

Determining the boundaries of “Agent-hood”: the role of Control-Asymmetry

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The problem. Within linguistics, *agency* is observed through the semantic role of the *agent*, a role normally associated with conceptual functions such as willful undergoer of an action e.g. Ana in “Ana runs”, or as actor in a causal event e.g., Ana in “Ana broke the vase”. Indeed, the standard diagnostic for “agency” is the felicitous use of adverbial modifiers such as “voluntarily” or “on purpose”, making salient the volitional engagement of the participant in the action. Whereas semantic roles are said to be licensed by specific predicates, the felicitous assignment of the role involves also the properties of the referent that bears the role. Consider the following sentences:

1. (a) Ana came in to the room and broke the vase (on purpose/voluntarily)
- (b) The ball went through the window and broke the vase (*on purpose/voluntarily)
- (c) The wind violently opened the door and broke the vase (*on purpose/voluntarily)

Whereas in all three sentences an individuated entity associated with the subject acts on the vase causing the vase to change state to ‘broken’, only in (1.a) can the semantic role of ‘agent’ be felicitously assigned. Inanimate entities “the ball” or natural forces “the wind” can participate in those events yet they fail the diagnostic test, suggesting instead that agent-hood assignment may not be categorical but a matter of degree (e.g., Grimshaw, 1990, Jackendoff 1990, Levin & Rappaport-Hovav, 1995). Consider also (2) below:

2. (a) The girl rode from Boston to New York (on purpose/voluntarily)
- (b) The bus rode from Boston to New York (*on purpose/voluntarily)

Here again only in (2.a) can agency be assigned to the NP subject even though in both cases the same change of location obtains. The difference is due to our expectation that an *agent* is a participant that is willfully performing the action in question, and not just undergoing the change of location. And this is independent of animacy. For example, in (1.a) above “Ana” would not be labelled an “agent” if she were to break the vase inadvertently. Predicates of possession offer yet another interaction with agent-hood. Consider:

3. (a) The girl owns/has a dog
- (b) The dog belongs to the girl

The possessors in both (3.a) and (3.b) fail the ‘agent’ diagnostic e.g., “?? The girl owns the dog on purpose” or “?The dog purposely belongs to the girl”. That is because predicates of possession are stative in nature and the “on purpose” adverbial takes events as its arguments. Yet for some possessor-possession relations, particularly those involving alienable possession with a human possessor, volition of the kind present in standard agents *is* observed. This is evidenced in the alienable vs. inalienable contrast: “The girl chose to have a car” vs. “??The girl chose to have a spleen”. Even though in both cases possession is observed, in the second one the will of the possessor appears relevant to the truth of the prejacent [girl have car] thus indicating a kind of agency on the part of the subject NP referent.

So, on the one hand the role of *agent* appears intuitive and categorical and on the other its “boundaries” of assignment are elusive. This is seen in assignments that appear viable but are not warranted e.g., causatives with inanimate subjects, and in assignments that appear nonviable but are warranted e.g., possessors in alienable possession constructions. The overarching observation is that agent-hood assignment is not categorical, but resulting from the convergence of diverse factors some of them gradient. At the same time historically, agent-hood has played a key role in most theories of argument structure linking, where it has been used as the baseline against which all other semantic roles e.g., experiencer, source, patient, theme etc... are defined (e.g., Bresnan & Kanerva, 1989; Chomsky, 1981; Grimshaw, 1990; Jackendoff 1990, 1997). What is needed then is a *unified conceptual model from which we can predict the argument structure-syntax linking regularities observed without having to give up the intuitions underlying “agent-hood” that gave rise to it in the first place.* That is the aim of our proposal.

The proposal. We argue for a model of conceptual organization whereby our perception of agent-hood, and consequently the role that we assign to participants in an eventuality is an emergent effect resulting from the interaction of two factors: perceived or expected control-asymmetry and connectedness between participants in a situation. We call the space that the factors parametrize, the Multidimensional Space Model (MdS Model) (Piñango, 2019): Control-asymmetry and connectedness organize semantic memory, a long-term episodic memory space of storage, generalization and evaluation of situation-episodes: time/space-stamped percepts involving individuated entities.

Control asymmetry has its roots in asymmetric force dynamics. It refers to the degree to which one entity is endowed with the potential to decide on the fate of another. Given two entities in a situation, high control asymmetry signifies an expectation of large power asymmetry between two entities. Low control asymmetry signifies little or no perceived power differential between two entities (e.g., Klein & Perdue, 1992, Talmy, 2000, Piñango, 2019). From less to more asymmetry: two wheels of a car → a car and a ball → a person and a car. **Connectedness** refers to the degree to which participants in a situation are functionally part of each other such that pulling them apart would risk their ability to function e.g., from less to more connectedness: a person and their incidental location → a student and her school → a person and her house → a person and her hair → a person and her brain.

We argue for the validity of the model by showing how it solves the “many-meanings” problem associated with English *have* previously claimed to resist generalization (Zhang, 2021): whereas prototypically, *have* can be used for a possession interpretation, however, even within possession, further contextualization reveals both alienable (Ana has a car) and inalienable (Ana has a liver) possession readings on the one hand, and coincidental (The maple tree has a car under it) and non-coincidental location (The maple tree has a nest in it) on the other. The parametrized space allows an account whereby possession can be captured as involving location coincidental or not along various degrees of control asymmetry. In this way it unifies into one meaning space cognitive constructs previously thought to be categorically distinct: existence, location, alienable and inalienable possession. Finally, we present behavioral (questionnaire) and neurological (fMRI) evidence for the sensitivity of the brain to the changes in interpretation of English *have*, from possession to location readings, as a function of changes in the control asymmetry between participants; that is, within the same predication space.

On this view, whether a possessor in an alienable situation such as “Ana has a car” can be referred to as an *agent* of possession, is not relevant, what is relevant is that being the controller of the car gives Ana *agent*-potential. Within the traditional semantic role system, such potential which is part and parcel of our understanding of *agency* would remain unacknowledged along with our expectations of the possible “agencies” that, as a result, Ana can exert with respect to the car: sell it, destroy it, give it away, modify it somehow. And crucially, these are *relational* expectations, that modulate interpretation at the larger discourse context of the sentence. The sense of agency does not arise in low control-asymmetry cases such as “Ana has a spot” (low connectedness) (as in Ana occupies a spatial extent by virtue of her existence), or “Ana has a brain” (high connectedness) where there is no expectation that she is able to control either in any way.

This approach to agenthood naturally captures the composite and gradient-like nature of agency: The best “agents” are those that can exert high control asymmetry and low connectedness e.g., a human and an inanimate entity that is also functionally disconnected from it. It is this configuration that specific linguistic predicates leverage. As the relative control asymmetry relation of the participants change, the potential for agency changes accordingly. Therein lies the gradient nature of the agent-hood property.

We conclude that by understanding agenthood as the result of the interaction of control asymmetry and connectedness we are able to maintain the intuition of a prototypical agentive situation while allowing for the shared properties of other *agent*-y situations not as exceptions, but as natural products of the continuum of a parametrized meaning space.

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