*Slicing work smaller — or "putting the 'micro' in microwork"*
Concurrent with the body of work on the complexity of crowdsourcing has been a thread of work exploring the decomposition of work. In this section we'll discuss some of the approaches and the results the crowdsourcing community have taken from their work. Then, as previously, we'll discuss some of the findings that piecework research has yielded. Finally, we'll discuss similarities and differences between crowdwork and piecework, and how crowdwork's limitations and potential differ from piecework's.

*Crowdwork's perspective.* **The research on crowdwork and decomposition has generally driven toward finding new ways to strip unnecessary context from work, allowing tasks to be broken down into smaller parts.** As Verroios and Bernstein frame it, "the crowd must be able to act with global understanding when each contributor only has access to local views" [10]. Researchers have thus investigated the role of distributed, contextually independent work in the contexts of collaborative writing of various forms, software development, classification, and myriad other purposes [9, 1, 2, 8, 3, 4].

**One of the emergent properties of micro–tasks has been the relative cost of *finding* worthwhile tasks.** The research community has documented and to some extent attempted to intervene in the discovery of worthwhile tasks [5]. Cosley et al. attempts to address this by directing workers to tasks through "intelligent task routing" [6]. Much of this work and the work at the periphery of this space, then, has focused on minimizing the amount of time that people need to spend doing anything other than the work for which they are paid.

*Piecework's perspective.* The beginnings of systematized task decomposition stretch back as far as the 17th century, when Airy employed young boys at the Greenwich Observatory who "possessed the basic skills of mathematics, including 'Arithmetic, the use of Logarithms, and Elementary Algebra' " to *compute* astronomical phenomena [7]. Airy's tasks were unique at the time for several reasons:

1. each task was quickly verifiable by a qualified [human] computer,
2. tasks were discrete — independent from one another, and
3. knowledge of the full scope of the project — indeed, knowledge of anything more than the problem set at hand — was wholly unnecessary.

*What's changed.* [al2: todo]

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**PARAGRAPH GRAVEYARD**

The finding here is that crowdwork can be more carefully micro–managed than piecework could be, and that this is a double–edged sword: we can effectively give feedback to workers on everything they do, but this is emboldening us to try to over–manage workers just as piecework tried to do.

My goal for this section is to make two points:

1. show how this is related to the assembly line and scientific management, and how piecework literature tried to measure everything, but found it untenable given the extra equipment that was necessary (but generally which didn't exist) to track every movement and action that workers took.
2. show how this work was enabled by the "verifiability" of work output(?)