

# Why Inner Speech Is Agentially Diminished

## 1. Introduction

Inner speech (IS) is the phenomenon of speaking silently to yourself. It is used for a wide variety of purposes, from problem solving, regulating one's behavior, to making a birthday wish. Inner speech is gaining traction as an object of scientific and philosophical inquiry, and one increasing tendency is to assume that IS is best explained by analogy with outer speech (OS). In this paper, I present the continuities between IS and OS. I then present their (less discussed) discontinuities and I argue that IS is agentially diminished. I finish by presenting two ways the explanation of this agential diminishing can take.

## 2. Continuities

IS has been argued to be *functionally* continuous with outer speech. This is a key claim of 'the activity view' of inner speech, defended by Martínez-Manrique & Vicente (2015). The view stresses the fact that IS is used for the same situations we use OS (motivating, encouraging, asserting, asking questions, etc.) and argues that, methodologically, IS and OS should be seen as the same phenomenon taking place. This view is influenced by Lev Vygotsky's (2012/1934) theory of IS, which postulated a *developmental* continuity. The theory describes IS as a result of internalization of the overt linguistic exchanges with others: children first learn a public language (they learn the meanings of words and what they can do with them) and then they learn to deploy all these functions internally.

Lastly, the Productive-Predictive model of IS (Tian & Poeppel, 2012; Loevenbrück, 2018) postulates a *mechanistic* continuity. The model describes IS as the output of an OS production process with the difference of inhibiting its articulatory execution. In the model, the articulatory commands nonetheless issue predictions of how the speech is going to sound, which then become conscious and constitute IS's auditory feel.

## 3. The Discontinuities

### a. Imagery

An important but often overlooked difference between IS and OS is what they are 'made of'. OS is made of sound waves created with the respiratory, laryngeal and articulatory muscles, but IS is the recreation or simulation of those sounds; it is made of *imagery* (typically, auditory). The Productive-Predictive model states that the imagery constitutive of IS is generated by the motor

control system in the form of predictions. However, there is evidence for an alternative route that can produce IS (but not OS) that, instead of relying on motor simulation, retrieves the speech imagery from the memory systems. This is the ‘memory-retrieval stream’ (Tian & Poeppel, 2016; Nalborczyk, 2023), and it will become relevant later.

### **a. Agency**

A second discontinuity, I now argue, regards the level of agency: the agency—present and expected—in OS seems to differ from the agency—present and expected—in IS. In OS, our utterances are typically under our controlled initiation, guidance, and termination. What we utter overtly typically responds to an intention of expressing *that*. However, what we say in IS does not always respond to intentions in the same way. Some *prima facie* reasons concern the presence of an interlocutor. When speech is interpersonal, a number of control pressures are in place: utterances must be controlled for the sake of turn-taking, and they must be felicitous (e.g., respect the Gricean maxims) and acceptable (not violate any social rule). Since in IS there is no other interlocutor, all these control pressures drop.

However, not only OS does not *need* this sort of control; OS is generally thought to be *reluctant* to being controlled in this way. If we assume that for a relevant portion of the population, some thoughts come in inner speech, then important strands of the philosophical and psychological literature support this claim. The literature on mind-wandering and spontaneous thought more generally (Irving, 2016; Smallwood & Schooler, 2015) depicts an important percentage of our mental life as ruled by spontaneity (thoughts appearing ‘out of the blue’). Additionally, this ‘passivity’ of thought is central in theories of mental action. The widespread diagnosis is that, in mental actions such as trying to remember a name or making an inference, the thought containing what is recalled or concluded does not seem to be something you can produce strictly intentionally (Strawson, 2003, Mele, 2009); “Either the content pops into the mind, so to speak, or it does not” (Proust, 2013, p. 159). Lastly, some important instances of OS are characterized by being uncontrollable for the subject in a distressing sense: intrusive thoughts, ruminations and obsessive worry are some examples, all of which sometimes take the form of OS (e.g., Makovac, 2018).

## **2. Two Explanations of the Agency Discontinuity**

### **4.1. An alternative but complementary mechanism**

A first plausible explanation is that, additionally to the 'speaking' network (the network of the Productive-Predictive model shared with OS), the less agential episodes of IS rely on a 'hearing' network, and the extent to which each of the networks participates determines the level of agency of the episode. The 'hearing network' can give rise to IS, not OS, and this explains the discontinuity. This idea is nicely complemented by the studies on the memory retrieval stream (see 3.a.), and partially supported by the (scarce) evidence showing that more spontaneous kinds of inner speech do not rely (Hulburt et al. 2016), or not as strongly (Kühn et al. 2014), on the areas postulated by the Productive-Predictive model.

#### **4.2. Automatization of speech production**

A second option is to grant that there is only one mechanism producing OS and IS but to argue that it runs in a highly automatized manner when innerly deployed. Lack of prior intentions (Searle, 1980), passive acquisition (instead of active forming) of intentions (Mele, 1992), or habit are all ways an action might become more automatized. However, inner speech has an additional source of automatization; contrary to OS, where the speech plan and the speech act are separated by motor execution, in IS, any given speech plan *automatically* begins to generate the predictions that constitute the speech imagery, and hence, the IS itself.

### **3. Conclusion**

Whether under explanation 1 or 2, understanding the agential diminishing of inner speech can be a promising approach to understanding how thoughts (be they ordinary or pathological) are produced.

## Bibliography

- Loevenbruck, H., Grandchamp, R., Rapin, L., Nalborczyk, L. Dohen, M., Perrier, P., Baciú, M., Perrone-Bertolotti M. (2018). A cognitive neuroscience view of inner language: to predict and to hear, see, feel. In Langland-Hassan P. and Vicente A. (eds.) *Inner Speech: New Voices*. OUP.
- Hulburt, R., Alderson-Day B., Kühn S., and Fernyhough C. (2016) Exploring the Ecological Validity of Thinking on Demand: Neural Correlates of Elicited vs. Spontaneously Occurring Inner Speech. *PLoS ONE*, 11(2).
- Irving, Z. (2016) Mind-wandering is unguided attention: accounting for the “purposeful” wanderer. *Philosophical Studies*, 173(2), 547-571.
- Kühn S., Fernyhough C., Alderson-Day B. and Hurlburt RT.,(2014) Inner experience in the scanner: can high fidelity apprehensions of inner experience be integrated with fMRI? *Front. Psychol.*, 5 (1393).
- Makovac E., Smallwood J., Watson D. R., Meeten F., Critchley H. D. and Ottavani C. (2018) The verbal nature of worry in generalized anxiety: Insights from the brain. *Neuroimage: Clinical*, 17, 882-892
- Martínez-Manrique F. and Vicente A. (2015). The activity view of inner speech. *Frontiers in Psychology*, 6(232), 1-13.
- Mele, A. (2009) ‘Mental Action: A Case Study’, in O’Brian, L. and Soteriou, M. (eds) *Mental Actions*. OUP, 17-38.
- Mele, A. (1992). *Springs of action: Understanding intentional behavior*. Oxford University Press.
- Nalborczyk, L., Longcamp M. Bonnard M., Serveau, V. Spieser, L. and Alario F.-X. (2023) Distinct neural mechanisms support inner speaking and inner hearing. *Cortex*, 169, 161-173.
- Proust, J. (2013). Mental Acts as Natural Kinds. In *The philosophy of metacognition: Mental agency and self- awareness*. OUP, 148-167.
- Searle J. (1980). The Intentionality of Intention and Action. *Cognitive Science*, 4, 47–70.

Smallwood, J., & Schooler, J. W. (2015). The science of mind wandering: empirically navigating the stream of consciousness. *Annual review of psychology*, 66, 487–518.

Tian X. and Poeppel D. (2012). Mental imagery of speech: linking motor and perceptual systems through internal simulation and estimation. *Frontiers in Neuroscience*, 6.

Tian X., Zarate D. and Poeppel D. (2016). Mental imagery of speech implicates two mechanisms of perceptual reactivation. *Cortex*, 77, 1-12.

Vygotsky L. (2012/1934) *Thought and Language*. MIT Press.