as well. According to them, the general mental operation of conceptual integration does away with a large number of highly specific mechanisms that are meant to account for the deceptive surface characteristics of a phenomenon. The harmony consists in the pairing of the linguistic form, or the grammatical construction, and of the conceptual mapping

scheme in the CIN (Fauconnier and Turner 2002: 159). Because conceptual integration is a dynamic and context-sensitive process, there is, however, not always only a one-to-one mapping between linguistic form and conceptual mapping schemes, which accounts for variations in interpretation.

These statements by Fauconnier and Turner in TWWT can be distilled into the following claims pertinent to polysemy, and particularly, to intercategorial polysemy:

General cognitive claim:

Conceptual integration is meant to account for a variety of phenomena of creative and innovative thought and language, i.e. conceptual integration should also be able to account for linguistic creativity as formulated in this study.

Semantic claim:

Conceptual integration, through the mechanism of selective word projection amongst other things, accounts for the extension of word meaning as seen in polysemy. If intercategorial polysemy is a more specific form of polysemy, conceptual integration should be able to account for intercategorial polysemy as well.

Grammatical claim:

A specific grammatical construction or pattern will prompt the activation of similar mapping schemes, regardless of whether the expression is literal or metaphorical. If this is the case, then all the instances in English where nouns are used as verbs in both transitive and intransitive constructions, should prompt for identical mapping schemes. Metaphorical instances based on the same grammatical form or construction should use the same basic mapping scheme as the literal instances.

Particularly, the semantic and grammatical claims are strong and falsifiable predictions that will be explicitly tested in the next section against the same data that was used in Chapter 5.

In TWWT, Fauconnier and Turner (2002) focus on the notion that both the literal and the metaphorical instances of a pattern can be accounted for in the same way (cf. the discussion of the X *is the father of* Z examples earlier). Within the context of linguistic creativity it is important to note that in similar fashion both the more conventional and entrenched examples (such as *She sliced the apples)* as well as the more creative instances of intercategorial polysemy (such as *He skied it!*) can be accounted for by the same mechanisms. However, questions such as whether result nouns make more natural verbs than locative nouns are empirical questions which were partially addressed by using the typical typological hierarchy in Zawada (1996), but which need further investigation. The exact interaction between

(degrees of) conventionality, entrenchment, naturalness and prototypicality on the one hand, with the online production and interpretation of novel instances on the other hand is, however, an issue that needs further investigation.

In Zawada (1996: 108) it was suggested that intercategorial polysemy can be accounted for by the following hypotheses, which are rephrased here in conceptual integration terms:

a) Typical experiential event frames structure part of our general conceptual knowledge. These typical event frames can be regarded as equivalent to the mental spaces in the conceptual integration model. An important aspect of these event frames is that they include all the participant roles that take part in an action or event, and that they have phonological word forms (but not traditional full lexical entries) associated with them. These event frames can be more or less schematic, with more or less specific information connected to them.
b) The event frames are constantly **adapted** by cognitive processes such as metaphor and metonymy, which means that meaning is a "process of **construal** that is repeated in each and every individual (linguistic) event or situation" (Zawada 1996: 108) [my emphasis – BEZ].

The hypothesis in a) turns out to fit in exactly with the theory of mental spaces as it is set out in Section 6.1.1. The hypothesis in b) is compatible with conceptual integration, but the correlations and projections as set out in Sections 6.1.2 and

6.1.3 provide specific claims as to how exactly this 'adaptation' and 'construal' takes place.

In the following sections the theory of conceptual integration will be applied to a set of expressions ranging from the conventional to the creative. The expressions are divided into literal, i.e. non-figurative, and metaphorical and metonymical, to enable the testing of the grammatical claim in TWWT that metaphorical cases should be handled in the same way as literal cases.

6.2.1 Literal N−V

In the following sections, the literal data is organised into the following subsections: locatives, instruments, results, occupations and human relations (cf. also the similar organisation of the data in Clark and Clark 1979). Nothing hinges on this organisation of the data, as Clark and Clark (1979: 769) put it "these are no more than heuristic devices enabling us to group verbs with similar origins".

Locatives: The sentence given in (3) below is said of a newspaper delivery boy throwing the rolled-up newspaper onto the porch of a house from the pavement, possibly from his bicycle. The linguistic expressions in (3) – (7) below typically represent the English transitive construction NP_1 V NP_2 (Taylor 1991: 206-210), where NP_1 denotes the agent of the action and NP_2 the patient of the action. In the examples below, the noun that is used as a verb is a noun that is typically associated with the place of the action or event. For example, in a schoolboy-

newspaper delivery frame, newspapers are typically left on the porch; also books are typically stacked on a shelf, and porcelain crockery is typically kept safe in a cupboard. Zawada (1996) found that the degree of typicality of the association between a nominal entity and the action or event plays a large role in intercategorial polysemy. In the newspaper-on-the-porch example, it is the specificity of the newspaper-delivery frame (including such aspects as that the act is a daily and boring routine for a schoolboy) that determines which aspects of the porch are relevant to the interpretation. It is, for example, not primarily the abstract and general frames of either newspapers (as rolls of printed paper which contain the latest local, national and international news) or of porches (as the protected access to a house with a front door), but a very specific and detailed action frame (which may not even be familiar to all people). These examples are not metaphorical in any way.

(3) He porched the newspaper.

(4) She shelved the books.

(5) She cupboarded the china.

(6) Kallis middled that one.

(7) He skied it!

If a conceptual integration network is constructed for the example in (3) there are two input spaces which share an organizing frame and a blended space. Conceptual integration networks that share an organizing frame are called mirror networks. The mirror network for the interpretation of the expression in (3) is represented in Figure 6.3 (cf. Mandellblit 2000).

The cricket examples in (6) and (7) are slightly different from the examples in (3) – (5), in that they can be interpreted as either place or instrument (the *middle* of the cricket bat in (6)), or place or result (*sky* in (7)). As was mentioned before, the organisation of these examples into locatives, instruments or results is merely for the sake of convenience; nothing theoretical hinges on this organisation. One of the main findings in both Clark and Clark (1979) and Zawada (1996) is that any nominal participant role that is typically associated with a particular action *with the exception of the typical agent and patient* can be used as a verb. In the examples below in (3) (a) – (7) (a) the patients are used as the basis for the verb and the examples are not interpretable or even grammatical; except perhaps for (3) (a) where newspaper is interpreted as an instrument or an result, but not as a patient; (4) (a) can also be intepreted as meaning 'she filled the shelves with books' where the shelves become the patient and the books become a means or an even and instrument by which the filling is done. Another finding in Zawada (1996) is that the choice of which participant noun is activated as the verb, or projected to the verb position, follows a (reversed) typical typological hierarchy (cf. Croft 1990):

(3) (a) *He newspapered the porch*.

(4) (a) *She booked the shelves*.

(5) (a) ?*She china-ed the cupboard*.

(6) (a) **Kallis balled the middle*.

(7) (a) **He balled the sky*.

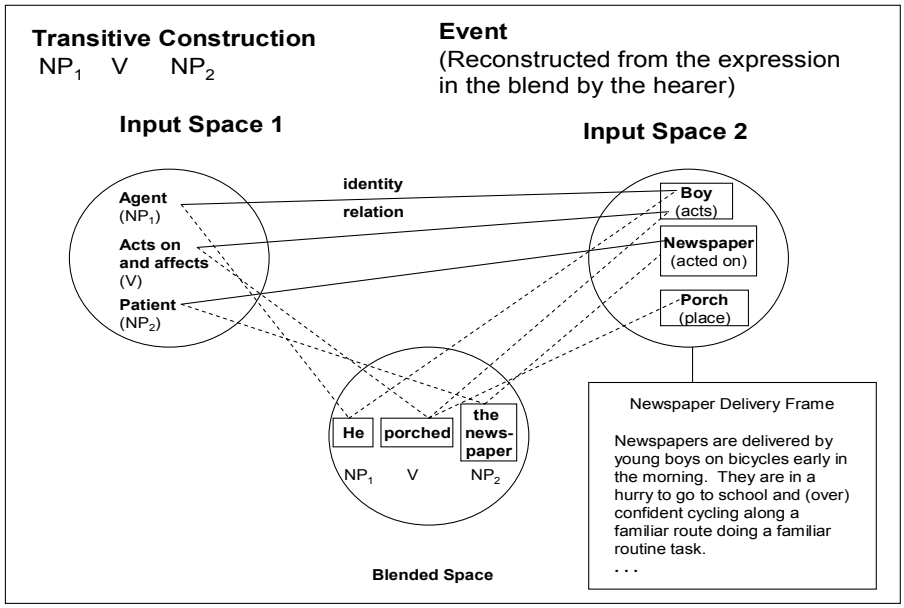

Figure 6.3 *He porched the newspaper*

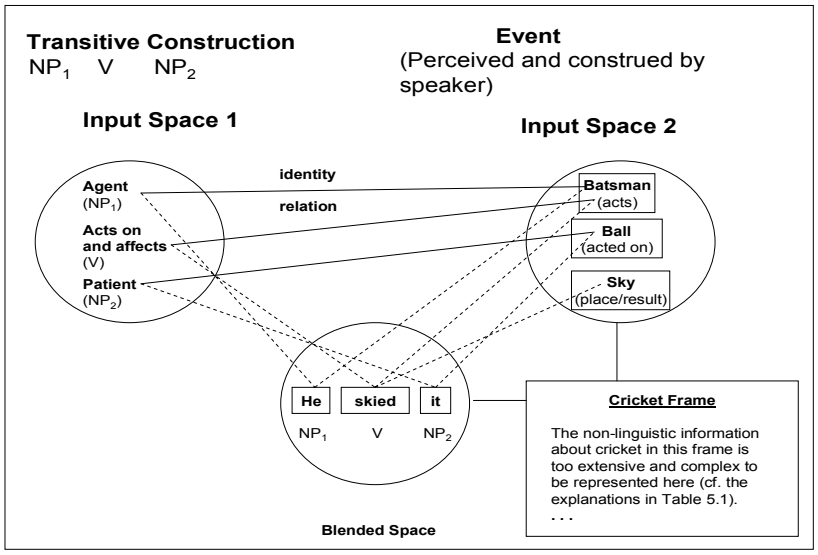

Figure 6.4 *He skied it!*

For the hearer, the linguistic expression *He porched the newspaper* in (3) prompts the activation of the first input space in the form of the typical NP_1 V NP_2 construction in the example which is semantically associated with the typical idealised event frame with its associated participant roles, such as amongst others, agent and patient, as well as locative. The agent in IS_1 that carries out the action on the patient NP_2. IS_2 represents the event that the hearer is able to reconstruct on the basis of the expression and specific background knowledge in the form of a newspaper-delivery frame. *He* is projected to the blend with *the newspaper* as NP_1 and NP_2. The V is projected from IS_1, and the word for the place in IS_2 is projected to the V slot in the blend by means of word projection. Since the effect of this particular action (which would typically be associated with a verb) is to cause the newspaper to be a in specific location (which is typically expressed by a noun), the compression of the cause and effect in the blend explains the interpretation of *porched*$_V$. It is clear that the other locative examples above will follow the same pattern of conceptual integration. These examples are interpretable in a straightforward way since the optimality constraints are satisfied; the most important being that the blend alone can support the unpacking of the entire CIN, i.e. the expression in the blend can prompt the activation of the relevant background knowledge in order to construct the input spaces that are necessary to construct a CIN. Recall that the 'meaning' of the expression is said to reside in the full CIN, not in any one part of it. For the hearer, the novel cricket example in (6) and (7) can be handled in a straightforward way using the same basic mirror integration network (cf. Figure 6.4 for *He skied it!*).

One of the problems that were identified with the network-activation model in Chapter 5 was that it cannot explain the production (as opposed to the interpretation) of completely novel instances of intercategorial polysemy. The question is now whether the theory of conceptual integration is able to do so. To produce the novel instance *He skied it!* in (7), the commentator as speaker had to perceive an event on the cricket field. The perception of the event prompts for the activation of the event frame and its associated grammatical construction (as IS_1). A grammatical construction typically associated with an action such as hitting a ball in the event frame in IS_2 is the transitive construction NP_1 V NP_2. The correlations between the input spaces, the setting up of the blend and the projections to the blended space will proceed in the same way as for the interpretation of the sentence by the hearer (Figure 6.4). It is clear from this explanation that conceptual integration can, in fact, account for the production of genuinely novel instances of N−V polysemy. It does so simply and elegantly without additional mechanisms, but merely by recognising that speakers and hearers are prompted to linguistic action in different ways: speakers are prompted by events which direct them to set up conceptual integration networks that lead to the production of an appropriate linguistic expression (in the blend), whereas hearers are prompted by an already produced linguistic expression in the blend to set up conceptual integration networks that lead to the interpretation of that linguistic expression. As was mentioned before, it is important to remember that meaning resides in the full integration network, not in any one space, and not in the blend on its own either.

Note that a different grammatical construction may have been activated. For example, the caused motion construction NP_1 V NP_2 PP may have been activated and projected to the blend, in which case a different expression such as *He hit the ball into the sky* would have resulted. In this case there is no intercategorial polysemy and not much creativity. It is interesting to note that the context of a particular game and the time pressures of sports commentary might favour shorter, in this case creative, expressions, as opposed to longer, more conventional expressions. The way in which cognitive motivations such as economy interact with conceptual integration and may influence linguistic creativity needs further investigation.

Instruments: Expressions in which an instrument is used as a verb also follow the typical transitive pattern with its typical idealised event frame which is set up as IS_1 (cf. Figure 6.5). Examples of this type of conceptual integration are:

(8) She ladled the soup into the bowl.

(9) He hammered a nail into the plank.

(10) He sailed the ship / The ship sails.

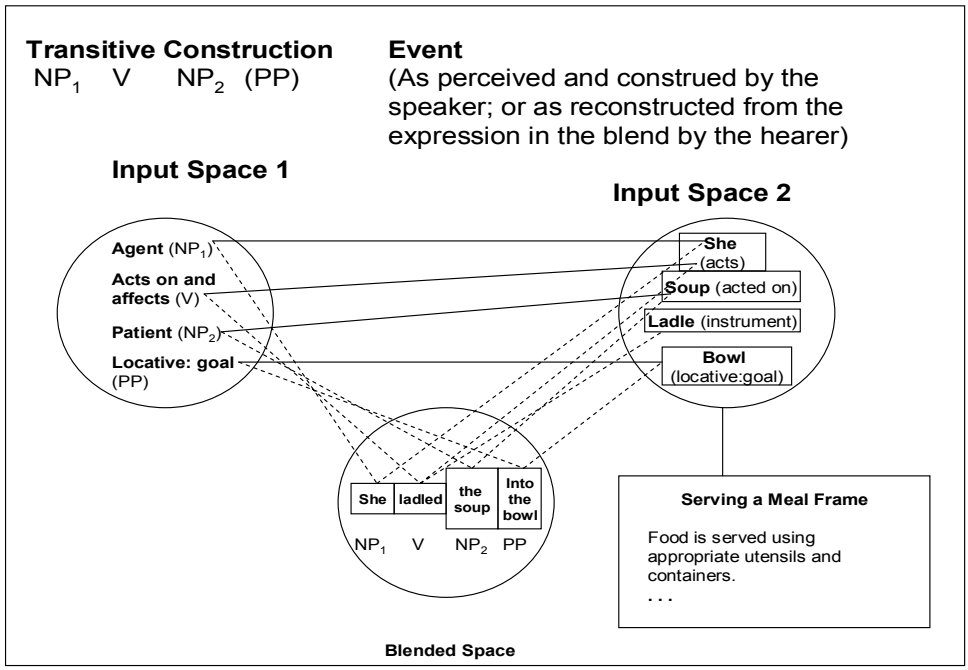

Figure 6.5 *She ladled the soup into the bowl*

In this network, NP_1 as the agent and *she* are connected in IS_1, IS_2 and the blend; the V in IS_1 is connected to the action in IS_2 and is projected to the V in the blended space; NP_2 as the patient and *the soup* are connected to each other in IS_1, IS_2 and the blend. In this case, the locative: goal *the bowl* in IS_2 is also projected to the blend. This CIN illustrates the idea that mental spaces can have force-dynamic structure (the soup gets poured into the bowl), as well as image-schematic structure (represented by the *into* which indicates that the plate is a container). The example in (9) shows that various participant roles in the idealised event frame in IS_1 can be projected to the blend; in this case it is the instrument *hammer* that is projected to the V in the blend. Recall that the input spaces are partial activations,

and even though our extra-linguistic background knowledge includes information about all the typical, and even atypical but possible, participants in an event, not all that knowledge is activated in all cases. Extra-linguistic background knowledge is indicated in the figures in square boxes to the side of the input spaces. Zawada (1996) also showed that the choice of participant roles to be projected to the verb follows a typical typological hierarchy.

The examples in (10) *He sailed a ship* and *The ship sails* shows that the instrument *sail* can be projected to the blended space in a CIN where the input space representing the grammatical construction can be either a transitive construction (as in IS_1 in Figure 6.5) or an intransitive construction as in Figure 6.6 for *The ship sails*.

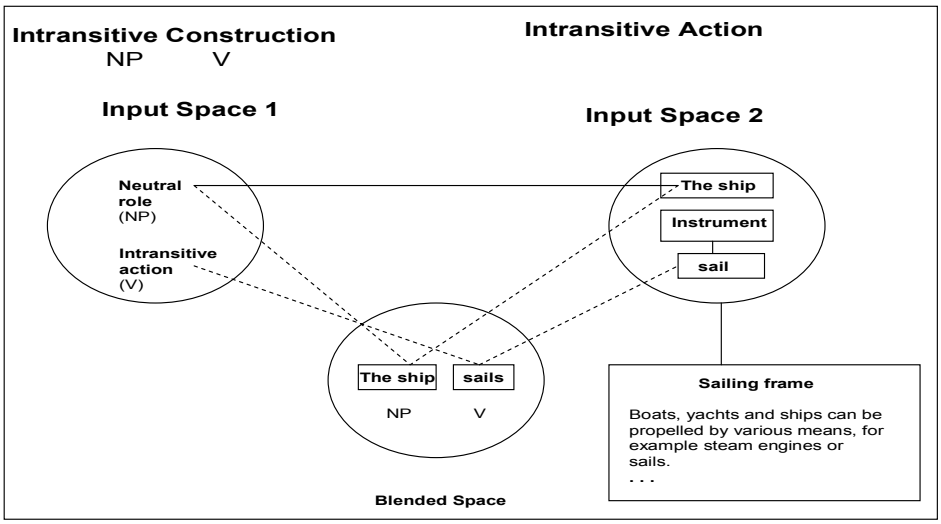

Figure 6.6 *The ship sails*

Production as opposed to interpretation would be handled in the same way as in the examples in Figure 6.3 and in Figure 6.4; in other words the hearer will initially be prompted by the linguistic expression in the blend to set up the CIN (as in Figure 6.3), whereas the speaker will be initially prompted by an external event to set up the same CIN (as in Figure 6.4).

Results: Expressions such as in (11) – (14) illustrate intercategorial polysemy where the result of the action is expressed as a verb. Slices, damage, a flood, and aches only exist after some event or state has occurred that causes the result. For example, cutting an apple (in a particular way) produces slices as in (11), excessive rain or a burst pipe can cause a flood as in (12) and (13) or an injury may cause the pain in (14):

(11) *She sliced the apples*.

(12) *The flood damaged our house*.

(13) *The water flooded the house*.

(14) *My arm aches*.

The compression of the action (as cause) and the result (as effect) motivates the intercategorial polysemy in these cases. Fauconnier and Turner (2002: 322-323) argue that compression is motivated by the conceptual need for human beings to achieve what they call ‘human scale’:

> Human beings are evolved and culturally supported to deal with reality at human scale – that is, through direct action and perception inside familiar frames, typically involving few participants and direct intentionality. The familiar falls into natural and comfortable ranges. Certain ranges of temporal distance, spatial proximity, intentional relation, and direct cause-effect relations are human-friendly. (Fauconnier and Turner 2002: 322)

One of the subgoals of compression is to "go from many to one" (Fauconnier and Turner 2002: 323) which is, in effect, a reformulation of the standard cognitive and functional notion of 'economy' (cf. Croft 1990). Again, IS_1 represents the transitive construction pattern (NP_1 V NP_2) with its associated event frame, and IS_2 represents a typical event, the only difference being that the intransitive in (14) uses a simple NP V pattern. In Figures 6.7 and 6.8 the CINs for the expressions in (11) and (14) are given. Figure 6.8 shows that not all the elements in the inputs spaces are necessarily projected to the blended space.

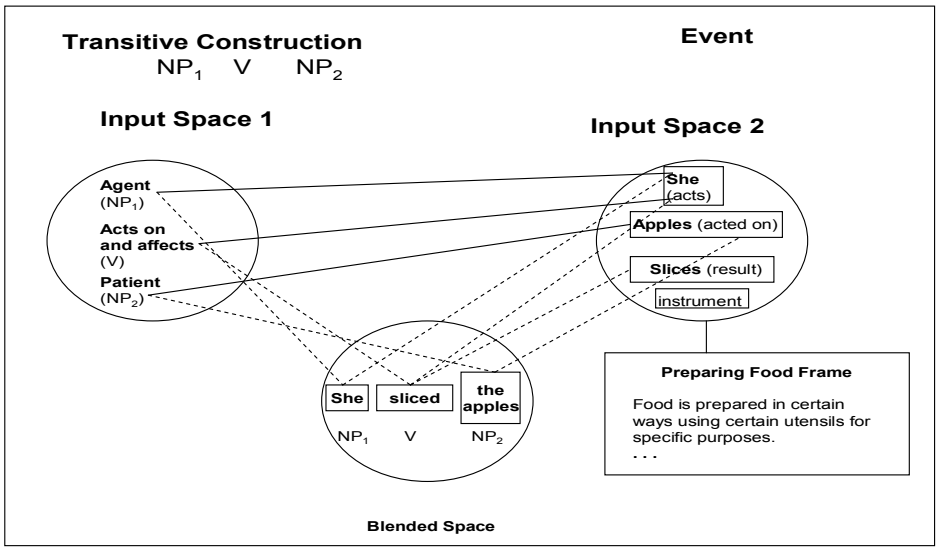

Figure 6.7 *She sliced the apples*

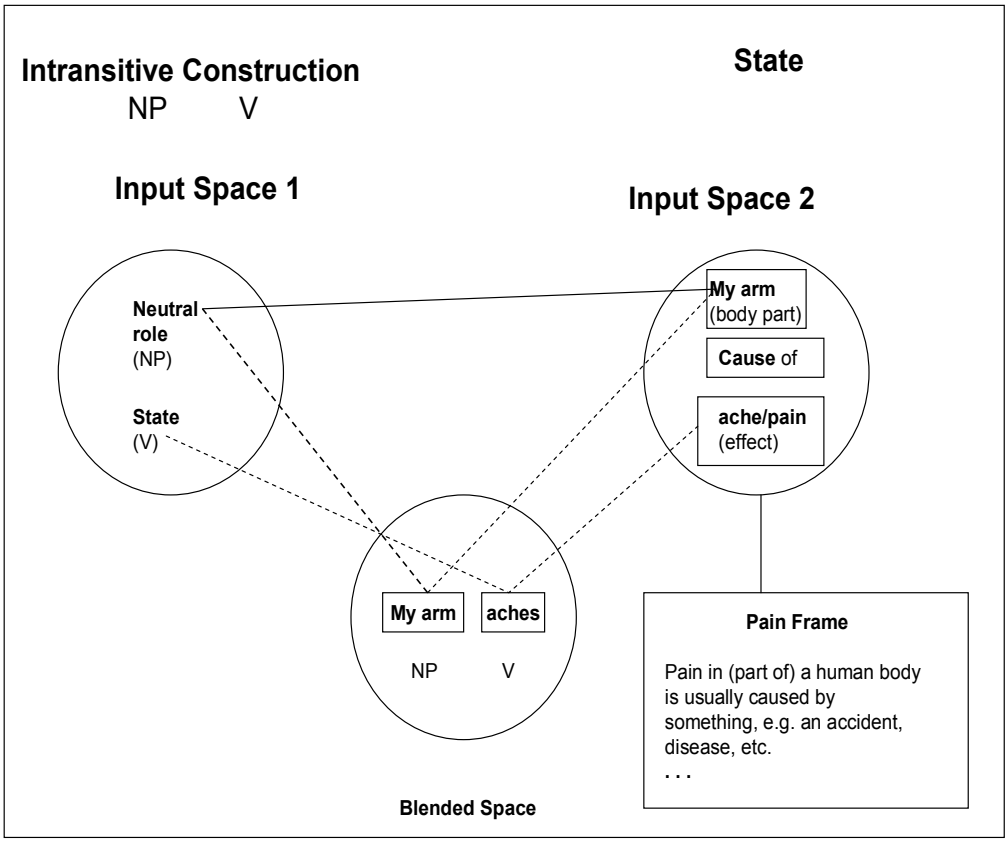

Figure 6.8 *My arm aches*

Production as opposed to interpretation would be handled in the same way as in the novel instance in Figure 6.3 and Figure 6.4. In other words, the hearer will initially be prompted by the linguistic expression in the blend to set up the CIN, whereas the speaker will be initially prompted by an event (as in (11) - (13)) or by a state (as in (14)) to set up a CIN.

Occupations: In the data discussed in Lehrer (1990) and Zawada (1996), there is a small set of words, classified as roles and occupations, which can be used either as nouns or as verbs. Examples include expressions such as the following:

(15) *(a)* *The butcher slaughtered a pig*.

(b) *He butchered the pig*.

(16) *(a)* *The model wears beautiful swimwear*.

(b) *She models swimwear*.

(17) *(a)* *The cook prepared an excellent dish*.

(b) *He cooked an excellent dish*.

In the (b) expressions in (15) – (17), the typical actions associated with certain roles and occupations are named by the word usually associated with the profession. The hearer is prompted by the name of the profession (in the verb position of the NP_1 V NP_2 construction in the blend to not only set up the transitive construction and its associated event frame in IS_2, but to also bring the necessary background knowledge of a particular profession to bear in the CIN (completion of a CIN by additional background knowledge is typically indicated by square boxes alongside the mental spaces) (cf. Figure 6.9).

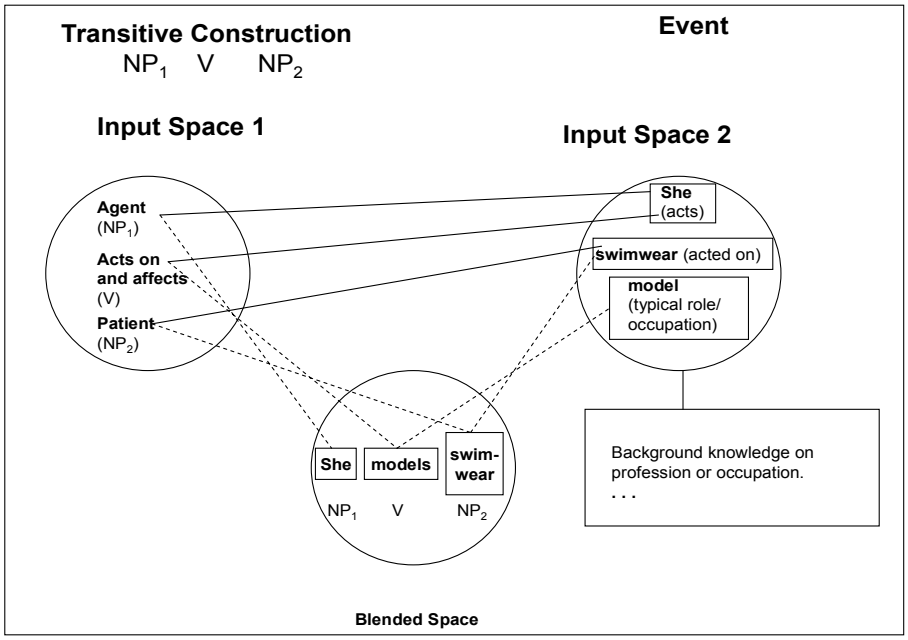

Figure 6.9 *She models swimwear*

Human relationships: In (18) - (20) an individual typically ends up as having a particular role or human relationship as a result of an event or action (Zawada 1996: 112).

(18) *(a)* *He dated that girl*.

(b) *his (blind) date*.

(c) *On this date, we first had a meal together – it was our first date*.

(19) *(a)* *I love her*.

(b) *my love*.

(20) *(a)* *The father has three children*.

(b) *He fathered three children*.

From both the analyses in Lehrer (1990) and in Zawada (1996) it is clear that these examples of intercategorial polysemy are unusual in one way or another. Firstly, this group forms only a very small set, and secondly they are intuitively more complex than the examples discussed until now. These complexities will be discussed for each one of the examples below.

In the examples in (18) there is a relationship between the *date* (i.e. a particular day on the calendar) on which certain typical actions or events took place which are associated with a social occasion and which means that one person *dated* another, which made one person *the date* of the other, and the overall activity was *a date*. This is illustrated in the CIN in Figure 6.10.

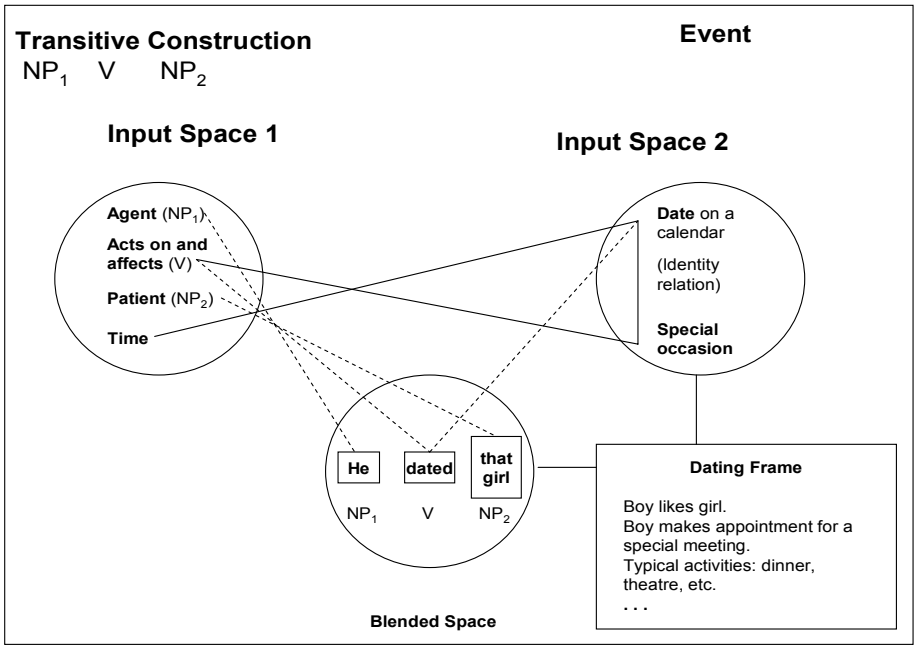

Figure 6.10 *He dated that girl*

It is worth noting two semantic issues that are related to (18)(a), which do not, however, affect the blending analysis. Even though the transitive construction and its associated event frame is set up in IS_1, (18)(a) is not a typical example of a transitive construction; dating does not necessarily imply direct physical contact and is not meant to be an adversative relationship (Taylor 1991: 201). *Dated* as a verb has undergone an additional extension; in addition to the sense 'to take on one date', it can also mean that after several such events over a period of time which implies a long-term understanding between the partners they are now dating, i.e. they are now in a more permanent relationship of some kind. Note, however that *his date* (as in (18)(b)) can only refer to the person taken on one date, and not to a long-term girlfriend. What this shows is that the CINs involved in all of these instances of polysemy are both very complex and interrelated and that by focusing on only one aspect – here the $date_N$ / $date_V$ intercategorial polysemy – one inevitably reduces and simplifies the richness in the semantic possibilities of these lexical domains.

The expression in (19) (b) is ambiguous: *my love* can refer either to the person that is loved, or to the abstract noun denoting the emotion. The CIN for *loving* is illustrated in Figure 6.11. The two different interpretations of *love* as a noun are illustrated by the different blended spaces and projection patterns in this diagram.

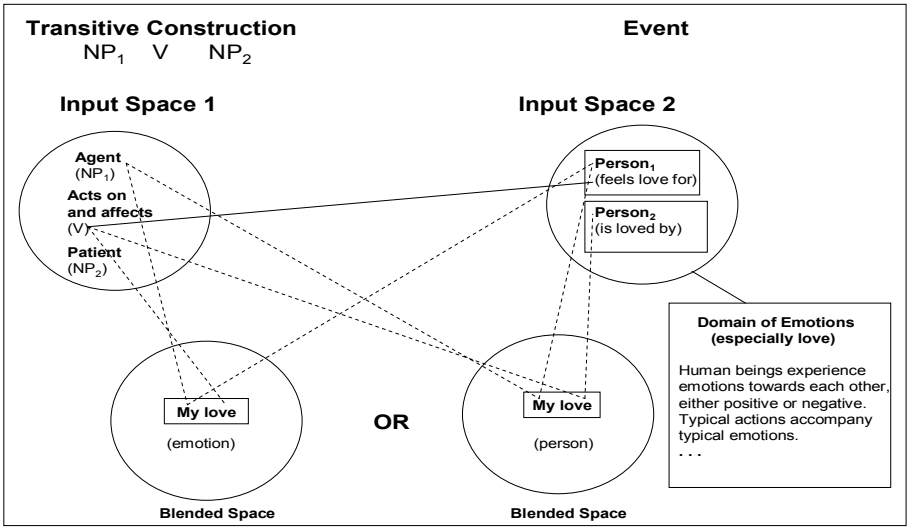

Figure 6.11 *My love*

The examples in (20) (*The father has three* children and *He fathered three children*) reflect a typical pattern of close kinship terms where the nouns can be used as verbs denoting typical actions associated with the particular close relationship. Compare, for example, *mothered, brothered, sistered* and *daddied* (but not **cousined*, **grandfathered*). These latter examples are, in some sense, more similar to the occupation examples, where the role of *mother, brother, sister* and *daddy* exist in society, with their particular typical behaviours of nurturing, looking out for, or cossetting (cf. Lakoff's (1987: 74ff.) classical discussion of the domains involved in out understanding of *mother*). All these actions can be performed without actually officially having this role, for example, a woman can mother a friend without being a mother to her or to anybody else. These latter examples can be explained by the same mirror networks used for the occupation examples in Figure 6.9.

The *fathering* example is also associated with the typical event of conception, with the difference that the event has to take place before the man can be said to have *fathered* anyone. Also, once a male has *fathered* a child, he is always a *father*. Women bear their own children and are always their mothers, but can also *mother* whoever they choose, even without being a *mother*. The *fathering* network is illustrated in Figure 6.12.

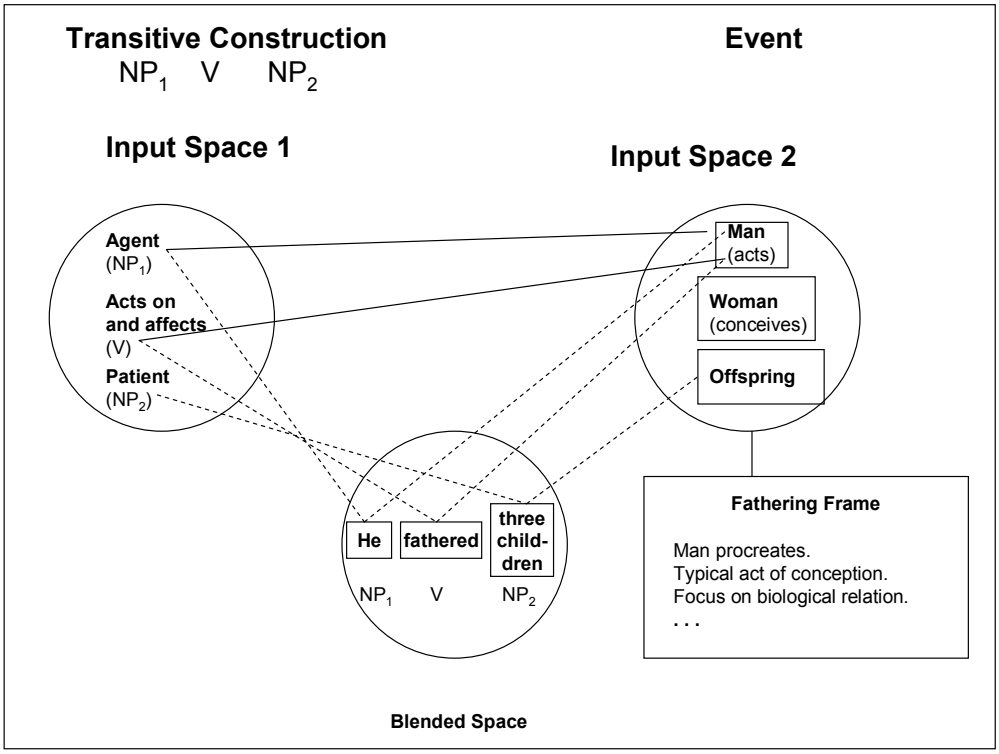

Figure 6.12 *He fathered three children*

From the locative, instrument, result and occupation examples in both the transitive and intransitive constructions discussed here, it is clear

(i) that typical N−V intercategorial polysemy can be explained by using the theoretical mechanisms of conceptual integration,

(ii) that typical N−V intercategorial polysemy (as a grammatical pattern in English) prompts for an identical set of mirror integration networks with similar cross-space mappings and projections,

(iii) that the completely novel production of intercategorial polysemy can be accounted for by acknowledging that speakers and hearers set up the same CINs for the same expressions but that they were are prompted into linguistic action differently: speakers are prompted by events and states that they want to describe or comment on, whereas hearers are prompted by already produced linguistic expressions in the blend that they have to interpret.

In the next section, I will explore the prediction that both metaphorical and metonymical instances of the same grammatical pattern prompt for the same types of networks and connections as the literal instances.

6.2.2 Metaphorical and metonymical N−V

In this section only two sets of examples will be discussed to show that conceptual integration can, in principle, account for both metaphorical as well as metonymical instances of N−V polysemy.

(21) (a) *She put her shopping in the bag*.

(b) *They bagged their seats early*.

In (21) *the bag* is used as a noun in (a) and as a verb in (b). The verbal use in (21)(b) is metaphorical because it means that the seat tickets for a theatre show were bought early, were already in their possession, and are therefore kept safely in a metaphorical bag. In Figure 6.13 the metaphorical N−V network for the expression in (21) (b) is given. In this case, there is a typical mirror network, where the result (of possession) is projected to the blend. Only one additional input space is recruited to explain why having something *in the bag* is interpreted as metaphorical

possession.

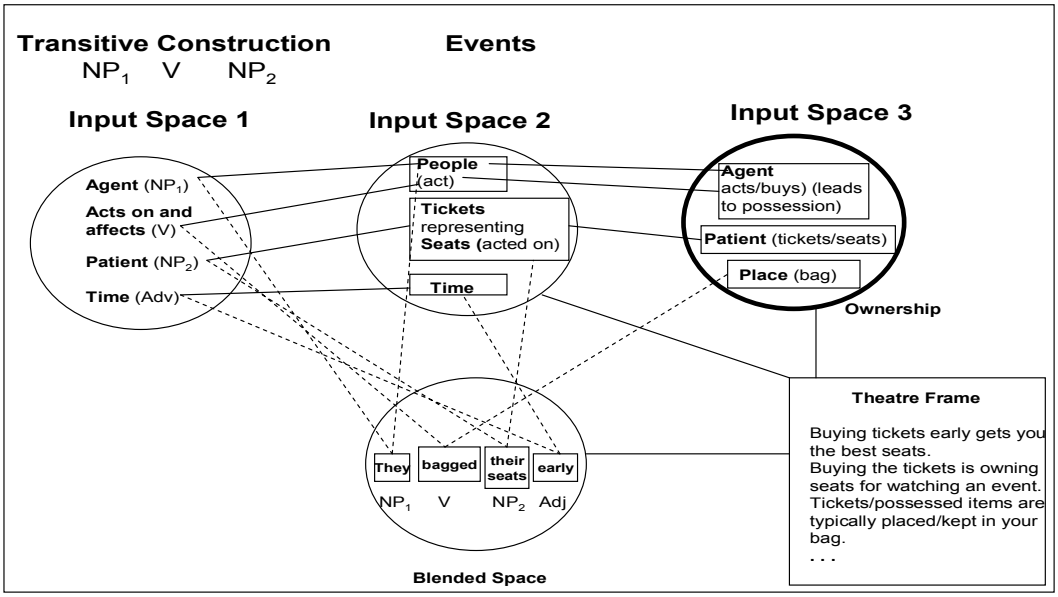

Figure 6.13 *Metaphorical N−V network*

(22) (a) *I saw it on cable (TV)*.

(b) *The TV company cabled our house*.

In the examples in (22) *cable TV* is provided or made available by the physical presence of particular cables in the house. The physical presence of the installed cables in a house metonymically refer to the availability of certain TV networks on the television sets in the house. In Figure 6.14 the metonymical N−V network for the expression in (20) (b) is given. In this case, there is a typical location/instrument network to account for the noun *cable (TV)*. What is clear from these examples is that intercategorial N−V polysemy prompts for the same kinds of mirror networks with the same kinds of connections between them, whether the ultimate interpretations are literal, metaphorical or metonymical. This supports the prediction made in TWWT that metaphorical and metonymical instances which are based on the same grammatical form (in this case N−V polysemy in a transitive construction) should use the same basic conceptual integration network patterns.

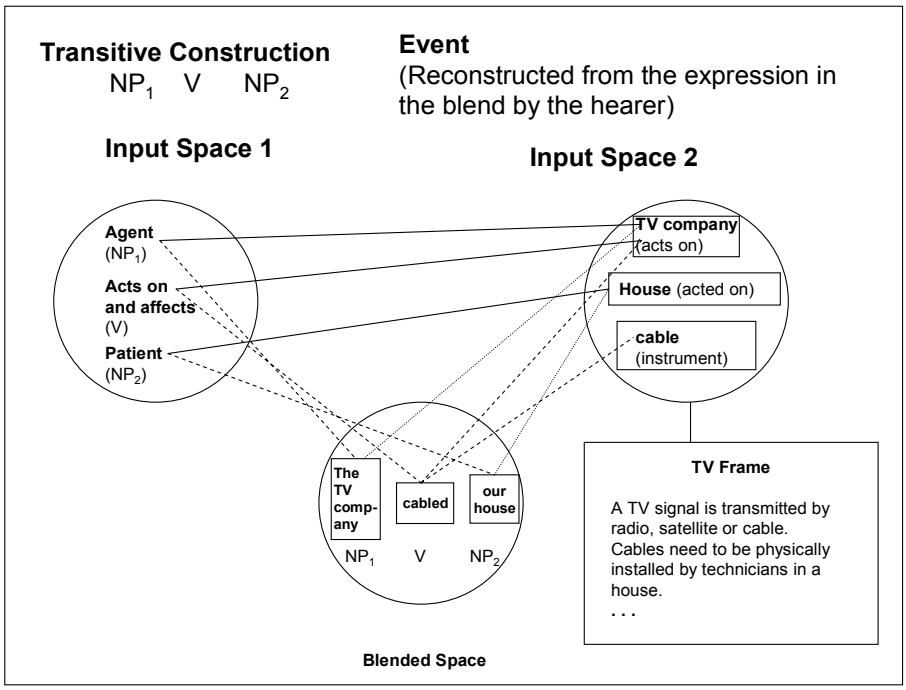

Figure 6.14 *Metonymical N−V network*

In the sections up to now, the focus has been on expressions with both literal and metaphorical and metonymical N−V polysemy. In the next section, I will briefly look at one of the novel examples used as test data in Chapter 5 which includes an adjective in the N−V intercategorial polysemy.

6.2.3 A−N−V

To test whether conceptual integration can also account for intercategorial polysemy involving lexical categories other than verbs and nouns, I will use the

novel example used as a test in Chapter 5 from cricket commentary (cf. Table 5.1 (11) for a full discussion of the meaning of this expression).

(23) (a) *The umpire wided*$_V$ *the delivery*.

(b) The bowler bowls a wide$_A$ *delivery*.

(c) The umpire calls the delivery a wide$_N$.

The expression in (23) (a) is a novel use of the standard cricket term *wide* as a verb. The term *wide* in cricket can be used either as an adjective (as illustrated in (23) (b) or as a noun (as illustrated in (23) (c)). Since the expression in (23) (a) is a completely novel instance produced by a commentator, the focus in this discussion will be on the production of the relevant CIN. The commentator perceived a specific series of events which involved the bowler bowling a delivery with the cricket ball which has the property of being wide according to the rules of cricket. The umpire has the responsibility to judge the delivery as being wide and to call that decision out. In the CIN for the production of the expression in (23) (a) which compresses this series of events into a simple transitive construction, IS_1 is set up as a transitive construction with its associated event frame, IS_2 is set up as an event in cricket in which the bowler bowls the ball with the property of being wide. IS_3 is set up using another typical frame in cricket in which the umpire judges the delivery that was bowled by the bowler in terms of its properties and calls out that decision. Figure 6.15 illustrates the CIN for the expression in (23) (a). This CIN is a typical mirror network in that all three the input spaces share the same structure.

The CIN satisfies the unpacking constraint, since the full CIN can be reconstructed from the expression in the blend alone. It is, however, necessary to mention that for the full interpretation of this expression (in the sense of the commentator blaming the umpire for a poor decision) the recruitment of extensive and specialist background knowledge of cricket is necessary.

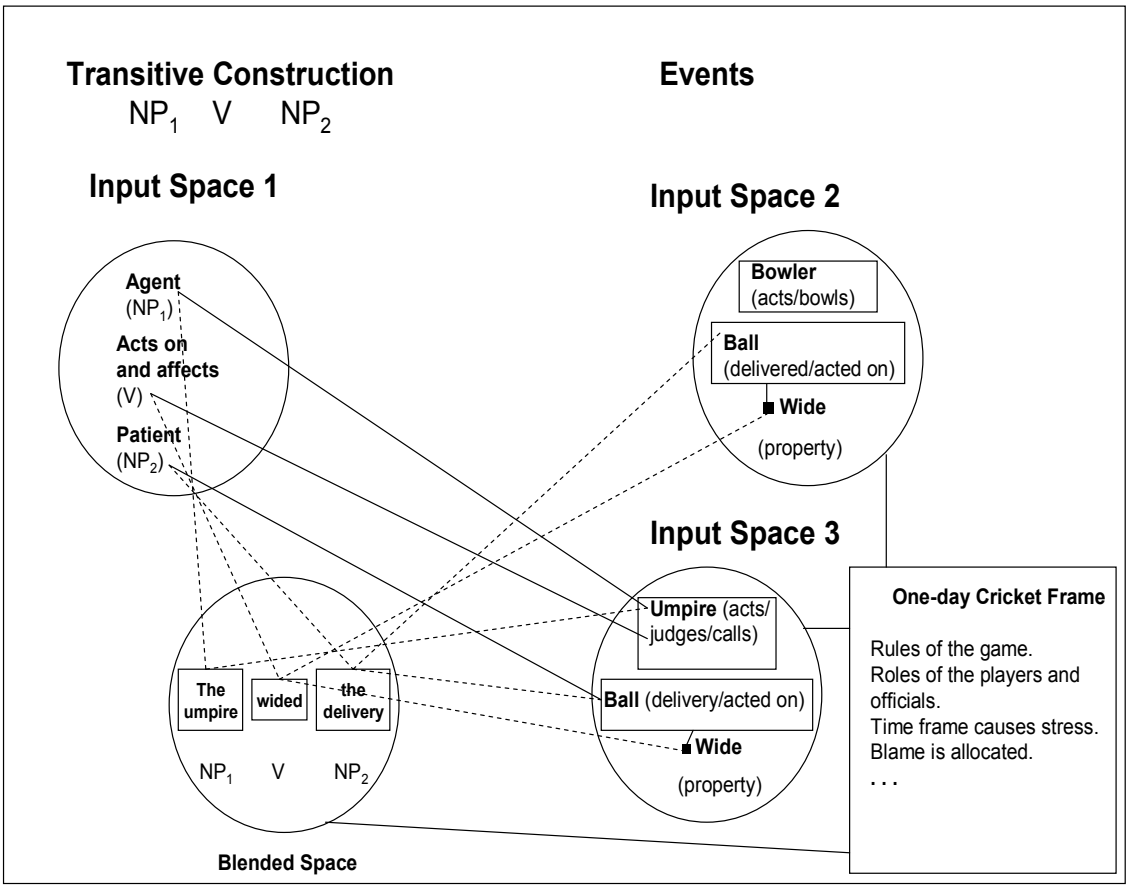

Figure 6.15 *An A−N−V integration network*

The umpire as agent is connected in IS_1 and IS_3 and is projected to the blend, together with the V slot. The patient (*the delivery*), which is connected to the patient in IS_2 and IS_3 is also projected to the blend. In IS_1 the property of the delivery (that it is bowled wide of the permitted area), would normally be represented by an adjective *wide* as in (23) (b). Since the effect (the property of being wide) is caused by the bowler's action, projecting *wide* from IS_2 to the V slot in the blend would be a compression of the cause and the effect for the expression *The bowler wided the delivery*. However, in (23) (a), the agent, *the umpire*, has been projected to the blend, and the agency of the cause is therefore associated with the umpire. Running the blend has emergent meaning, which shows that since the umpire is clearly not the 'true' agent in the action, the umpire is causing not the action of bowling a wide, but may be causing the bowler to loose valuable runs (points) (possibly not deliberately or unfairly, but rather as a result of inexperience, tiredness, or any number of other reasons).

This discussion has shown

(i) that it seems possible, in prinicple, that A−N−V polysemy can be accounted for by the same kinds of mirror networks with the same kinds of mapping schemes that are at work in the earlier examples N−V polysemy,

(ii) that completely novel examples of intercategorial polysemy, which at first glance seem extraordinary and complex because of a change in the agency of the action, can also be accounted for by using the same

principles and mechanisms as for the more typical cases, and

(iii) that by making a distinction in the way in which speakers and hearers are prompted into linguistic action (speakers are prompted by perceiving events or states, whereas hearers are prompted by linguistic expressions), conceptual integration accounts for both the production and the interpretation of truly novel and complex instances of intercategorial polysemy.

6.3 Conclusion

In Section 6.1 of this chapter I have given an overview of the theory of conceptual integration as a possible candidate for being the theoretical model to account for intercategorial polysemy. I have shown that Fauconnier and Turner (2002) make the following claims for this theory:

General cognitive claim:

Conceptual integration is meant to account for a variety of phenomena of creative and innovative thought and language, i.e. conceptual integration should also be able to account for linguistic creativity as formulated in this study.

Semantic claim:

Conceptual integration accounts for the extension of word meaning as seen in polysemy. If intercategorial polysemy is a more specific form of polysemy,

conceptual integration should be able to account for intercategorial polysemy as well.

Grammatical claim:

A specific grammatical construction typically prompts for identical mapping schemes, regardless of whether the expression is literal or metaphorical. If this is the case, then the grammatical structure in English where nouns are used as verbs in both transitive and intransitive constructions, should prompt for identical mapping schemes. Metaphorical instances based on the same grammatical form should use the same basic mapping scheme as the literal instances.

By analysing various examples of literal, metaphorical and metonymical examples of N−V polysemy, as well as an example of A-N−V polysemy, I have shown

(a) that intercategorial polysemy can be accounted for by using the typical mechanisms of conceptual integration such as mirror networks, cross-space mappings and selective projection (cf. the semantic claim);

(b) that the formal patterns of intercategorial polysemy (N−V, as well as A-N−V) prompt for the same kinds of integration networks with the same kinds of mapping schemes (cf. the grammatical claim); and

(c) that both the interpretation and production of completely novel examples of intercategorial polysemy can also be accounted for by using the same principles and mechanisms that were used for the more typical cases (cf. the grammatical claim).

The blending analyses of intercategorial polysemy in this chapter have shown that extensive extra-linguistic background knowledge can be recruited to support the online production and the interpretation of novel instances of intercategorial polysemy. The analyses have also shown that specific words or lexical items that are associated with certain frames and that are activated in the input spaces in CINs, do not need to have a particular syntactic category or word class associated with them. These words inherit a particular status (as nouns or verbs or adjectives) due to the slot to which they are projected in a particular construction in the blended space. This finding is in line with the following view expressed and argued for extensively by Croft (2001: 4) “constructions are the basic units of syntactic representation, and categories are derived from the construction(s) in which they appear…”.