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**Meaning production. Modelling Mental Architecture and Blending**

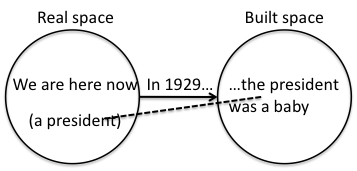
Abstract

In this article, the models of mental spaces and blending proposed by Turner & Fauconnier are revisited in a cognitive-semiotic framework, which anchors all space networks in semiotic base spaces of mental and communicative activity. This move (sometimes termed the Aarhus model) makes it possible to establish a connection to a phenomenologically based modelling of mental architecture for apperception and action planning, and thus to regain a certain scientific realism. Five cases of blending are briefly reviewed: counterfactual conditionality, XYZ, metaphor, hypothesis, and agency.

Keywords: mental spaces, blending networks, space delegation, mental architecture, relevance schemas, metaphor, hypothesis, agency.

1. Space delegation.

The notion of mental space has interested cognitive researchers and thinkers who have found that alternative notions such as ‘mental object’ or ‘mental content’ are more vague and less useful in semantic analysis. A ‘mental space’ is a ‘portion’ (as Umberto Eco would say) of meaning that comes with an internal conceptual structure, a minimum of imagery, and a phenomenological status as a scenario that can be referred to. The present situation of a subject is therefore a mental space, in so far as deixis, a deictic phrase or gesture, can refer to it. Any other scenario or situation is experienced as a mental space when referred to, anaphorically or cataphorically, by some semiotic means, which thereby link a non-present mental space to the present, or to an already established, present-linked non-present space. The procedure of referring to non-present spaces is called *space building* in Fauconnier (1985). The basic representation of space building is a diagram with an arrow from one container to another:

**Fig. 1. Space Building**

Spaces can contain entities, for example persons and functions, and these can either be specific of a particular space or be shared by different spaces. In fig. 1, relative to the mental construction of the sentence “In 1929, the president was a baby”, presidency is a function specific of one space, whereas the filler of the function, a person, is represented in two spaces.[[1]](#footnote--1) The adverbial *in 1929* is a ‘space builder’.

This phenomenon of linking an ‘offline’ space to the ‘online’ space is both trivial and fundamental in human thinking and communicating. Still it is non-trivial to analyse it as a matter of mental spaces, rather than just as a matter of tense and similar verbal morphology, and only recently has attention been paid to the richness of the semantic field it opens.[[2]](#footnote-0)

The pragmatic-semantic background of ‘space building’ is, in our view, the intersubjectivity of enunciation: *I say to you that X*. This implicit ditransitive stance allows a *first person* (P1) to stay in the ‘online’ space while sending off a *second person* (P2) to some other, ‘offline’ space, X. So P2 is an enunciational role that has its base in P1’s space and is delegated by P1 to this other space, X, where P1 currently is not present. In this view, space building is *space* *delegation*.[[3]](#footnote-1) The problem is now to further analyse and classify the pathways of space delegation. Simply put: What sorts of spaces can humans mentally send each other to?

First a formal consideration, which will help us model the mechanism of delegation itself. If, for an entity – such as P2 – capable of moving between spaces, a mental space is cognitively not only a scenarial container, but also a locative attractor, the dynamical topology introduced in semantics by the mathematical philosopher René Thom may offer an adequate modellisation. One of his elementary catastrophes, the *cusp* topology, describes dual attractor conflicts and changes of system states.[[4]](#footnote-2) The convention used lets the attractor minima represent spaces and the system ‘under the influence’ be P2. The path through the control topology represents space delegation (SD); the retroflexed part of the path shows the recursive character of SD.

**Fig. 2. The Space Delegation Cusp**

This enunciational operation, by which a change (by *b* variation while *a* is negative) in the relative weights of the conflicting attractors (Esp P1 and Esp X) ‘sends’ P2 from Esp P1 to Esp X, describes the path of bifurcation from one actant attractor to two, of which one can again allow a bifurcation, and so on, by the recursion called ‘hysteresis’. By contrast, it does not yet describe the *semantic dimension* of the bifurcation, or delegation. The study of innumerable examples shows that at least the following dimensions or delegation types are constantly active in human semiotics and meaning production: delegation by change of *place*, *time*, *voice* (evidentiality)[[5]](#footnote-3), *modality* (including epistemic, deontic, root[[6]](#footnote-4), speech-act), *volition* and *representation* (frozen text worlds, etc.), and finally *activity genres* (games, institutions, discourses, etc.). These types of offline spaces describe the extension of human imagination, as it were. Conditional, counterfactual, fantastic, magical, grotesque, absurd and even totally impossible scenarios and beliefs are perfectly commonplace in human semiotical practice, whether just happening in single minds or shared intersubjectively.[[7]](#footnote-5) Each type of delegation follows a mentally available and potentially shared encyclopedic interpretant, for example a geographical map (of places), a calendar (of times), a sociogram (of voices), a domain map (of modalities), a cultural map (of activity genres). By contrast, on the delegating (P1) side of the process, there is a ‘degree zero’ enunciation space, where speaking, communicating in general, is *internally* unspecified (I am just saying something to someone about things in the world…) – however not externally unspecified, since a semiotic base space is determined on many levels.[[8]](#footnote-6) Here follows a summarizing diagram of the most salient types of delegation, arranged by increasing complexity of the interpretant (Fig. 3).

**Fig. 3. Space Delegation Types**

The six types listed here are by no means meant as exclusive; the list is probably longer and may be conceived otherwise; however, it does not appear to be reducible to a shorter version.

2. Mental architecture.

The content of a mental space is experienced by P2 (and P1) as a mental-phenomenological whole.[[9]](#footnote-7) Hearing the sentence: “In 1929, the president was a baby”, the enunciatee mentally experiences an imaginary scene with a baby starting his political career, maybe by crying in a particularly compelling manner… In fact, when we think of something somewhere, we either vegetate or think *something about it*. We predicate something about our theme, and I think this happens by sending more material along the channel that the delegation opens, so that the X space in question gets gradually ‘filled’ with information of many kinds. We not only set spaces up but also hold them for some time during conversation or just solitary states of pensiveness. The enunciational split between P1 and P2 allows us to mentally play both roles and thus attend to online perception and offline reflection simultaneously, and to stay in both and even in several delegated spaces for a long time, whether we are daydreaming or concentrating on hard theoretical problems, or both. The advantage of holding many spaces in parallel is that we can then from memory or external input recruit and send material from some spaces to others, and revise spaces in the light of such new material.

In particular, our working memory needs to hold recent experiences while feeding prospective and action-oriented spaces from these experiential sources.[[10]](#footnote-8) In an operation of *comparison*, for example, the components of the comparative array are mental spaces held in parallel, while a schematized superposition of these spaces is mentally performed. In a *counterfactual conditional* setup, the factual and the counterfactual components form a network of spaces where a conditional (modal) delegation (protasis) from the factual space leads to another (modal) delegation (apodosis).[[11]](#footnote-9) An example will be given below (3 a). Among other things, we are going to briefly discuss the standard network for structural metaphors (3 c). However, before giving our examples of important network types (3 a-e), we have to situate the semantic content of such mental spaces and networks in a realistic context of human mental architecture.[[12]](#footnote-10) In fact, the possible contents of human consciousness are organized in an ‘architecture’ of levels and connections that we will now consider.[[13]](#footnote-11)

Within a scenario perceived or recalled, or even only imagined, we can move our focus of attention around and also change the conceptual distance to its target (‘zoom in’ and ‘zoom out’). If we pay attention to this semantic mobility of our attention, we will notice that voluntary modifications of its focus tend to happen in qualitative ‘leaps’ between levels of complexity. Whereas the default setting is situational[[14]](#footnote-12) – oriented towards the present spatio-temporal *situation* of the subject – it is trivially possible to only attend to specific *objects* within this scenario, typically for technical reasons: the need for online causal interpretation of present dynamic object constellations.[[15]](#footnote-13) Along the same line, objects can be perceived by their aspects, such as timbre, color, hue, shadowing, tactile character, etc. – what the tradition calls *qualia*. Qualia are essential in aesthetic perception of things. The experience of an object in space and time is a complex result of a mental integration of qualia; a situation is in turn a complex result of a mental integration of objects. In both cases, there is much more in the result than in the ingredients. The organizing process called *Gestaltung* (in Gestalt psychology) adds the cognitive design for an ‘object’, and likewise, on the next level, the cognitive format of a ‘situation’. Objectal meaning includes spatio-temporal constancy (which qualia do not have). Situational meaning includes subjectivity and agency (which objects do not have). Those factors pertain to the sort of structure characterizing each level. There are levels of integration beyond the three mentioned so far. Situations integrate into what I propose to term *notions*; thus, notions are ‘exemplified’ by situations, or by the situational cascades we call narratives. A notion by contrast, contains normative authority; it allows us to compare, evaluate and regulate doings and states of affairs. Rules and laws are notions in this sense. Language, which is thoroughly notional itelf, helps us develop notional systems, accomplish the evaluative tasks of human communities, and adjust existing notions to changing social realities (juridical systems are core examples of this inter-notional regulation). The evolution of a notional level in the human mental architecture is an essential prerequisite for the emergence of ethnic and political cultures, educational routines, and institutions in general. The final stage in semantic integration anchors notionality in the core of the individual subjectivity: the *affects*.[[16]](#footnote-14) Notions integrate to form the semantic ground of human affectivity. All singular affects – moods, emotions, passions – are rooted in agglomerations of notions; the mood called ‘happiness’, traditionally a basic normative motif in political thinking, presupposes notions such as (presence of sufficient manifestations of) Freedom, Justice, Peace, Respect, and absence of Misery and Impotence. An emotion like ‘anger’ presupposes Offense (lack of Respect); ‘fear’ presupposes Danger and Impotence, and so on. A passion like ‘love’ presupposes Fidelity, Respect, Desire, etc. Human aesthetic activity – visual arts, music, dance, theater, narrative and poetic literature – essentially contribute to the maintenance and updating of relations between notionality and affectivity.

A cascade of integrations and degrees of complexity thus takes our conscious awareness from qualia (I) to objects, from objects (II) to situations, from situations (III) to notions, and from notions (IV) to affects (V). Below the level (I) of qualia, and beyond the level (V) of affect, there is *body*, neuronal, hormonal, muscular – so the stratified architecture describes mind in the dual context of its material carrier, situated between *pre-mental* perception and *post-mental* ‘psycho-somatism’.[[17]](#footnote-15) Consciousness is a glade in our opaque bodily being. Fig. 4. Summarizes this analysis.

**Fig. 4. The Mental Architecture of Perceptive Integrations**

Mental spaces, as discussed above, basically represent situational meaning (level III), while allowing background ‘resonance’ from notional and affective meaning to enter the stage. In this sense, our imaginary is basically figurative; our abstract and symbolic thinking in fact figuratively imagines ‘situations’ of interacting symbolic objects (instead of massive, non-symbolic objects), each carrying specific notional meaning.

However, symbolic objects do not emerge from nature;[[18]](#footnote-16) they are produced by cognitively active subjects and thus result from symbolic acts. This implies a complementary aspect of mental architecture, namely the existence of cascades of semantic integrations from level to level that *descend* from level V. The active, *agentive mind* interprets its higher order contents in terms of lower order contents, when it translates, or converts, feelings, ideas, and reactions to things ‘downwards’ into motivated action plans, acts, and motoric events. A symbol is a notion (IV) translated into an expressive object (II) manifested by a graphic movement (I); an icon is an imaginary scene, a scenario (III), translated into an object, a picture (II) manifested by the motion of drawing (I). Subjectivity as *intention* is the descending integration of meanings as a whole; we intend to act, while at the same time paying (ascending) *attention* to the world in which we act, and to the unfolding traces of the act itself.

**Fig. 5: The Mental Architecture of Agentive Integrations**

The ascending attentional flow and the descending intentional flow exploit the same structurally stratified architecture. Ample cross-over connections between the flows are equally happening, as we know from the many individual forms of synesthesia and from the collectively stabilized forms of semiosis (indicated by the dotted green and red lines in figure 5; e. g. symbols: IV –> II; icons: III–>II; deixis: V –> I). The flows and processes of meaning construction are of course much more intertwined, distributed and quasi-holistic than what we have considered in this brief outline; the huge amount of specific partial processes characterizing the human mental architecture is still to be studied in depth and detail. A minor subset of these processes consists of mental space networks; some illustrative examples are given below.

3. Mental space networks.

When we think or communicate, we often use semantic constructions that are networks of mental spaces, and often are combinations of attentional and intentional meanings. The blending model apparently determining a core part of known blending processes is a structural network of five pre-established spaces that humans use as a pragmatic-semantic format for fast and seamless comprehension of different but all important elementary mental operations in meaning production – on a certain level of ‘abstraction’ (III). Let us briefly consider and revisit some classical cases.

3 a. *If I were you…*

P1 is talking to a friend P2 who is in trouble (X) and gives him the advice to do Y. He uses the counterfactual conditional formula (3 a) to perform this communicative act. In P1’s address, delegation goes to a reference space containing P2’s problem (X) and to a separate space containing and presenting P1’s knowledge (Y); the point is precisely that P2 is in trouble because Y is not in his space (i. e. his situation incl. his knowledge). In order for Y to be in the space of X, and not confined to the space of P1’s situation and knowledge, P1 would have to merge with P2. This happens in a third space, created (in English) through the relevance-establishing *IF + Subjunctive* morpheme of epistemic modality signalling the value */impossibility/.*[[19]](#footnote-17)This third space is a counterfactual *blend*, where Y will solve the problem X (by a causal schema making the connection Y–>X relevant) and generate a non-counterfactual valorisation of Y in a speech-act modal mode, equivalent to the message: “I am hereby giving you the advice that you should do Y.” In this sense, the *blend space* issues by local delegation a meaning space, whose content is the pragmatically relevant semantics of the utterance *If I were you*… in the context of the base space.

**Fig. 6: *If I were you…***

This five-space[[20]](#footnote-18) network, as the example illustrates, constitutes a whole of interdependent parts, which yields a generalizable format for certain processes of meaning construction.

3 b. *X is the Y of Z.*

As (3 a) and (3 b) illustrate, and (3 c) will confirm, blends are often predicative: the non-referential input space contains contents that are predicates to core contents in the referential input space. In expressions like: “Louis Armstrong is the King of Jazz”, *the Y of Z* is a predicate to the subject X. However, it is evident that Z and X pertain to the same semantic domain, culture: the realm of jazz music, whereas Y refers to a different semantic domain, national politics: royal dynasty.[[21]](#footnote-19) This network again emphasizes a certain parallelism and consequent mapping between two input spaces, of which one is referential – *Armstrong, jazz* – while the other – *monarchy* – presents a certain perspective on the content of the former. So in the blend, Armstrong “rules” in the land of jazz; this figurative superposition and merger of two activities, one cultural (playing), the other political (ruling), attracts a relevance schema of /qualitative superiority/ and /uniqueness/. Remarkably, this schema does not stem from any accurate historical knowledge of kings; there have been many unworthy rulers, and the notion of ruler does not essentially contain features such as /qualitative superiority/ and /uniqueness/. The evaluative meaning really ‘emerges in the blend’ (in Turner & Fauconnier’s phrasing), in so far as it is rendered stable and operative (‘meaningful’, relevant) by the specific schema, whose structure, I suggest to think, consists of a co-variation: when quality increases, the number of owners of the quality decreases, until only one is left (shorthand: Qn = -f(Ql)).

The schema, binding in our mind to the blend, makes it ‘ferment’ and here yield a meaning space of praise, viewing Armstrong as ‘*the* best’ jazz musician ever. This meaning is what is communicated in the example, if our interpretation is correct. The network described is the following (fig. 7).

**Fig. 7: XYZ. Louis Armstrong is the king of jazz!**

The formula *X is the Y of Z* may be considered a rhetorical figure, since it is a figurative form of praise, blame, or at least of emphatic evaluation in some parameter, and as such is emotionally efficient, and more forceful than would be a literal statement involving a vocabulary of evaluative comparison.

3 c. *Metaphor*.

In metaphor, domain difference between inputs is again decisive; there are two input spaces pertaining to two necessarily different semantic domains.[[22]](#footnote-20) The presentation space has a generic content (cf. the indefinite determiner *a butcher*), while the content of the reference space is either generic or deictic (cf. the definite demonstrative determiner *this surgeon*… in the much debated metaphor: *This surgeon is a butcher*, Brandt & Brandt, 2005).

Animal metaphors are prominent in all human cultures. *Aquilles is a lion*. *Nielsen is a snake*.[[23]](#footnote-21) Different animals are used for different meanings in different cultures; what is transcultural is that these metaphor formulae have morally evaluative meanings for human targets, and that these ‘meaning effects’ cannot be induced directly from the animal species as known zoologically by the culture using the metaphor. The metaphorically obtained meanings are due to specific schematizations binding to specific blends.

To say that animal metaphors are instantiations of a conceptual metaphor HUMAN BEINGS ARE ANIMALS[[24]](#footnote-22) is strictly speaking incorrect; this predicate formula is a theoretical model describing a type of metaphors (apart from describing a biological truth). This type is not itself a metaphor, or a conceptual metaphor, as cognitive jargon often has it. It is at best a hypothesis for useful classification of certain metaphors. The *A IS B* model is insufficient, because it does not take into account the fact that ‘inference’, or meaning production, is not happening by the predicative relation itself, as a regular transfer from B to A (as from surgeon to Jensen in the non-metaphoric predicative statement: “Jensen is a surgeon”.) To believe that meaning production in metaphor is due to ordinary predicative transfer is a serious mistake. The predicative semantics of the domain-different double-space components in metaphor instead brings about a *figurative alienation* of the referential target. It thereby creates a salient figurative instability, hence its potentially idiomatic rhetorical force; this instability is then, as an instantaneous semantic mystery or challenge for the addressee, ‘solved’ by the stabilizing schema that culturally binds to the figuratively unstable, ‘strange’, defigurated, referential target absurdly halfways merging, in the blend, with a domain-different ‘source’ predicate from presentation space.[[25]](#footnote-23) Predicativity in metaphor semantics creates *absurdity*, which triggers a specific schematization.

The snake-in-the-grass examples (see note 23) illustrate the basic principles or properties of metaphor – namely the domain difference, here between natural kinds and interpersonal matters, the schematic import of dynamic-strategic logic, the evaluative meaning effect, and the structural stability of the network itself, which may explain the velocity and smoothness of the processing of these semantic cross-domain predications.[[26]](#footnote-24) The network here suggested is thus the following (Fig. 8).

**Fig. 8: Metaphor. Snakes in the grass**

The performative effect seems to be easily and readily obtained through metaphor. The ‘alienating’ mental procedure of blending entities of blatantly different nature may enhance the expressivity and the salience of the schematic ‘logic’ in the message.[[27]](#footnote-25)

Adherents of ‘conceptual metaphor’ theory tend to think that the link between source and target binds the conceptualizer to structure inherent in the source. As this example illustrates, this is far from being the case (snakes can do many other things in the grass than biting occasionally passing humans); and same source-target links can express culturally different meanings, because the crucial semantic process happens when *a schema binds to the blend*,[[28]](#footnote-26) and the cultural choice of schema is variable. It therefore serves no purpose to just list source-target pairs in the ‘empirical’ study of metaphor; what is important is the study of schemas as such – through culturally interpreted metaphors.

Metaphor, in the conceptual-cognitive tradition, was further supposed to prove a philosophical point dear to empiricism, namely the physicalist idea of unidirectional mappings from the more physically concrete (sources) toward the more immaterial and abstract (targets), which would explain the origin of abstract meaning: metaphor makes the mind abstract… The human mind would primarily perceive physical things and events and then use them as source structure for more abstract targets, and so on. Thereby it would be shown that Locke, Berkeley, and Hume were right: *nihil in intellectu nisi prius in sensu* (in short: perception creates all concepts). However, social experience turns out to be as primordial as physical experience, and even purely mental experience – such as the feeling of the difference between sensing and imagining, and thus, for example, between having and wanting – is probably primordial. Speech act experience (“don’t do this! Don’t do that!”) is as primordial as macrophysical experience (of bumping into tables and chairs, spilling milk, falling, etc.). The domains involved in the recruiting of spaces for metaphor do *not* follow any directional ordering[[29]](#footnote-27); sources can easily be more ‘abstract’ than targets. Abstraction is, as we have mentioned, instead a matter of mental architecture, independent of metaphor. What metaphor *does* or *creates* is not abstraction but schematic foregrounding.

3. d. *Hypothesis*.

When we suddenly stop in our tracks, surprised by an unexpected view, a state of affairs we had thought would be otherwise, we undergo an experience opposing what we indeed see and what we had reasons to believe would be there to see. We are then *surprised*, because the continuity between the past and the present is broken; we do not immediately understand how a known state could become the perceived new state. What we are presented with contrasts what it refers to. There is a mapping between the two states, by sameness and ‘unsameness’, but also a causal gap that makes us wonder and often express a corresponding interrogative attitude. Returning to a familiar place and finding things changed, as Ulysses returning to Ithaca, would be simple example. The superposition of the contrasting states of affairs in a blend will then trigger a call for ‘explanation’ (making ‘plain’ the bumpy discontinuity). Overly easy suggestions, like *ad hoc* magic, will be rejected, and the more critical the cognizer, the more specific the type of causation proposed will be. Once such a hypothetical explanatory schematization is suggested, and a view of the process of change is obtained, it will in general undergo further examination – if schema X is correct, then (by deduction) other facts should be manifest, and if so, then (by induction) these other facts should point to the same explanation, rather than to a different one.[[30]](#footnote-28)

The standard network here takes on its most trivial but still its most important task in everyday cognition and in our narrative life: the ‘making-plain’ of experience by filling the causal gaps, thus yielding the impression that the lifeworld is somehow, in principle, homogeneous and ‘rational’, causally coherent, despite its contingencies and dark spots.

Once a causal schema is actualized, a new ‘running’ of the network with new inputs may successfully show that the hypothetical explanation is not entirely *ad hoc*, since the same schema is recognized as being at work in different contexts. The most evident example may be the analysis of a metaphor (with a strange and surprising source), elicing a hypothesis about the schema that would make it signify what it does signify in its (base space) context. Then that schema in turn calls for examination as to its inner consistency and its possible efficiency in other semantic compositions.[[31]](#footnote-29)

The essential effect of a hypothesis is to offer a construal of a *change* in terms of a causally acceptable *transition*. Still, causal acceptability is insufficient for explanatory acceptability, hence the epistemic process following the hypothetical stage toward establishing a belief. The network of hypothesis suggested is the following (Fig. 9).

**Fig. 9: Hypothesis. What on earth is going on here? Could it be…X? Or Y?… Or…**

The subjective (emotional) state of cognitive *surprise* contains as such a contrast between two spaces, corresponding to the brute experience of change, as shown (fig. 9), and it starts a network, when the problematic superposition of the two contrasting versions of a state of affairs, one expected and one unexpected but perceived, is bridged by a causal schema. The hypothesis, in the meaning space, is the result of the application of this schema to the unstable blend. Since many different schemas may occur alternatively in the same position of ‘stabilizer’, a hypothesis is often surrounded by other hypotheses (stacked in base space).

Surprising and intriguing experiences are favorite topics in human communication; the exchange and evaluation of hypotheses is therefore a standard game in dialogue (“Why this? – Why that?”). It is easy to see that the network of *hypothesis* is a special case of the network of *comparison*; the latter is already a favorite topic in conversation.[[32]](#footnote-30)

3. e. *Agency.*

As we have seen above (section 2), the point of mental representation is to allow us to use the same mental architecture, and thus the same representations, in both directions, for semantic interpretation of what we sense, and for our planning and monitoring of intentional, voluntary action.[[33]](#footnote-31) The famous *source-path-goal* schema[[34]](#footnote-32) is really a representation of – perceived, planned, or monitored – voluntary action.[[35]](#footnote-33) The semantic set-ups for voluntary action are *telic*, i.e. they are completed when a represented goal state is reached, and they are started when a represented initial state is represented. They therefore necessarily contain a mental space for the desired terminal (goal) state, established by a *desire* (“dream”) delegation, and a mental space for the current, initial state of affairs; the dynamic, causal-intentional[[36]](#footnote-34) schema representing anticipated obstacles and overcomings is what makes a trajectory from the initial state to the terminal state relevant as a *project*.

**Fig. 10. Agency**

In the ‘Existing state of affairs’, there may already be a story of *change* (as in 3 d), yielding an embedding of network in network, and allowing a transfer of subject from experiencer to potential agent, and even a transfer of schema, if the goal is to revert to an unchanged situation. (The slash on the dotted mapping line indicates the desired contrast, or ‘unsameness’ that animates any project). The motivation for a project is ‘to make a difference’. Change the world on some point.

4. Conclusion

This presentation and discussion of mental spaces, blending, and mental architecture offered a summary of preliminary results of a cognitive-semiotic approach to analysis and theory of (some aspects of) meaning production. We have considered five prominent cases of such production and thereby illustrated a model that allows analysis to be theorized in the framework of a more general, and hopefully more realistic, view of consciousness and meaning.

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1. Why would the here-and-now ‘real space’ be a mental space at all? Because we have to mentally represent this part of the real universe, that is, represent it as a real-situation space, in order to be able to perform the mental operation of transporting entities between distinct ‘contexts’ – and in this example, to enjoy the interpretation according to which a baby could be elected as a president… [↑](#footnote-ref--1)
2. Fauconnier & Sweetser (1996) is a first example of this fruitful new approach. [↑](#footnote-ref-0)
3. In many languages, the P2 pronoun *you* (or a corresponding morpheme) is used impersonally: “If you ever go to Copenhagen, you should have a beer in Nyhavn…”; *you* is the standard delegate – as is the German *man* – allowing reference to the ‘offline’ part of experienceable reality that we call the ‘world’. [↑](#footnote-ref-1)
4. Thom (1972) initiated a new approach to dynamical phenomena in science and in the world of experienced meaning; Petitot (2011), Wildgen (1985) and Brandt (1992) have explored a range of domains where Thomian ‘catastrophe theory’ applies and opens unexpected horizons; there is now a considerable amount of literature on the subject – an explorable source of reflection for cognitive and semiotic researchers. [↑](#footnote-ref-2)
5. See “Evidentiality and Enunciation”, Brandt (2004b). [↑](#footnote-ref-3)
6. Sweetser’s (1990) term ‘root’ modality refers to the expressions of modal dynamics understood as physical force; she writes: “Let us view *can* as being the equivalent of a full gas tank in a car, and *may* as the equivalent of an open garage door.” (P. 53). According to Talmy – but not to Sweetser (idem) – the physical meaning of modality would be the ‘root’ of all possible modal meanings, whether social, epistemic, or speech act… So Sweetser keeps the term as a tribute to her colleague. [↑](#footnote-ref-4)
7. How can mental spaces be ‘shared’ at all? Well, this is what this entire project is about. Here are two principles for a starter: Firstly, we are set up to organise meaning of a certain complexity in spaces that are fit for representation and memory, and we are set up to immediately refer to that format in communication with other minds by language and other semiotic means; secondly, all semiotic means of communication, including music, contain instructions for filling certain spaces with certain contents. [↑](#footnote-ref-5)
8. Brandt & Brandt (2005). [↑](#footnote-ref-6)
9. This statement may need some explanation. A mental space is not a sum of contents but a spatio-temporal format in its own right, which can be held while contents change. As such, a temporal minimum for conceiving of a mental space may correspond to the temporal frame of basic situational consciousness, approx. 3 seconds, according to neuro-psychologist Pöppel (1997). The situational content of course comes with its own temporal horizon, sometimes experienced by projected presence, protention, retention, and other Husserlian properties (Husserl 1980 (1928)). This difference between the involved temporalities makes it possible to voluntarily ‘hold’ a space while filling, emptying, or changing its content: we may control and monitor the format while we let the content of the format flow on its own terms. [↑](#footnote-ref-7)
10. Alan Baddeley’s (2007) models on working memory may be useful for understanding the role of represented content in on-line phenomenology of perception. The mental space networks may be among the devices connecting the ‘central executive’ to his ‘slave systems’. There is much to discuss here. In general, memory research will hopefully be better connected to phenomenology in the future. [↑](#footnote-ref-8)
11. See Sweetser, “Mental Spaces and the Grammar of Conditional Constructions”, in Fauconnier & Sweetser (1996). [↑](#footnote-ref-9)
12. Without a discussion of the status of mental spaces in mental architecture, we would miss the opportunity to study their possible ‘density’ and phenomenological consistency. We would run the risk of getting convinced that a *blue cup* is a result of blending a space of ‘blueness’ with a space of ‘cupness’. Such an understanding of mental space semantics is just guided by lexicon (‘blue’, ‘cup’) rather than by any consideration of space building or delegation – P2 cannot be sent to ‘blueness’. There is no such type of space delegation. In an early critical note, Line Brandt (2000) writes: “Some theorists sometimes tend to forget that blending is a process that takes place at the conceptual level of consciousness and thus applies to *conceptual* phenomena and not to basic phenomenology of *Gestaltung*. In such moments of overgeneralization, conceptual integration theory is also claimed to explain phenomena such as identity and the capacity to perceive a blue cup (i.e. to perceive a cup as blue), a claim which in my mind has come to be characterized as 'the blue cup fallacy'.” This example refers to Fauconnier & Turner (1999). To my knowledge, this is the first criticism of the arbitrary use of the notion of mental space in Fauconnier & Turner. [↑](#footnote-ref-10)
13. See Brandt (2006). [↑](#footnote-ref-11)
14. Brandt (2007) discusses corresponding levels of selfhood and subjectivity in consciousness; please note that mental architecture (of phenomenal objectivity) and hierarchical subjectivity partly overlap but do not coincide. [↑](#footnote-ref-12)
15. Classical gestalt phenomenology knows that we perceive object relations. My point is that we do perceive object constellations as dynamically constituted even when we still are not able to specify the dynamics, which appears in an underdetermined way; we will then further question its causal schematisation. [↑](#footnote-ref-13)
16. This idea – that notions finally feed into affects – is of course based on elementary emotions: surprise presupposes expectations, grief presupposes loss, etc. In these examples, affects are semantically loaded. There are of course simple affects, like fear, that are triggered by reflex reactions to qualia and objects, or by nothing at all; and even idiots can be ‘happy’, without having to juggle with a lot of political philosophy… The ‘higher’ levels are cross-connected to ‘lower’ levels in many ways. Genetically, there may have been just one level, then a bifurcation qualia/affect, then further branchings that nevertheless keep the former direct connections alive. [↑](#footnote-ref-14)
17. Affects in fact affect, or impact, our body; *stress* would be a good example. You are persecuted by deadlines, and you end up with fatigue and depression, or worse. [↑](#footnote-ref-15)
18. An example would be Barry Smith’s (1996) analysis of boundaries: *bone fide* boundaries interpret natural differences (rivers can be country frontiers), whereas *fiat* boundaries are projected onto an undifferentiated natural support (frontiers as lines drawn in the sand). [↑](#footnote-ref-16)
19. The conjunctional morpheme *if* creates a space delegation by epistemic modality, signalling either /possibility/ or /impossibility/. This is the case both in interrogative and in conditional grammatical constructions. [↑](#footnote-ref-17)
20. The component called Relevance is not, strictly speaking, a mental space, since its content does not necessarily appear in the consciousness of the involved subjects, as do the other components of the network (by introspection; still, admittedly, many subjects deny their own introspection). In the example, modal delegation and causal relevance are implicit but indispensable operations in the process. The Relevance is an open collection of schemas imported from the Base space, which is a multi-layered source of such schematic contributions (specified in Brandt & Brandt, 2005). They can stem from the dialogue itself, from the narrative context of the communication, from the cultural background (as ‘common ground’), or from the naturally shared cognitive competence of human minds trained by experience in life-world. In analysis, we track and infer the implicit schematic stabilizers of a blend ‘backwards’ from the result, that is, using our human capacity to understand the meaning-making intended and often achieved by the utterance. [↑](#footnote-ref-18)
21. Searching the internet for “the king of” or “the queen of” formulae will give you an impression of the popularity of this evaluative construction. Note that the domain difference is crucial to the evaluative meaning of the construction. *So Peter is the father of Mary* is not to be considered as a blend, and it is certainly not the case that *Peter* and *Mary* are in one space, while *father* is in the other space – such a conception (Turner & Fauconnier, 2002) confuses the grammatical construction with the semantic operation we are considering, and it entirely disconsiders the phenomenological semantics of mental spaces, which do not separate “values” and “roles” as a formal analysis of propositional structure may do. By contrast, *father* is in the non-referential presentation space in “George Washington is the father of our country”, because the speaker is not believing in G. W.’s literal fatherhood in relation to a country; the blend instead binds to a schematic notion of founding. – On the notion of *domain*, see Brandt (2004a). George Lakoff refers to domain difference in his conceptual metaphor theory, where the format A IS B (“LOVE IS A JOURNEY”) presupposes that the domain of target A (referential, in our terms) and the domain of source B (presentational, in our terms) must be different. Lakoff’s problem is that he does not explain or even explore the domains of human and lexicographically relevant experience. His theory has essentially just a physical domain, source of all sources (B) and everything else, target (A). This physicalism is contradictory to both empirical metaphor studies and general phenomenology. [↑](#footnote-ref-19)
22. Since morphemes, i.e. closed-class words, are indifferent to domain differences, they cannot work metaphorically. So “Jensen is on drugs”, or “Petersen is in love” do not use *on* end *in* metaphorically, as conceptual metaphor theory claims. These prepositions work in any domain, because they refer to *schematic* structure, not to *categories* in *domains*. Thus, *on* signifies a relatively ‘flat’ situation that you can get *off* under certain circumstances, whereas *in* signifies a relatively ‘deep’ situation, not so easy to get *out of*. Again, here, ‘flat’ and ‘deep’ are not physically spatial but schematic structures that work in imaginary spaces of many kinds, because they relate to mental graphics – the way we think by mental diagrams. [↑](#footnote-ref-20)
23. The grammatical manifestations of metaphor are variable – *predication*: “That guy's a real snake in the grass, don't waste your time.” Or *substitution* of the noun phrase: “How could I ever have trusted that snake in the grass?” Here, *that*… is deictic, whereas *snake* is generic, within the same noun phrase. The generic mode is explicit in the following, contextualized example: “Hear that rattle, fear that hiss /  
    Beware of the Judas kiss / Watch your step, cover your back / Can't trust *a snake* in the grass.” [From a Jedd Hughes song about a female seducer]. [↑](#footnote-ref-21)
24. Wei & Wong (2012). Besides, human beings *are* animals. No domain difference. [↑](#footnote-ref-22)
25. ‘Source’ and ‘target’ are therefore very unsuitable terms for the input components to this process. [↑](#footnote-ref-23)
26. If the networks were as unstable and irregular as those proposed by Fauconnier & Turner, processing and thus interpretation would be slow and uncertain, and the communicational value of such compositions would be null. [↑](#footnote-ref-24)
27. The principle may be the following: Since we cannot express a schema without investing it with categories, which then hide it in their figurativity, a strategy of anti-figurative superposition of figurative categories in turn gives the schema a chance to be foregrounded. [↑](#footnote-ref-25)
28. All blends have to be stabilized by some schema, otherwise they are almost immediately dissolved (dismissed) – the mind does not ‘get the point’ and decides to forget the nonsense. So the schema is decisive to the possible meanings of a metaphor, and to misunderstand a metaphor is to apply a culturally ‘wrong’ schema to its perceived blend. Metaphors therefore are good detectors of schemas. [↑](#footnote-ref-26)
29. So biologists will say that the immune system ‘recognizes’ a pathogen, but without having to believe that immune systems have thinking minds capable of recognition. They have to use metaphor – even so often that it becomes unnoticeable to themselves. [↑](#footnote-ref-27)
30. Niño’s important study of C. S. Peirce’s notion(s) of abduction through the American philosopher’s entire work proposes a basic view of the connection between abductive, deductive, and inductive thinking, in this order, roughly corresponding to the perspective on hypothesis proposed here (Niño 2008, 2012). [↑](#footnote-ref-28)
31. Causation is cognized by an open family of schemas: ‘billiard-ball causation, causation by ‘spreading’, by the dynamics of ‘making’, or that of ‘letting’, etc. See Brandt (2004a). [↑](#footnote-ref-29)
32. I am referring to conversations like the following. A: I experienced X and was astonished; B: It reminds me of Y, which was due to Z; A: So maybe X could also be due to Z… The network would take X and Y as inputs and try Z as a schema for the blend. [↑](#footnote-ref-30)
33. In Brandt (2004a), the analyses of causation and action are connected in one narrative unit comprising two networks, one embedded in the other. Likewise, (3 d) and (3 e) allow such embeddings, which interestingly often imply a sharing of causal schemas – doing something and then undoing it is a clear case of causal schema sharing or reuse (if the causal schema is reversible). [↑](#footnote-ref-31)
34. See Tencheva (2012). [↑](#footnote-ref-32)
35. Mirror neurons in our motor system are known to react to perceived, imagined, and planned acts and agency. See Rizzolatti & Sinigaglia (2008). [↑](#footnote-ref-33)
36. Intention does not simply ‘intend’ to move along a path, but instead to search for its inherently represented goal state while accepting various paths, depending on the (causal) resistance they offer to the ‘intent’ to move toward the goal state. The ‘source-path-goal’ schema is therefore really a force-dynamic schema, unless that schema describes a ritual process, a ceremonial act (where the path is indeed important, and its completion constitutes a goal in itself). [↑](#footnote-ref-34)